ATTACHMENTS

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Attachment I

Geologic Sections

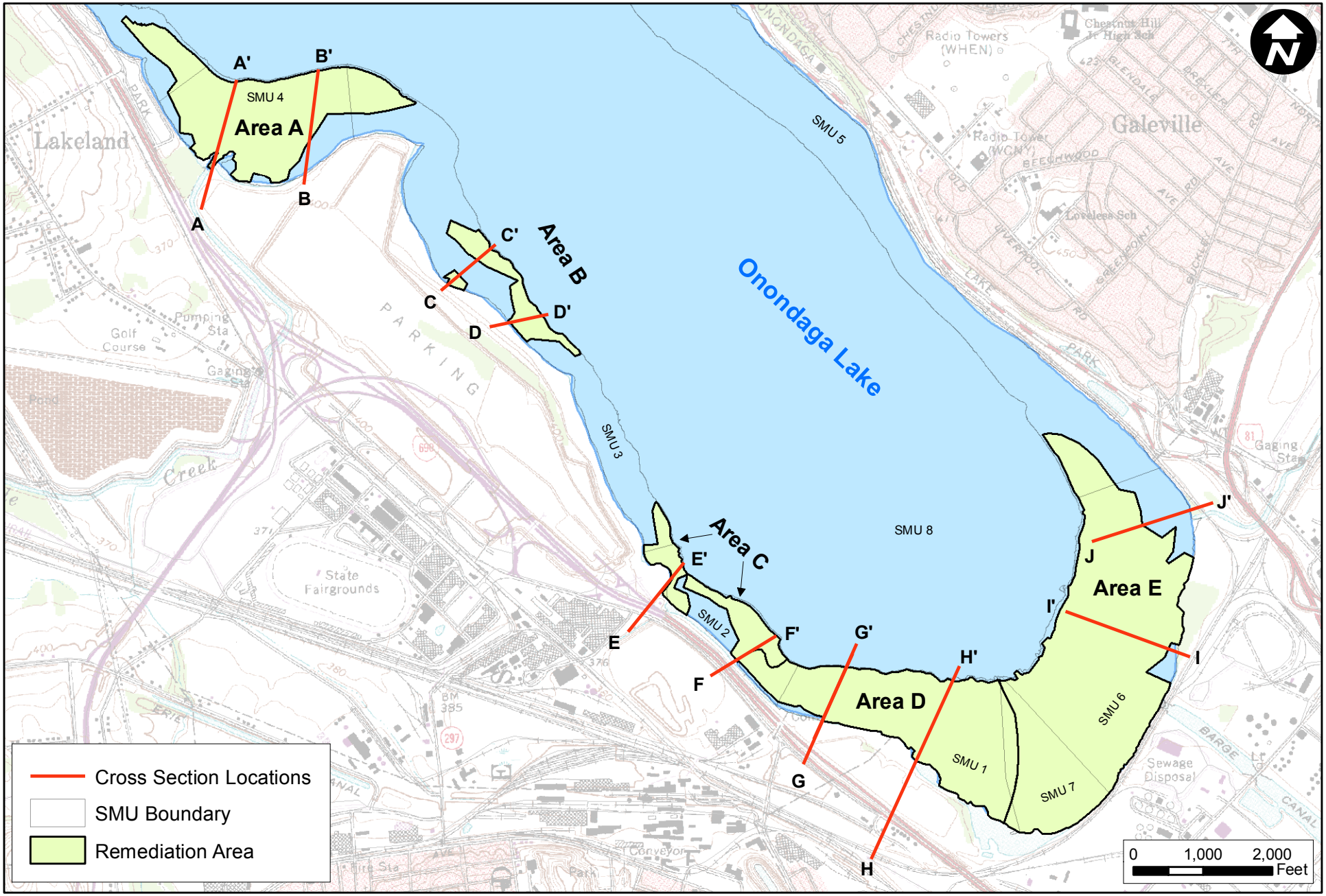
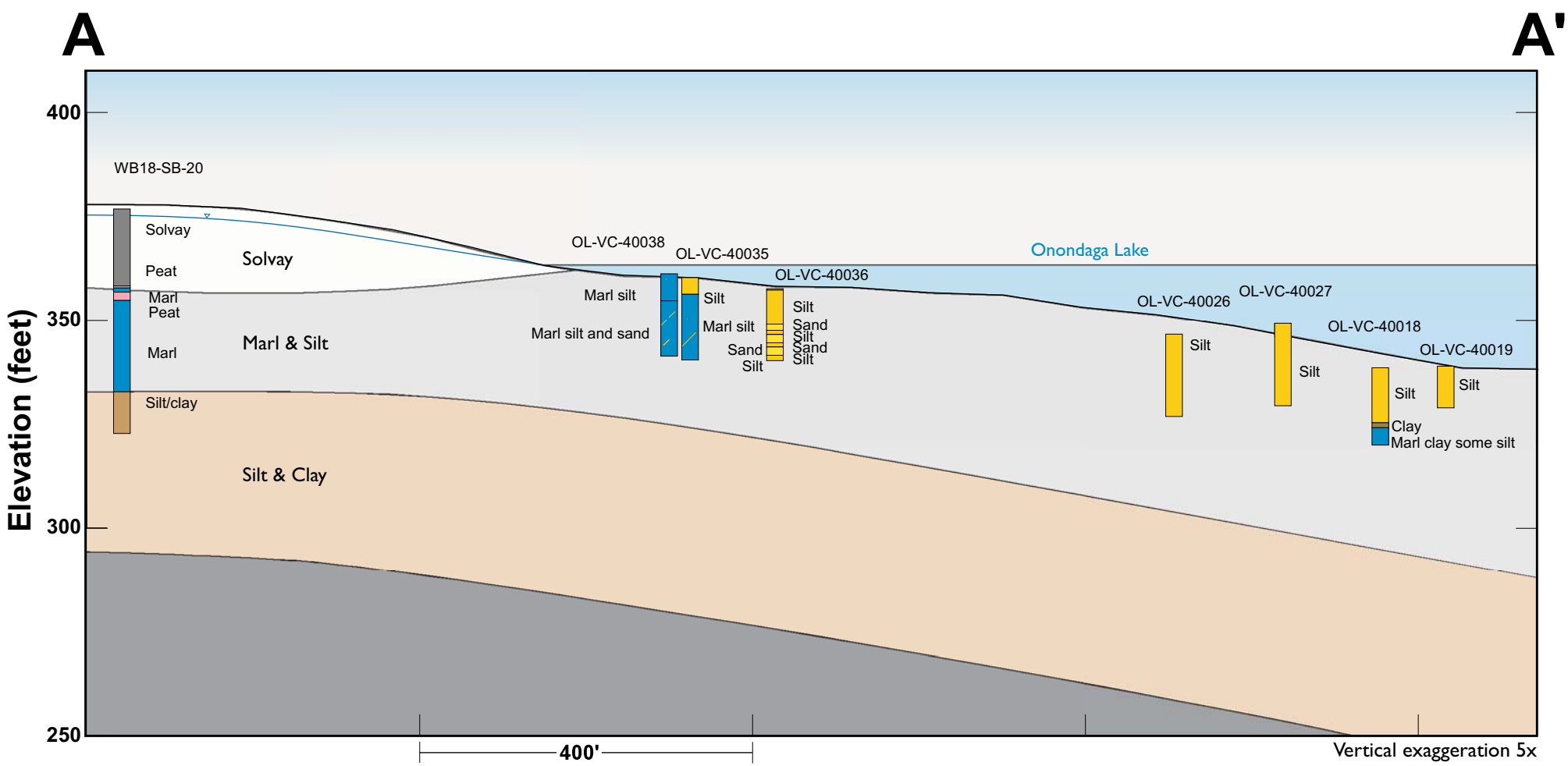


Figure I-1 Cross Section Location Map



Note: The contact between the Marl and the underlying Silt/Clay unit is based on borehole data outside the cross section trace and the regional geologic conceptual model.

Figure I-2 Remediation Area A - Hydrogeologic Cross Section A-A'

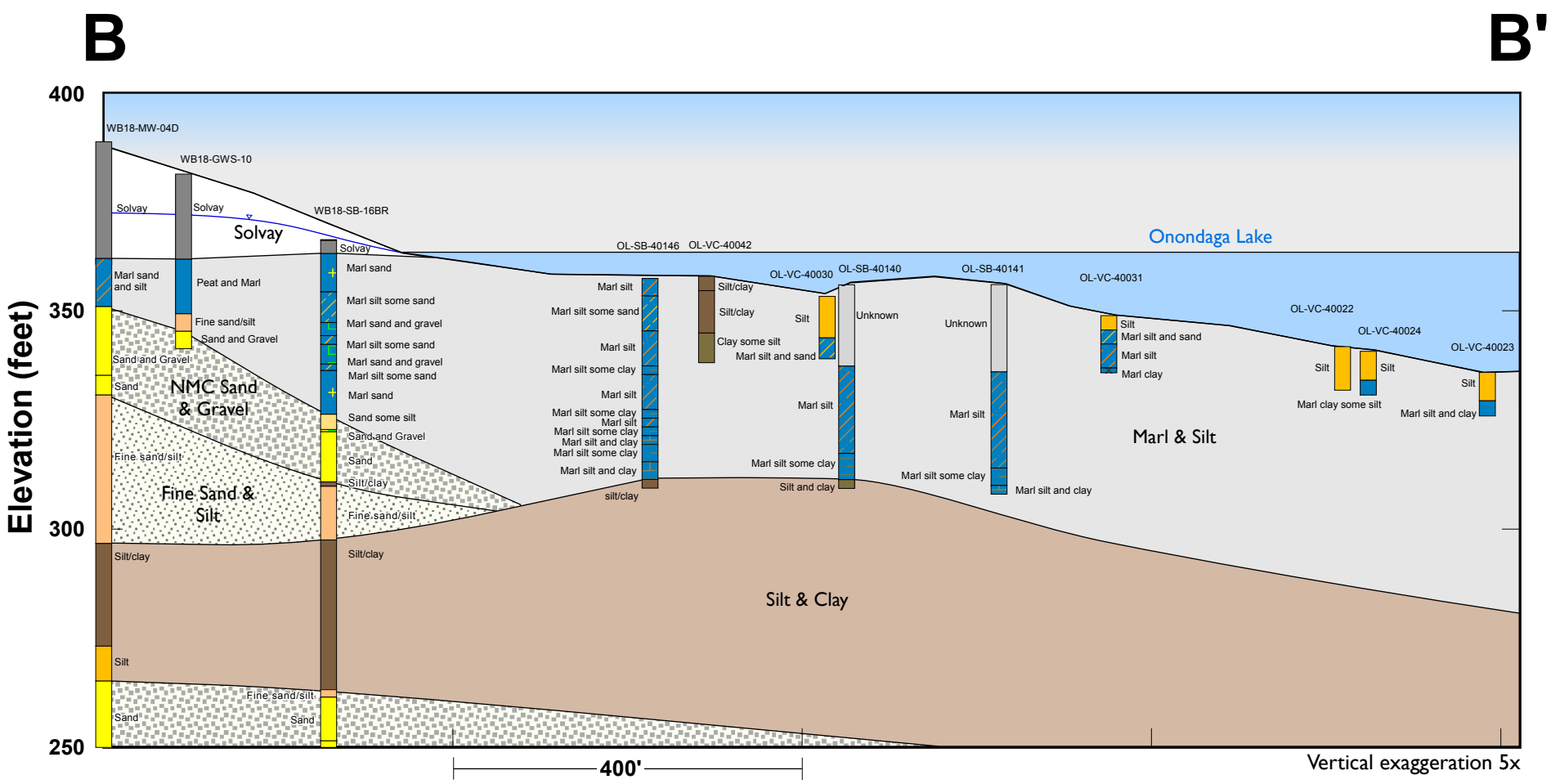


Figure I-3 Remediation Area A - Hydrogeologic Cross Section B-B'

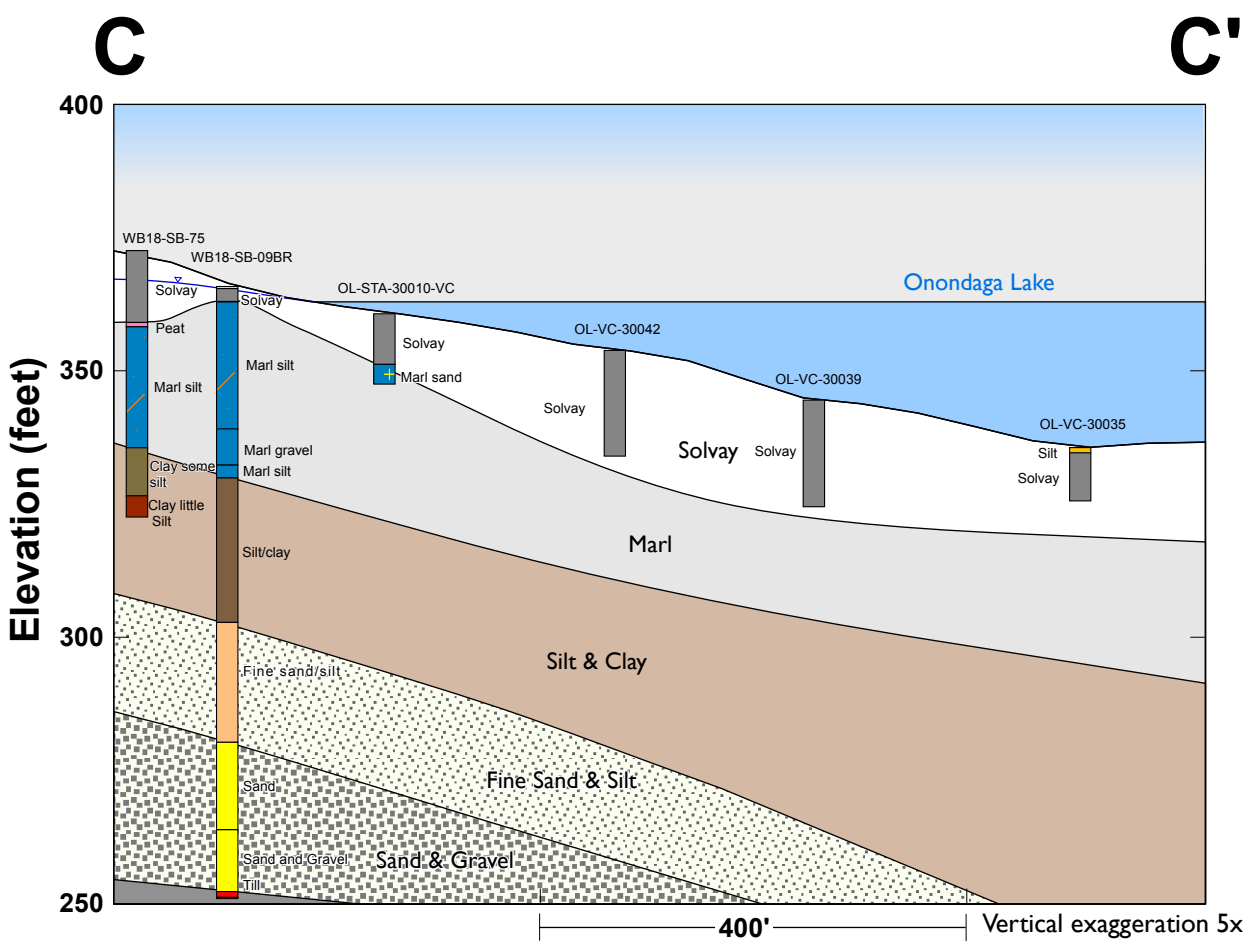


Figure I-4 Remediation Area B - Hydrogeologic Cross Section C-C'

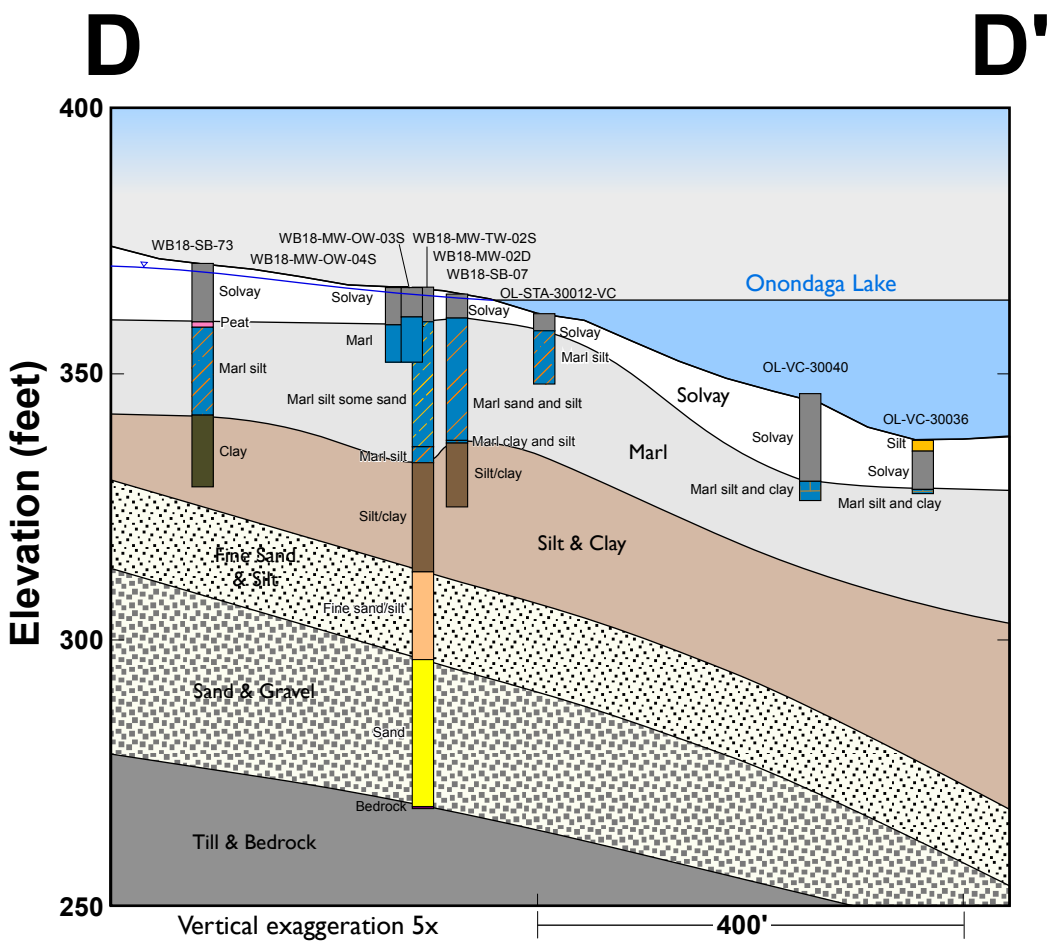


Figure I-5 Remediation Area B - Hydrogeologic Cross Section D-D'

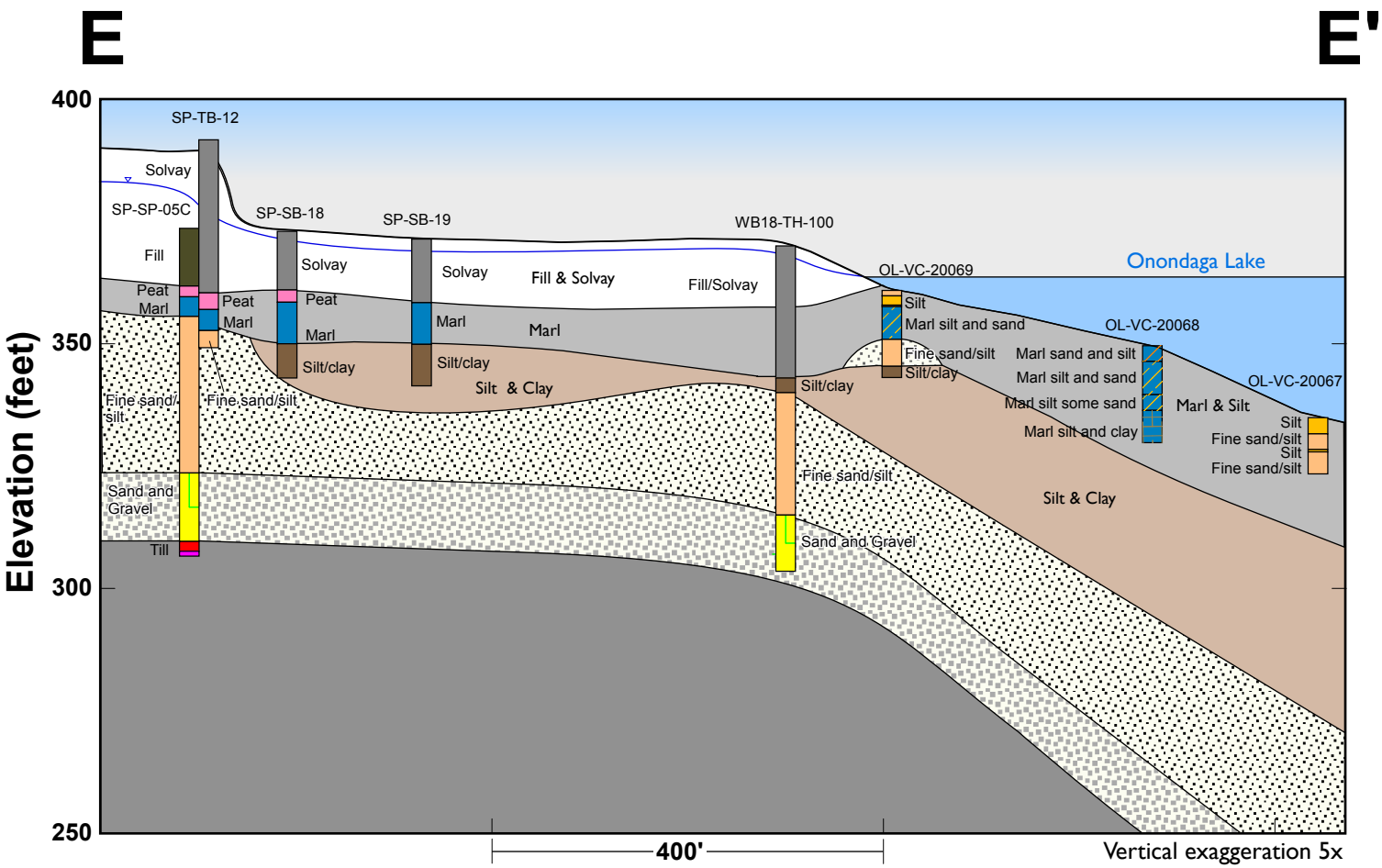


Figure I-6 Remediation Area C - Hydrogeologic Cross Section E-E'

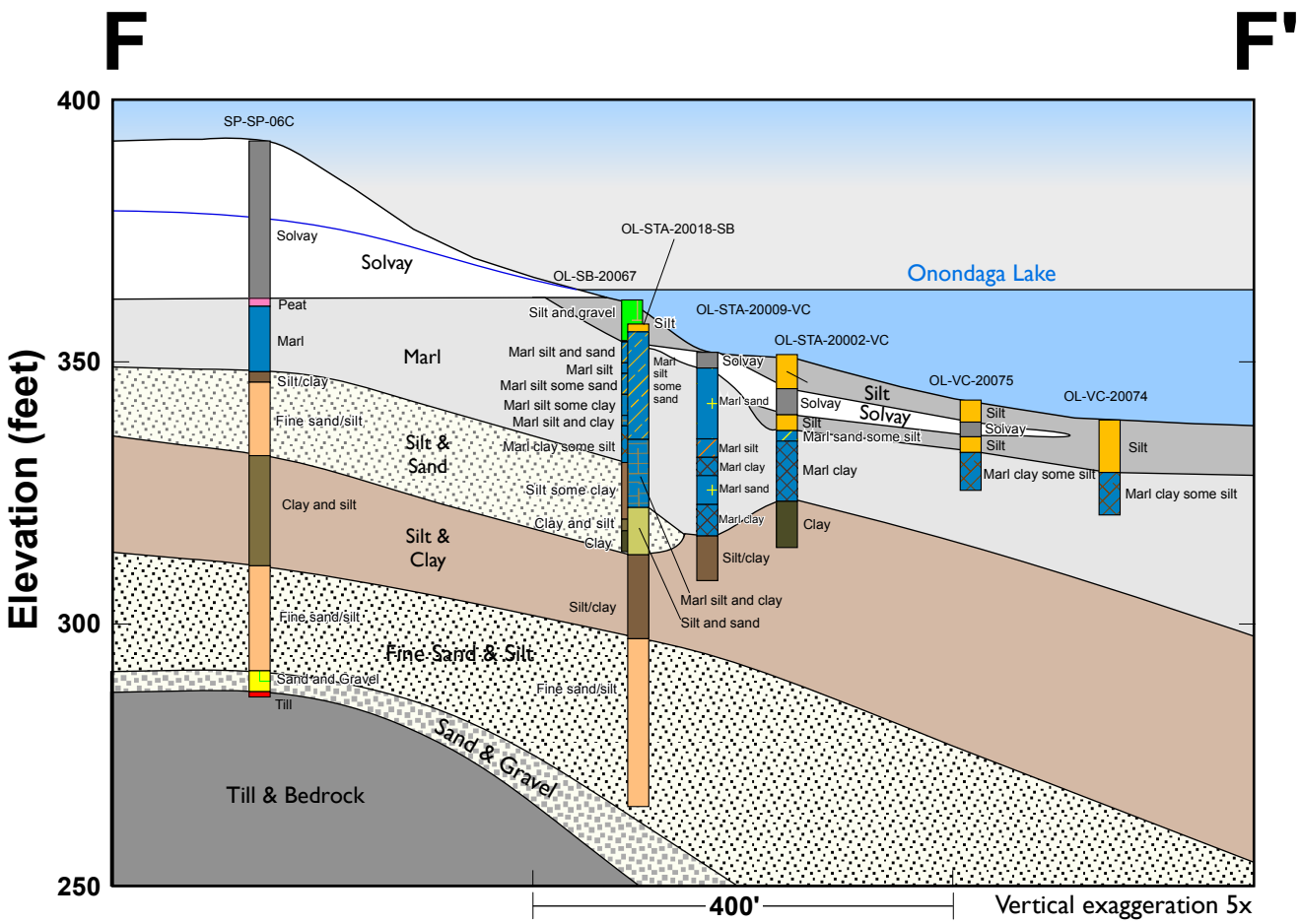


Figure I-7 Remediation Area C - Hydrogeologic Cross Section F-F'

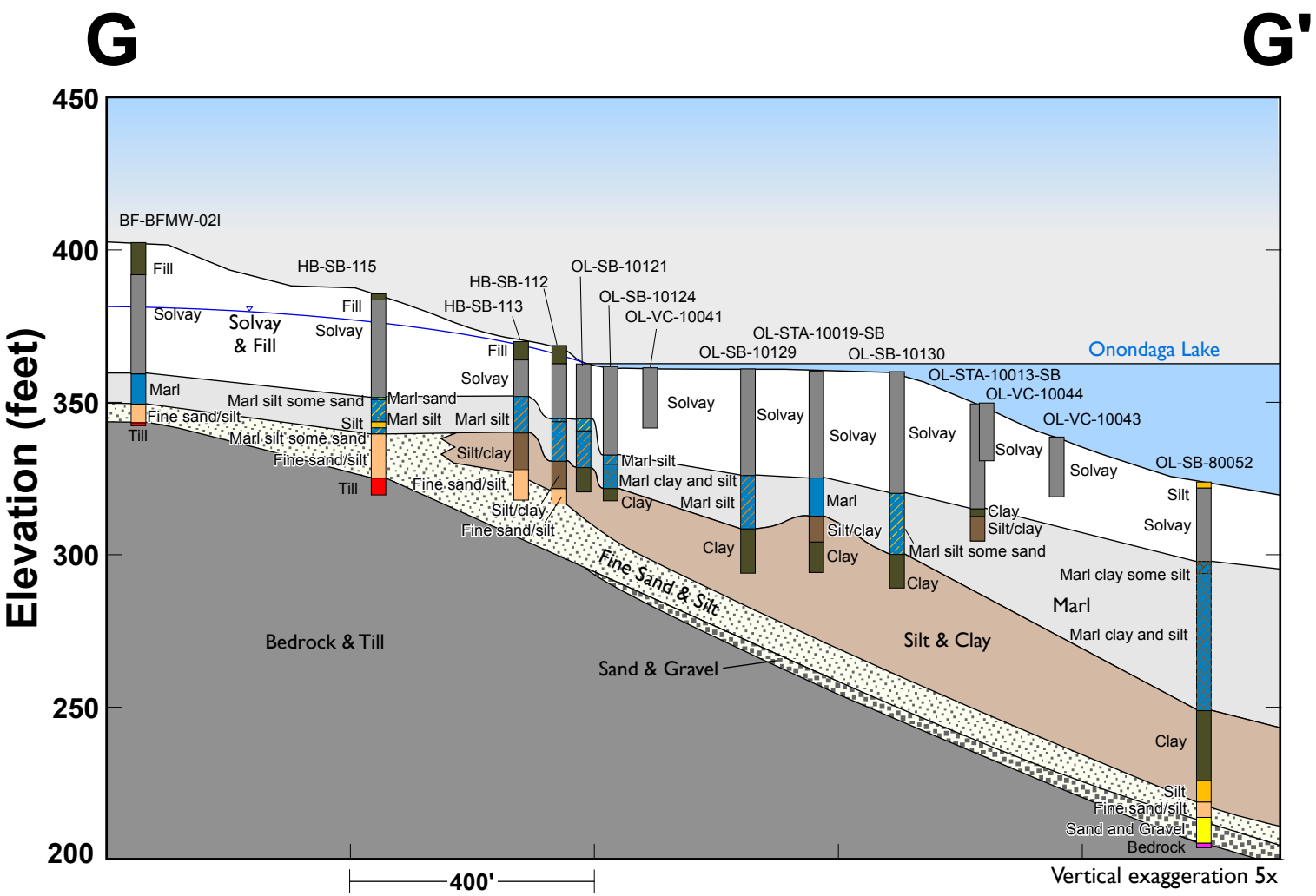


Figure I-8 Remediation Area D - Hyrdogeologic Cross Section G-G'

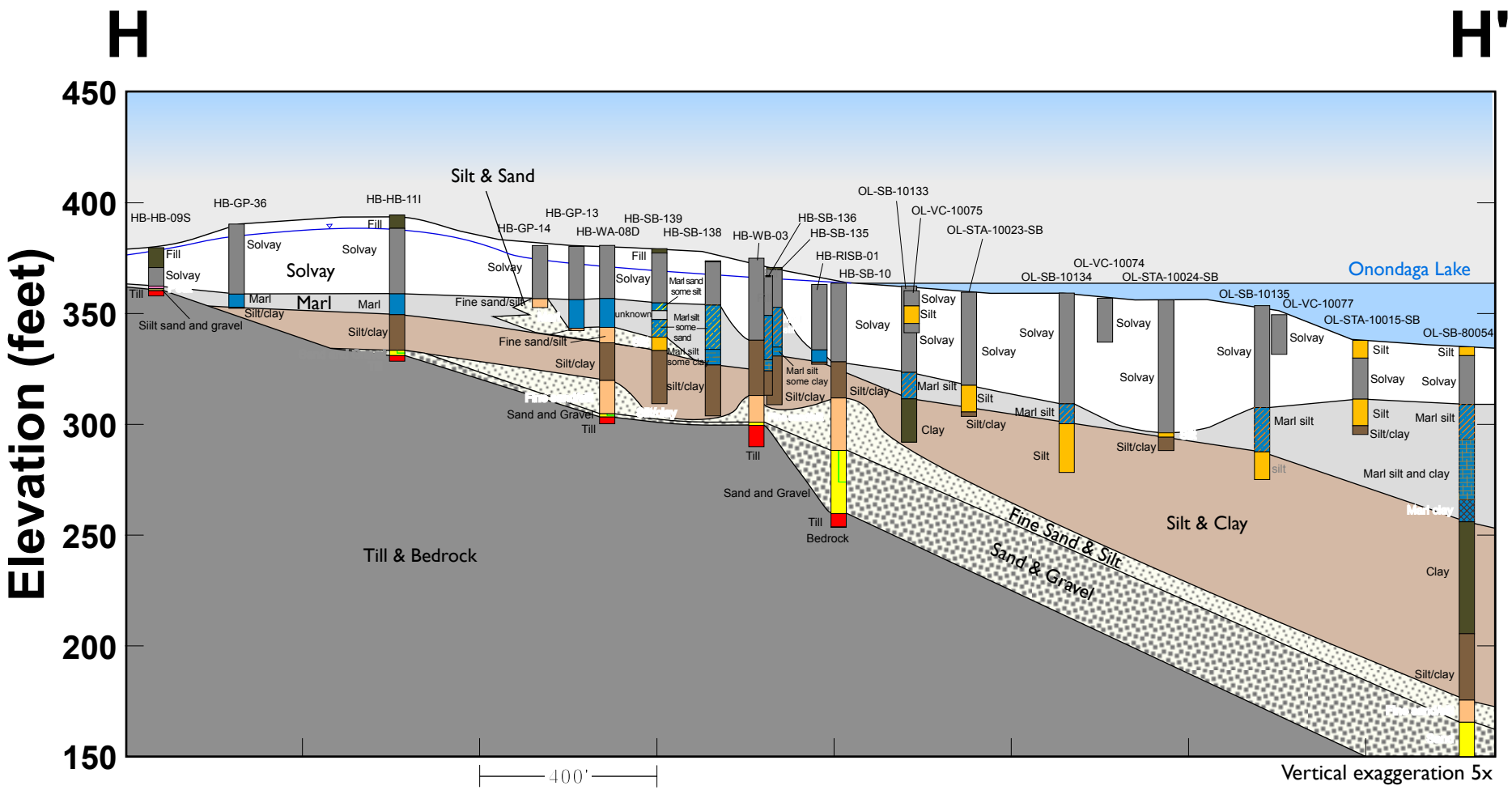
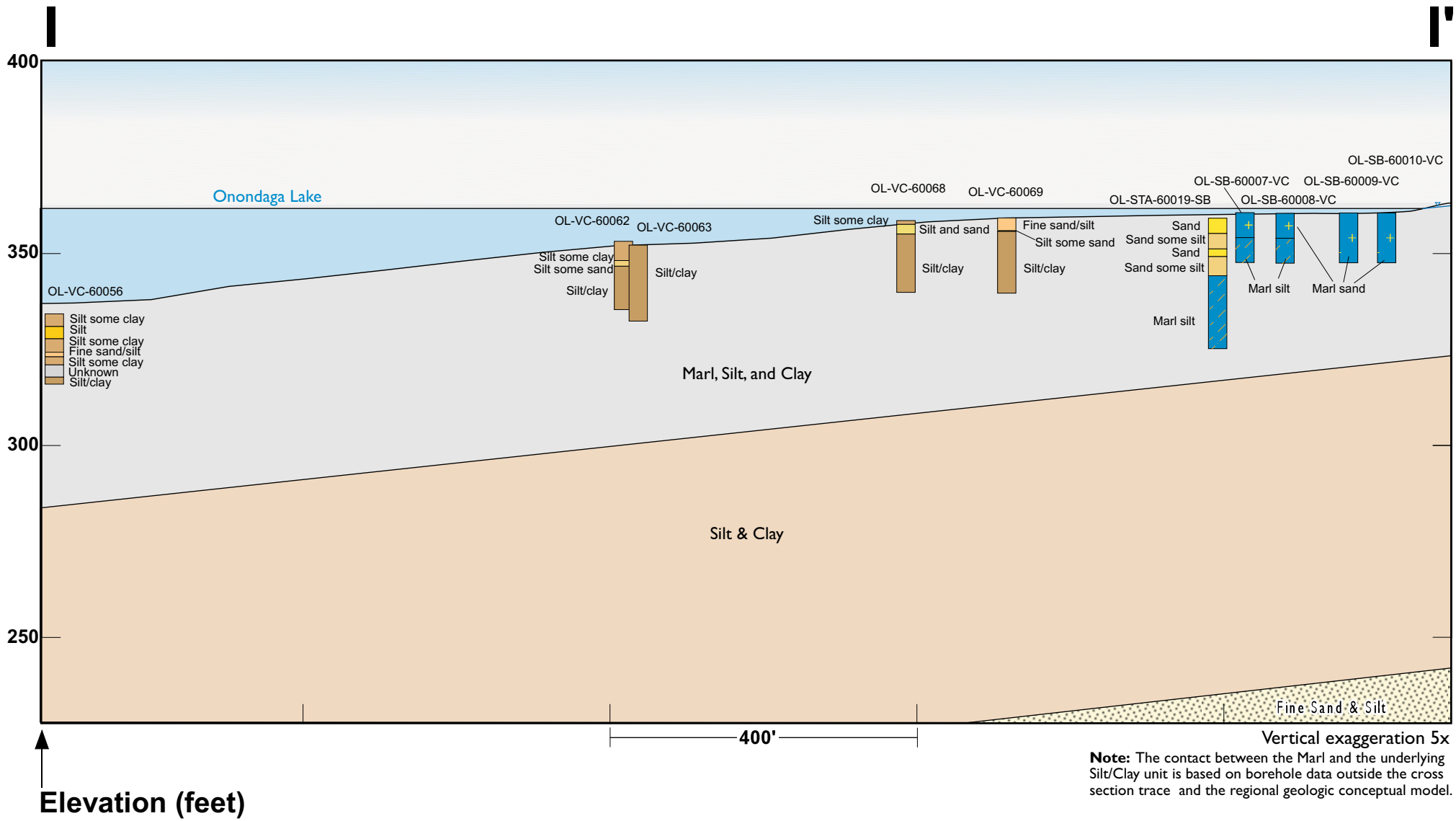


Figure I-9 Remediation Area D - Hydrogeologic Cross Section H-H'



Note: The contact between the Marl and the underlying Silt/Clay unit is based on borehole data outside the cross section trace and the regional geologic conceptual model.

Figure I-10 Remediation Area E - Hydrogeologic Cross Section I-I'

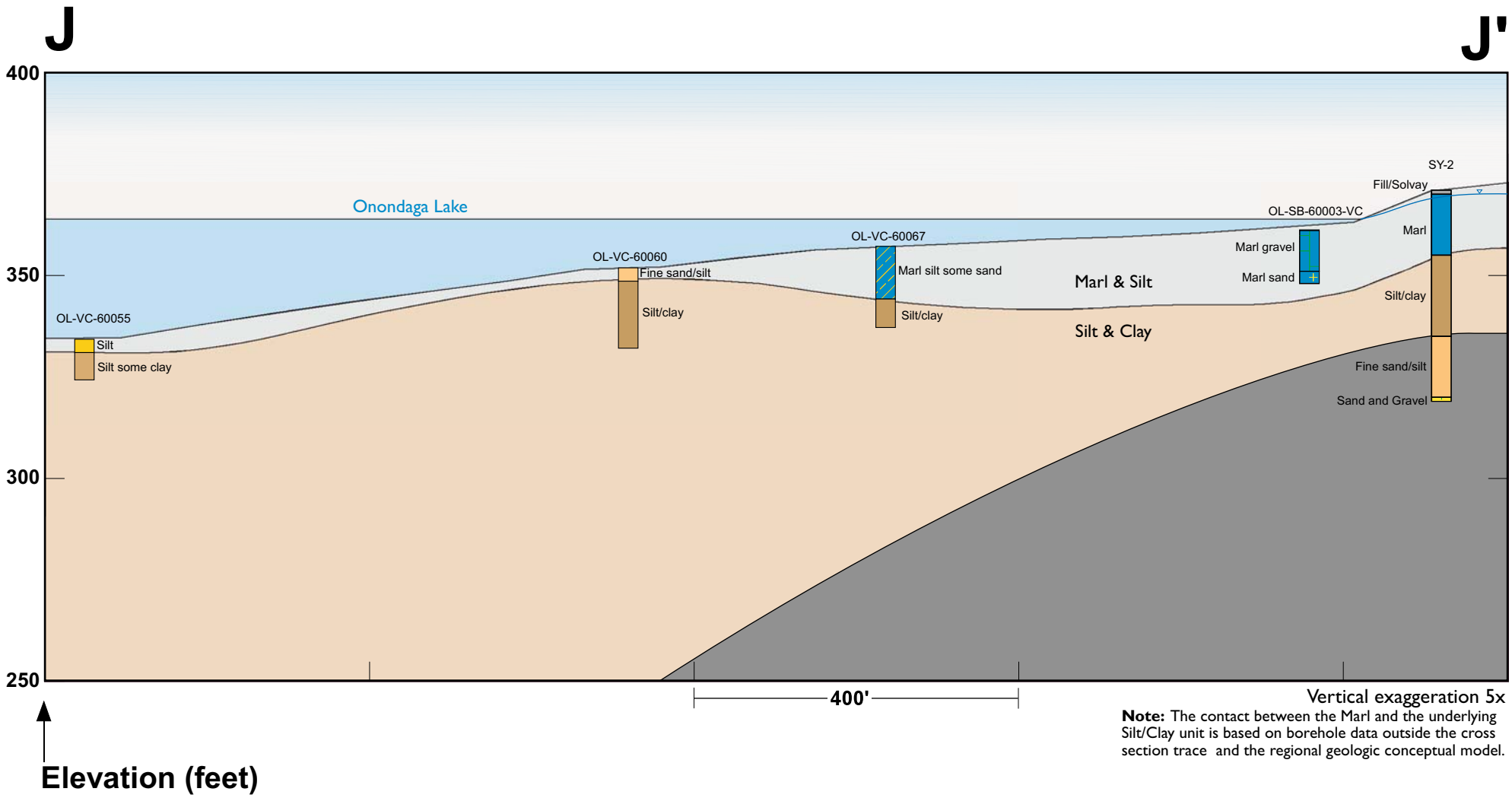


Figure I-11 Remediation Area E - Hydrogeologic Cross Section J-J'

Attachment II

Conductivity-Temperature Investigation Results

Attachment II
Conductivity-Temperature Investigation Results

The results of a comprehensive temperature and conductivity survey conducted from April 24 to 26, 2007, in Remediation Areas A and E are contained in this Attachment. For these surveys, a YSI 6600 series multi-parameter Sonde was used to measure water temperature, specific conductance, salinity, dissolved oxygen, turbidity, and sensor depth. The sensor was mounted in a custom built steel cage and towed with a 15-foot Jon boat as close to the bottom as possible. As an initial calibration step, the unit was tested on a known brine spring in Onondaga Creek to ensure it would identify a large anomaly in the groundwater discharging through the sediments. This screening step was successful in identifying the location of a large spring in lower Onondaga Creek. The survey was conducted by running transects approximately 25 feet apart along the shoreline from water depths of about two feet to six feet.

The following figures showing the results of the conductivity-temperature survey are contained in this Attachment:

Figure 1 Conductivity in SMU 4

Figure 2 Temperature in SMU 4

Figure 3 Conductivity in SMU 7

Figure 4 Temperature in SMU 7

Figure 5 Conductivity in Lower Onondaga Creek

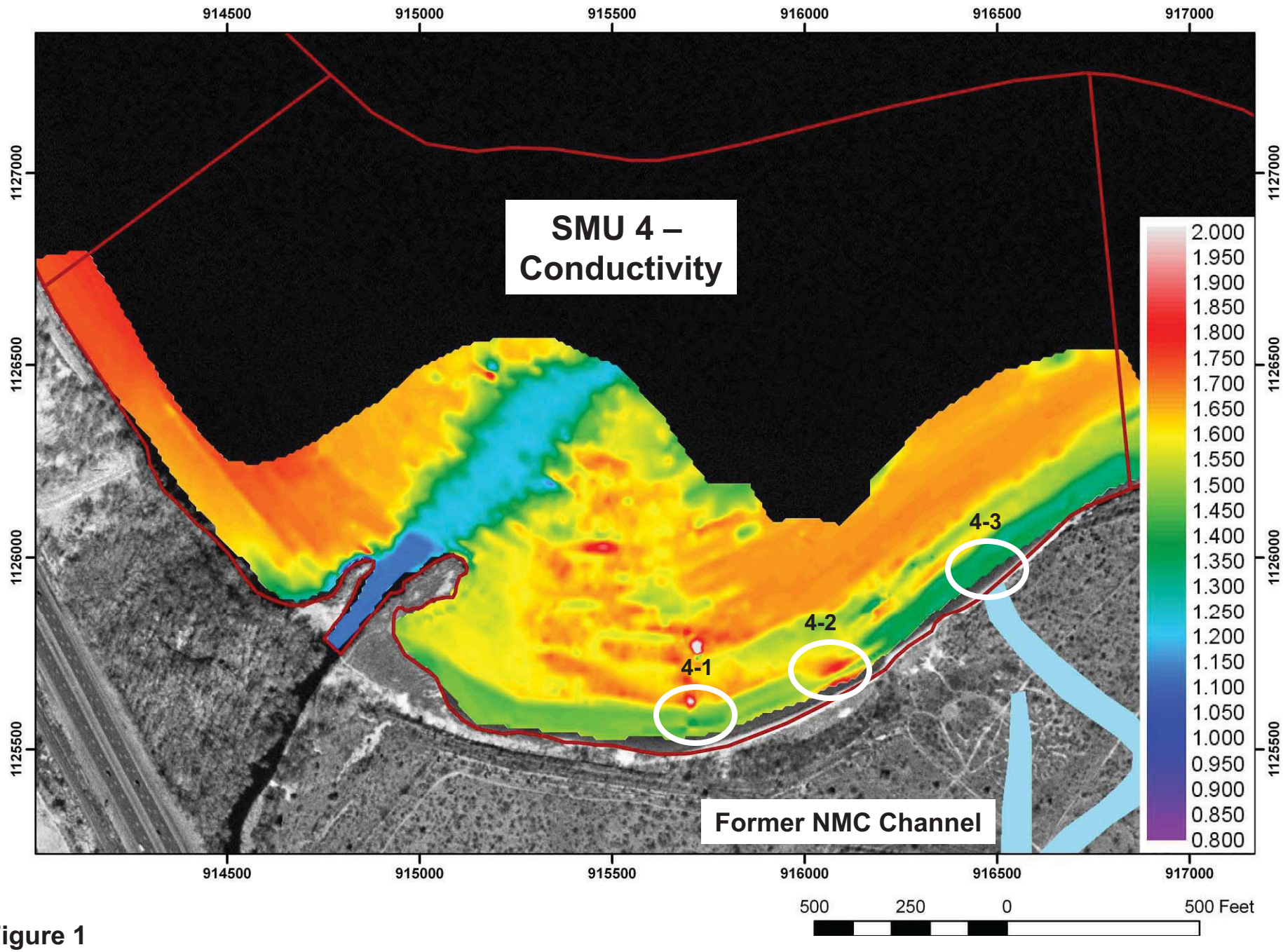

SMU 4 –
Conductivity
914500
915000
915500
916000
916500
917000
1127000
1126500
1126000
1125500
4-1
4-2
4-3
Former NMC Channel
2.000
1.950
1.900
1.850
1.800
1.750
1.700
1.650
1.600
1.550
1.500
1.450
1.400
1.350
1.300
1.250
1.200
1.150
1.100
1.050
1.000
0.950
0.900
0.850
0.800
500
250
0
500 Feet

Figure 1

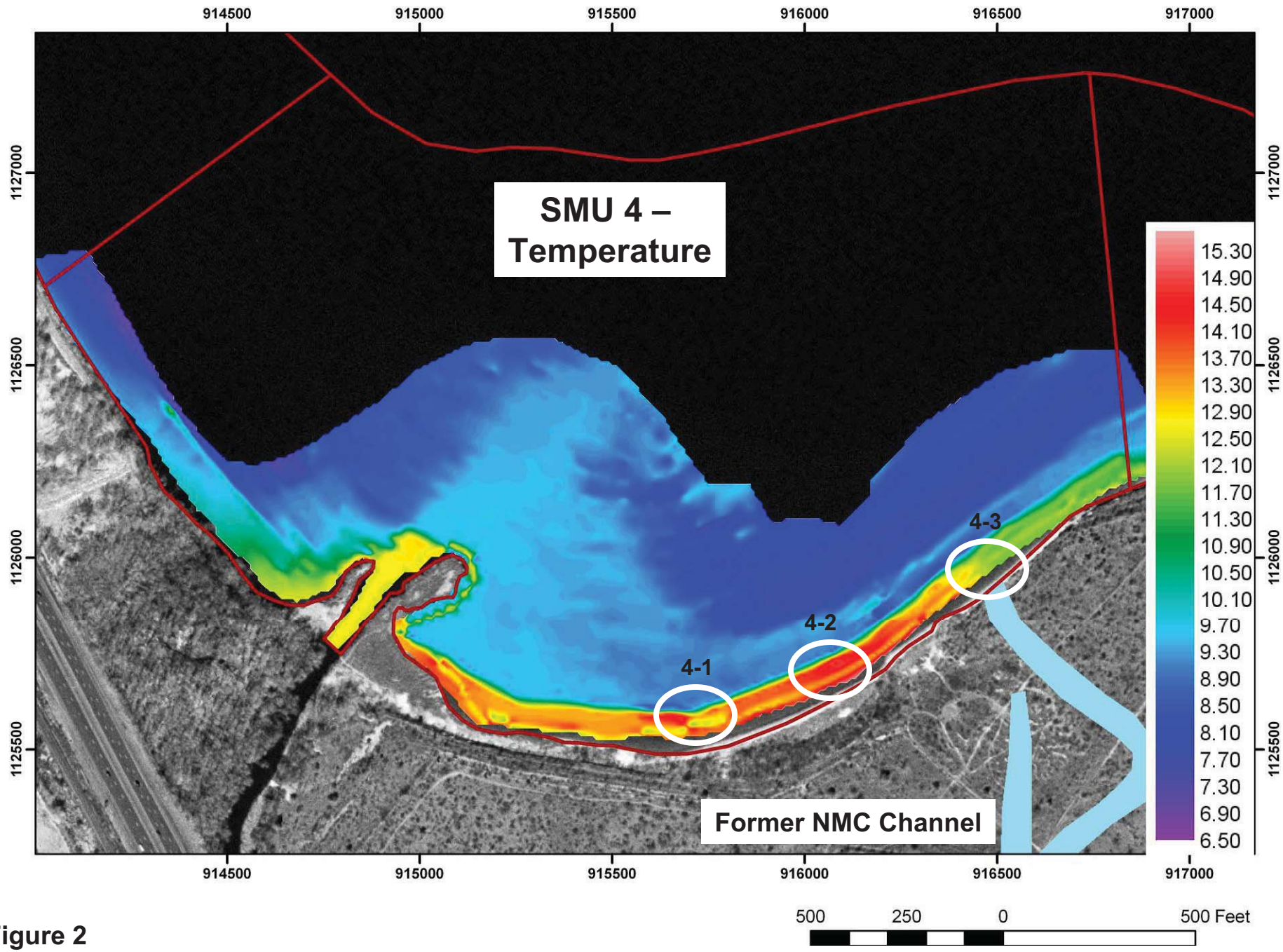
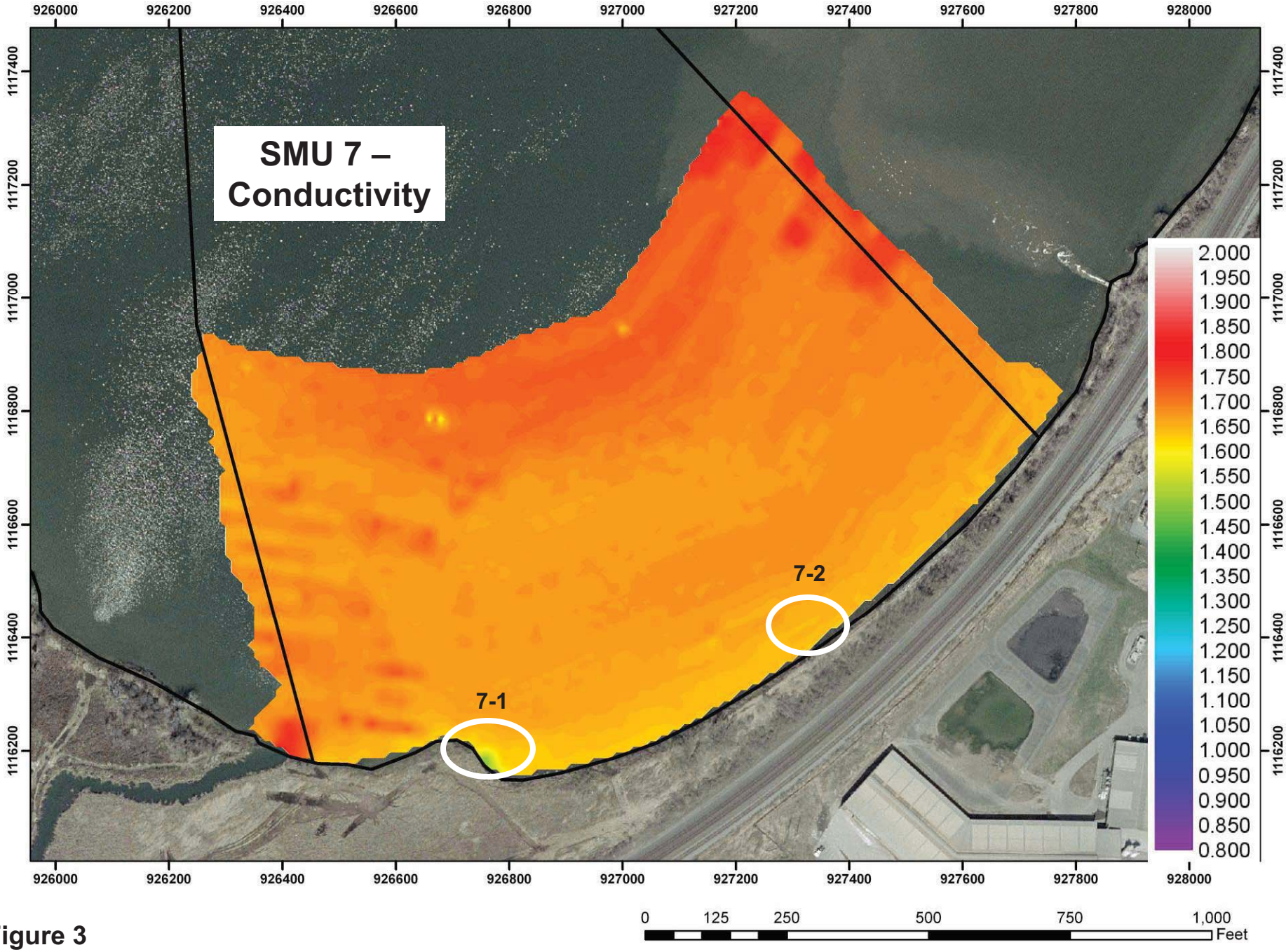

SMU 4 –
Temperature
914500
915000
915500
916000
916500
917000
1127000
1126500
1126000
1125500
4-1
4-2
4-3
Former NMC Channel
15.30
14.90
14.50
14.10
13.70
13.30
12.90
12.50
12.10
11.70
11.30
10.90
10.50
10.10
9.70
9.30
8.90
8.50
8.10
7.70
7.30
6.90
6.50
500
250
0
500 Feet

Figure 2


SMU 7 –
Conductivity
7-1
7-2
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926200
926400
926600
926800
927000
927200
927400
927600
927800
928000
1117400
1117200
1117000
1116800
1116600
1116400
1116200
2.000
1.950
1.900
1.850
1.800
1.750
1.700
1.650
1.600
1.550
1.500
1.450
1.400
1.350
1.300
1.250
1.200
1.150
1.100
1.050
1.000
0.950
0.900
0.850
0.800
0
125
250
500
750
1,000
Feet

Figure 3

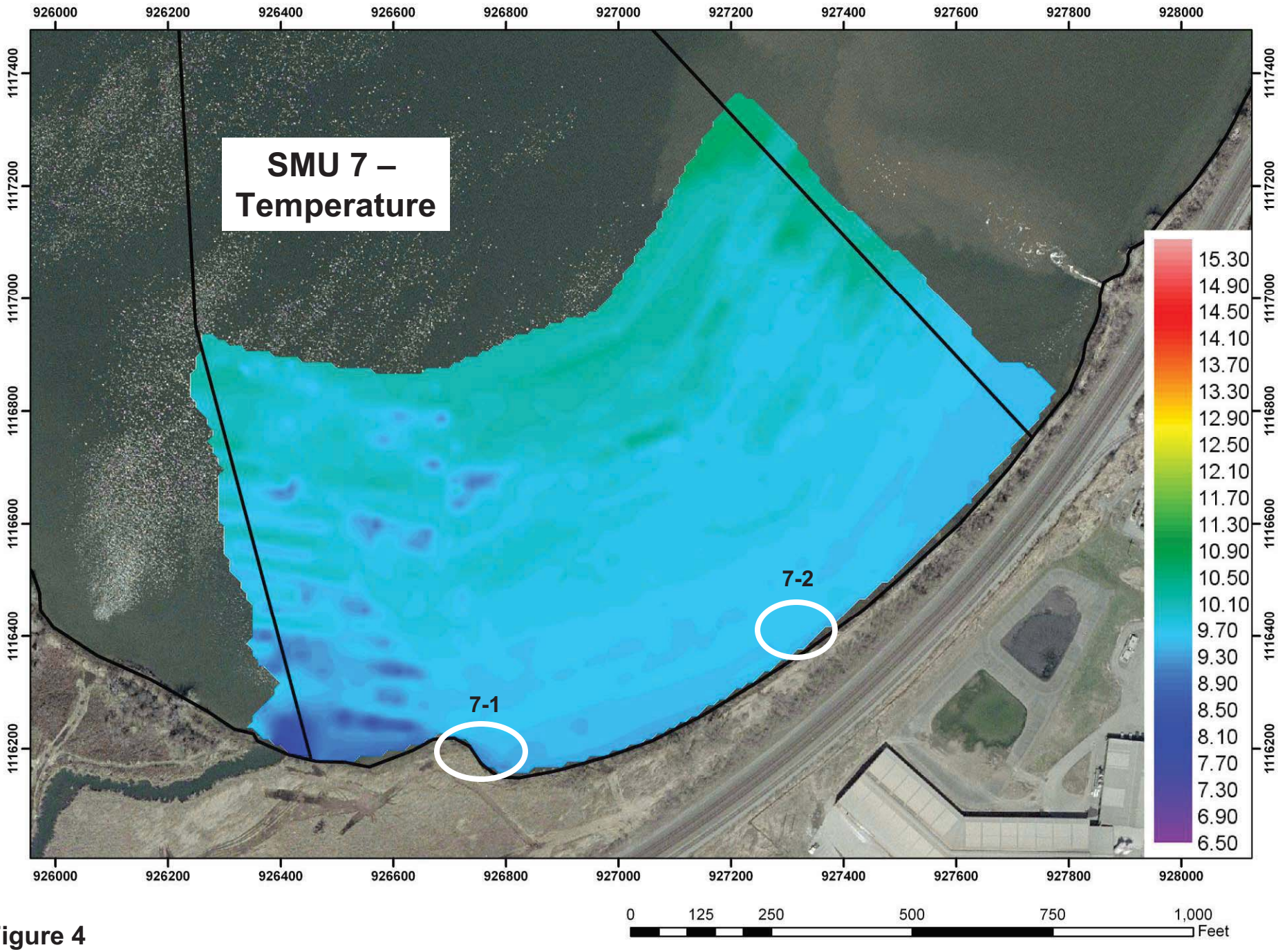

SMU 7 –
Temperature
7-1
7-2
926000
926200
926400
926600
926800
927000
927200
927400
927600
927800
928000
1117400
1117200
1117000
1116800
1116600
1116400
1116200
15.30
14.90
14.50
14.10
13.70
13.30
12.90
12.50
12.10
11.70
11.30
10.90
10.50
10.10
9.70
9.30
8.90
8.50
8.10
7.70
7.30
6.90
6.50
0
125
250
500
750
1,000
Feet

Figure 4

S.S. Papadopulos & Associates, Inc.

Onondaga Creek – Conductivity

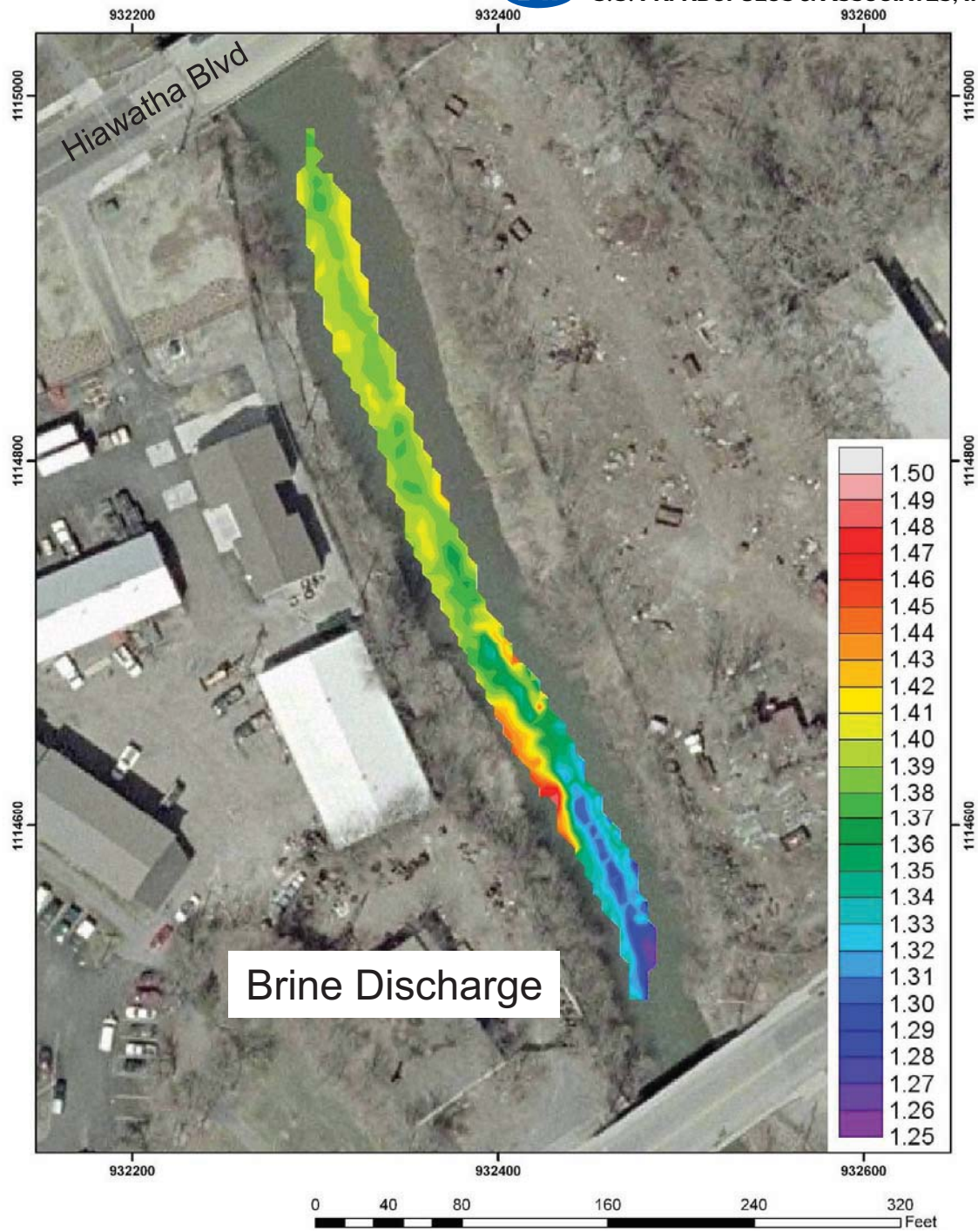


Figure 5

Attachment III

Upwelling Investigation Results – Transect TR01

Attachment III
Upwelling Investigation Results – Transect TR01

This Attachment contains a table summarizing the characteristics of the piezometers in transect TR01 in the Upwelling Investigation described in Parsons (2003). In addition, the table contains a summary of average hydraulic gradients measured along the transect from December 27, 2002 through August 1, 2003.

Table 1 S.S. Papadopulos & Associates, Inc.

Characteristics of Piezometers in Transect TR01 and Average Gradients

Piezometer ID	Transect	Distance from shore (feet)	Piezometer Depth (feet below top of sediment)	Piezometer Elevation (NAD 83 feet)	Northing	Easting	Install Date
TR01A-A	TR01	35	4.50	357.69	1125578.85	915232.61	11/14/02
TR01A-B	TR01	35	14.50	347.69	1125578.85	915232.61	10/14/02
TR01B-A	TR01	538	4.50	355.42	1126088.21	915289.50	11/12/02
TR01B-B	TR01	538	14.50	345.42	1126088.21	915289.50	11/12/02
TR01C-A	TR01	1011	4.50	353.55	1126558.91	915343.33	11/09/02
TR01C-B	TR01	1011	14.50	343.55	1126558.91	915343.33	11/09/02

AVERAGE GRADIENTS			
Dates	TR01A (B-A)	TR01B (B-A)	TR01C (B-A)
12/27/2002 to 3/14/2003	0.027	0.017	0.022
12/27/2003 to 8/1/2003	0.027	0.010	0.020

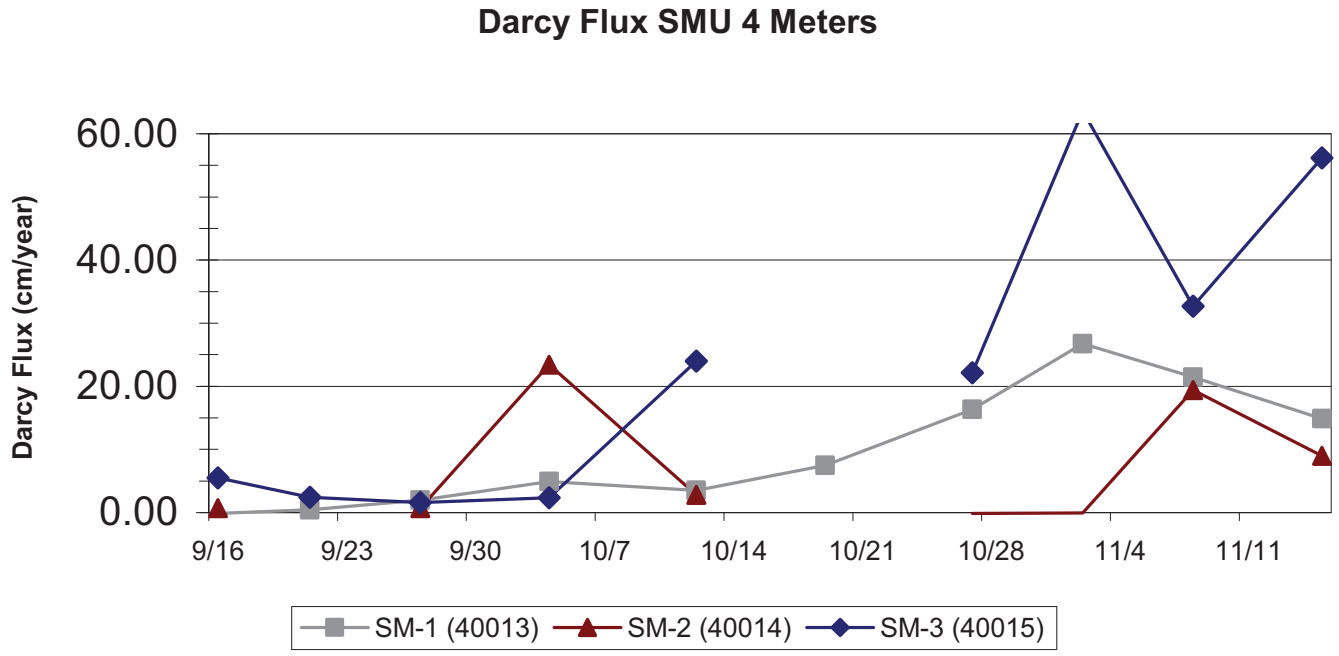
Attachment IV

Seepage Meter Investigation Results

Attachment IV
Seepage Meter Investigation Results

This Attachment contains plots of the measured upwelling velocities at the seepage meters installed in Phase I in 2005 and in Phase III in 2007. This Attachment contains the following figures:

Figure 1	Phase I Seepage Meter Results – Upwelling Velocities (cm/year)
Figure 2	Phase III Seepage Meter Results for Remediation Area A – Upwelling Velocities (cm/year)
Figure 3	Phase III Seepage Meter Results for Remediation Area E – Upwelling Velocities (cm/year)
Figure 4	Redesigned Seepage Meter used in Phase III



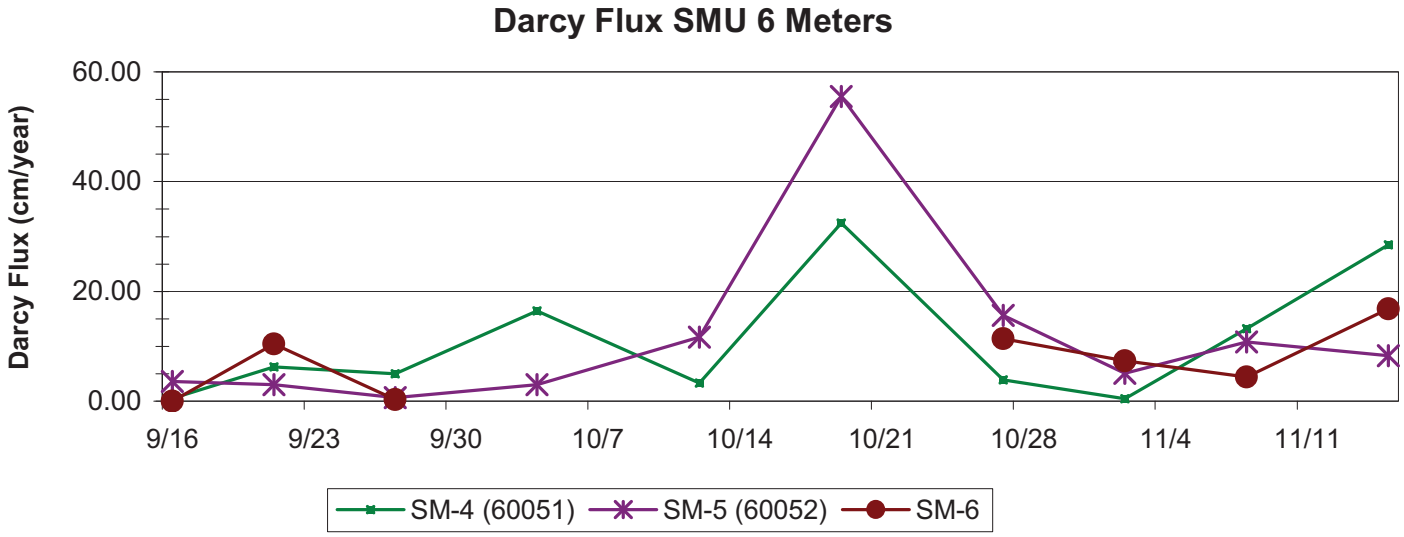
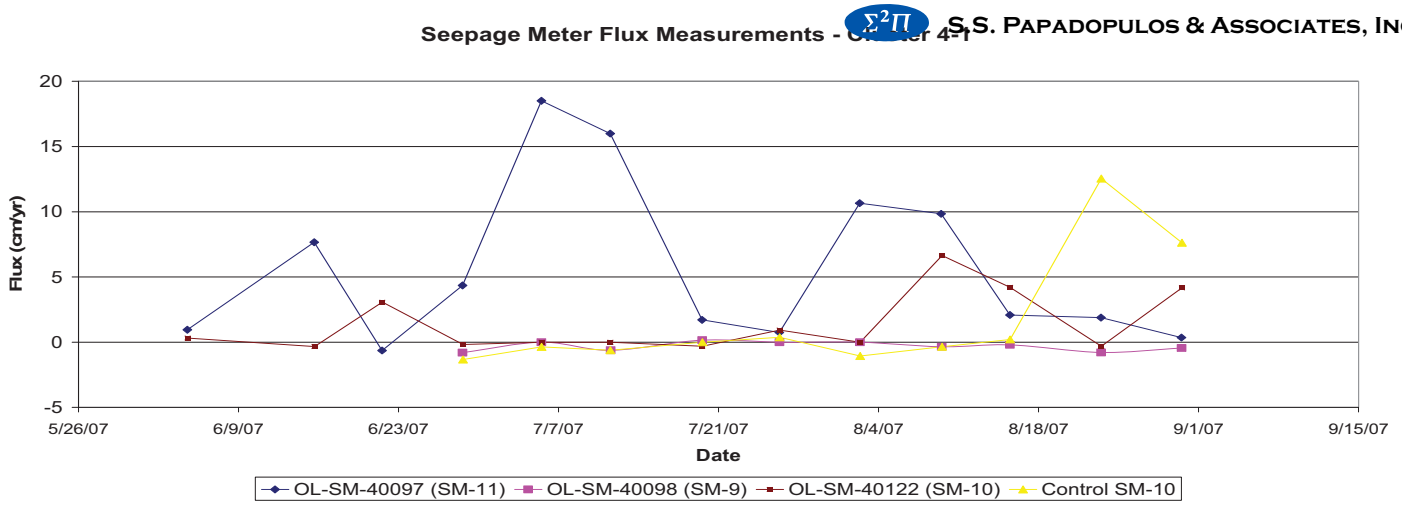
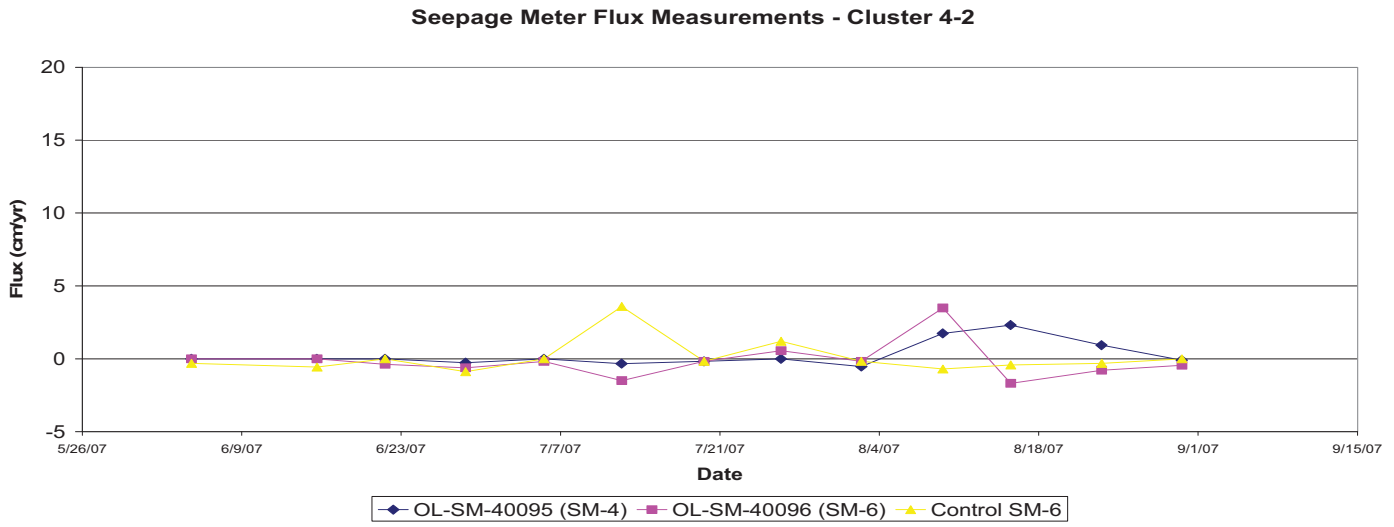


Figure 1 Phase I Seepage Meter Results – Upwelling Velocities (cm/year)





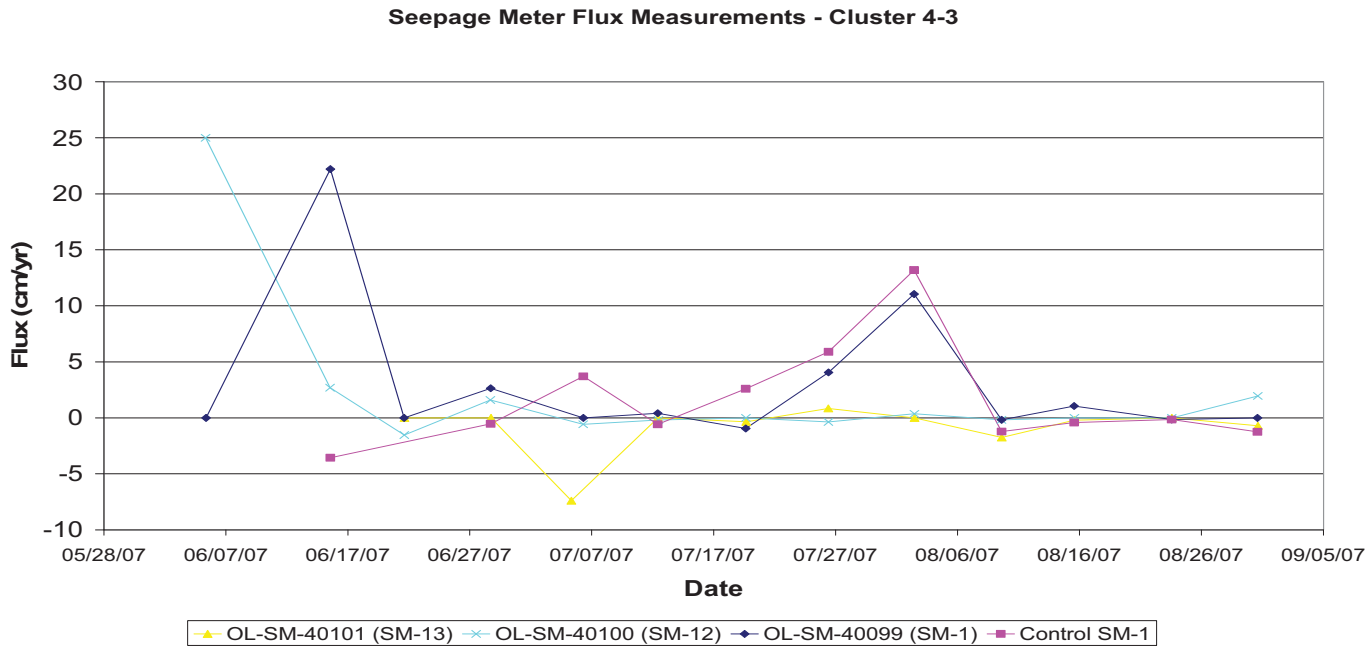
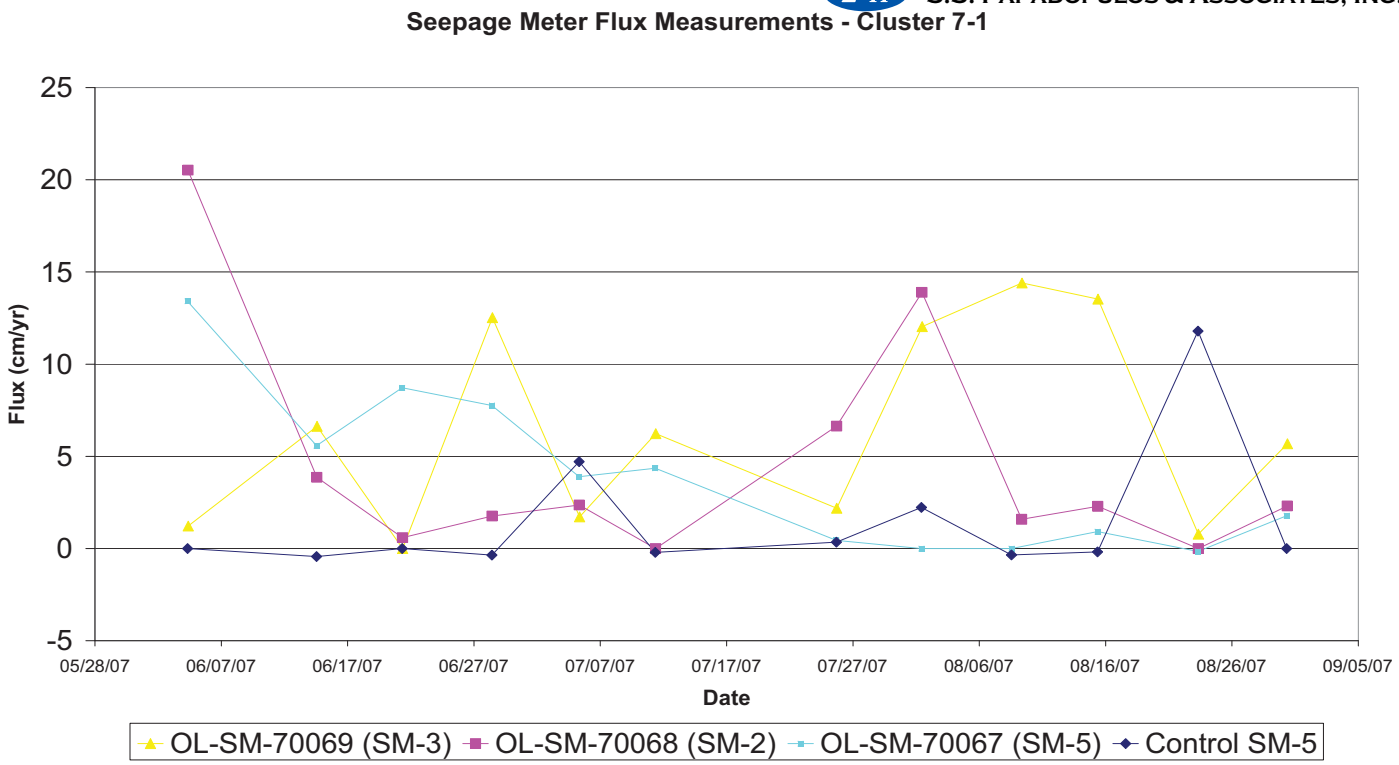


Figure 2 Phase III Seepage Meter Results for Remediation Area A Upwelling Velocities (cm/year)



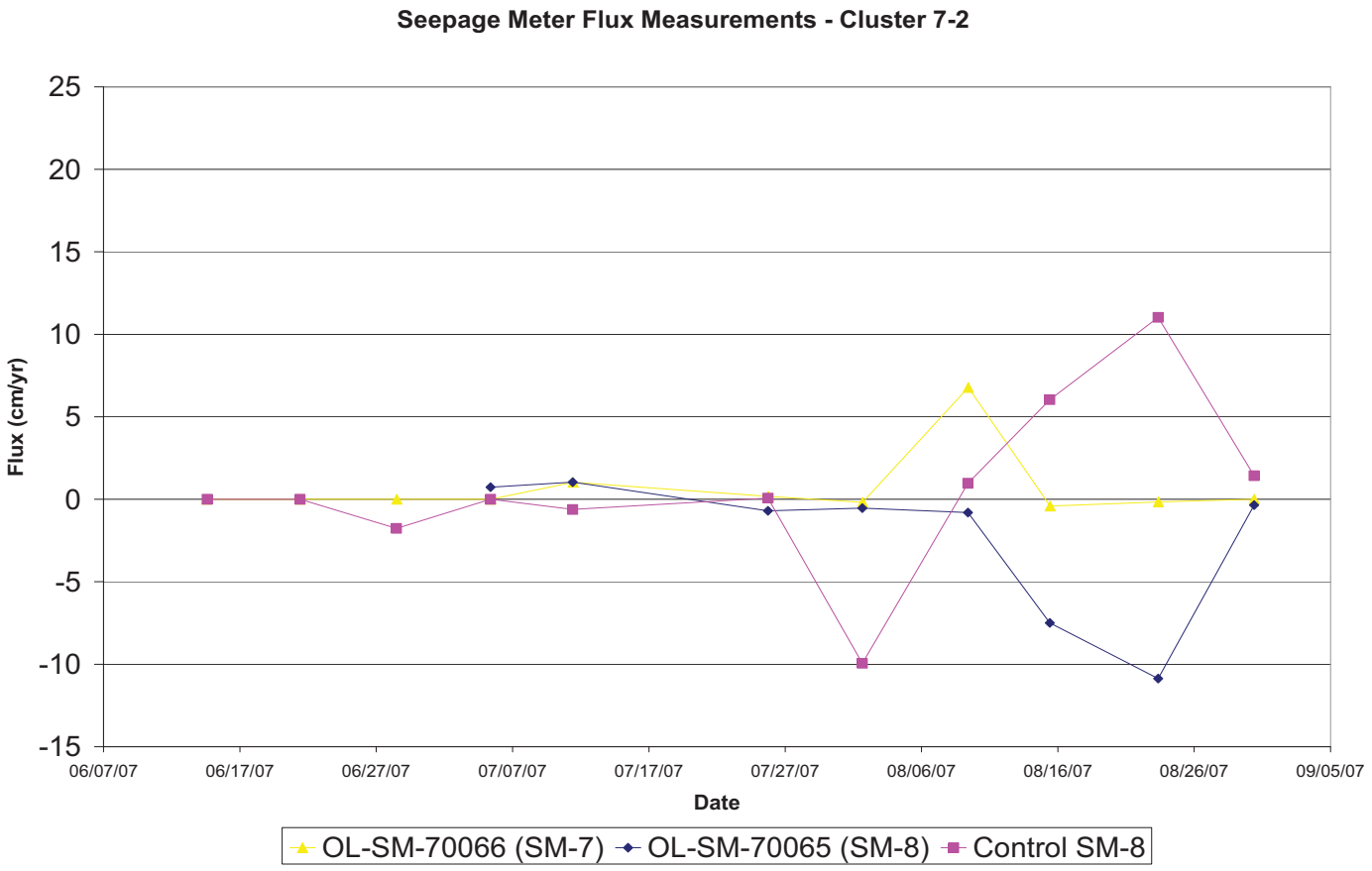


Figure 3 Phase III Seepage Meter Results for Remediation Area E Upwelling Velocities (cm/year)

Figure 4 Redesigned Seepage Meter Used in Phase III

Attachment V

Vibracore Water Quality and Porosity Data

Attachment V
Vibracore Water Quality and Porosity Data

This Attachment contains the following tables and figures:

1. Table V-1 is a list of general chemistry data for pore water obtained from centrifuging core samples collected with a Vibracore as well as the calculated cation-anion balance. Data obtained in the Phase II, Phase III, Phase III Addendum 5, and Phase V PDI investigations are contained on this table.

2. Plots of porosity versus depth for all vibracore locations where core samples were analyzed for porosity. A total of thirty porosity-depth plots are included.

3. Plots of chloride versus depth, sodium versus depth, and the sodium-calcium ratio versus depth for all Vibracore locations where pore water was analyzed for chloride, calcium, and sodium. The results from the Phase V Vibracore analyses are included at the end of the sequence of plots.

General Chemistry Data Anion-Cation Balances

Table V-1

General Chemistry Data from Vibracores and Cation-Anion Balance

Location ID	Sample Depth (feet)	Calcium mg/L	Chloride mg/L	Magnesium mg/L	Potassium mg/L	Sodium mg/L	Sulfate mg/L	Conductance uS/cm	Balance %	Chloride/ Conductivity
OL-STA-20087	0.5	855	7430			4600		25900	7	0.3
OL-STA-20087	1.5	1730	31800			15600		68600	-8	0.5
OL-STA-20087	2.5	1800	26800			12700		62500	-8	0.4
OL-STA-20087	3.5	1370	18300			10000		48700	-1	0.4
OL-STA-20087	4.5	1720	35200			17500		74100	-8	0.5
OL-STA-20087	5.5	1650	37400			19900		79000	-5	0.5
OL-STA-20087	6.5	1540	40600			18900		82400	-12	0.5
OL-STA-20087	7.5	1630	41900			22000		84600	-6	0.5
OL-STA-20087	8.5	1680	43000			20200		86400	-12	0.5
OL-STA-20087	9.5	1640	45300			21000		88200	-12	0.5
OL-STA-40002-PW	1	11500	55000			7080		104600	-28	0.5
OL-STA-40002-PW	3	20100	86200			14500		174600	-20	0.5
OL-STA-40002-PW	5	21300	95300			16500		187000	-20	0.5
OL-STA-40003-PW	1	7560	38000			8640		85200	-17	0.4
OL-STA-40003-PW	3	10100	63800			14300		132400	-23	0.5
OL-STA-40003-PW	5	11500	80000			16700		160000	-27	0.5
OL-STA-40055	0.5	4560	31700			11600		69200	-10	0.5
OL-STA-40055	1.5	6120	50400			19100		93800	-11	0.5
OL-STA-40055	2.5	6300	57100			21300		101200	-13	0.6
OL-STA-40055	3.5	5920	60800			29400		108000	-4	0.6
OL-STA-40055	4.5	5590	63300			24900		109900	-13	0.6
OL-STA-40055	5.5	5210	62300			24400		111700	-14	0.6
OL-STA-40055	6.5	5140	66500			27100		113200	-13	0.6
OL-STA-40055	7.5	4920	66800			27100		115100	-14	0.6
OL-STA-40055	8.5	5310	68700			27300		116200	-14	0.6
OL-STA-40055	9.5	5640	65400			24700			-15	
OL-STA-40056	0.5	771	5740			897		9150	-35	0.6
OL-STA-40056	1.5	1040	3810			1490		13800	4	0.3
OL-STA-40056	2.5	1470	5700			2190		18800	2	0.3
OL-STA-40056	3.5	1770	7160			2790			2	
OL-STA-40056	4.5	1980	8770			3480		27400	1	0.3
OL-STA-40056	5.5	2580	10700			3950		31400	0	0.3
OL-STA-40056	6.5	2840	12100			4420		34900	-1	0.3
OL-STA-40056	7.5	3640	13800			4770		37800	0	0.4
OL-STA-40056	8.5	4310	15500			6050		43800	4	0.4
OL-STA-40056	9.5	3320	15700			5600			-4	
OL-STA-40057	0.5	227	1610			440		7190	-20	0.2
OL-STA-40057	1.5	228	1050			309		5310	-9	0.2
OL-STA-40057	2.5	172	1920			478		7950	-30	0.2
OL-STA-40057	3.5	208	2090			536		8570	-27	0.2
OL-STA-40057	4.5	330	2220			585		8920	-20	0.2
OL-STA-40057	5.5	257	2310			566		9160	-27	0.3
OL-STA-40057	6.5	284	2440			595		9590	-26	0.3
OL-STA-40057	7.5	300	2550			600		9820	-27	0.3
OL-STA-40057	8.5	306	2520			605		10100	-26	0.2
OL-STA-60016-PW	1	428	4510			2110		17100	-6	0.3
OL-STA-60016-PW	3	510	6410			3210		19300	-5	0.3
OL-STA-60016-PW	5	488	6350			2990		18700	-7	0.3
OL-STA-60017-PW	1	734	5600			2070		17300	-11	0.3
OL-STA-60017-PW	3	2400	19200			7540		63400	-9	0.3
OL-STA-60017-PW	5	3710	36900			10500		89400	-24	0.4
OL-STA-60018-PW	1	508	1910			2250		16000	39	0.1
OL-STA-60018-PW	3	335	662			359		4080	27	0.2
OL-STA-60018-PW	5	402	1470			908		6640	18	0.2
OL-STA-60019-PW	1	273	479			320		3970	34	0.1
OL-STA-60019-PW	3	341	758			577		6650	33	0.1
OL-STA-60019-PW	5	419	1430			772		9210	15	0.2
OL-STA-60072	0.5	271	2180			1240		8070	5	0.3
OL-STA-60072	1.5	328	3840			2300		13500	4	0.3
OL-STA-60072	2.5	465	11000			6250		30700	-3	0.4
OL-STA-60072	3.5	580	17700			9390		43000	-7	0.4
OL-STA-60072	4.5	678	21200			11700		50200	-5	0.4
OL-STA-60072	5.5	801	26700			14900		57800	-5	0.5
OL-STA-60072	6.5	942	31100			17800		64200	-3	0.5
OL-STA-60072	7.5	1010	36900			18800		73200	-9	0.5

Table V-1

General Chemistry Data from Vibracores and Cation-Anion Balance

Location ID	Sample Depth (feet)	Calcium mg/L	Chloride mg/L	Magnesium mg/L	Potassium mg/L	Sodium mg/L	Sulfate mg/L	Conductance uS/cm	Balance %	Chloride/ Conductivity
OL-STA-60072	8.5	1040	39900			21300		76300	-7	0.5
OL-STA-60078	0.5	556	4390			2220		16200	0	0.3
OL-STA-60078	1.5	1170	12800			6510		36100	-3	0.4
OL-STA-60078	2.5	1290	14600			7310		38600	-4	0.4
OL-STA-60078	3.5	1340	15700			7790		40800	-4	0.4
OL-STA-60078	4.5	1450	17100			7840		44100	-8	0.4
OL-STA-60078	5.5	1670	19000			8900		46700	-7	0.4
OL-STA-60078	6.5	2030	22000			9960		51200	-7	0.4
OL-STA-60078	7.5	2340	25600			11100		58000	-9	0.4
OL-STA-60078	8.5	2390	28000			10900		59000	-14	0.5
OL-STA-60081	0.5	370	3270			705		6490	-30	0.5
OL-STA-60081	1.5	623	3010			1480		12400	6	0.2
OL-STA-60081	2.5	911	4650			2380		17700	6	0.3
OL-STA-60081	3.5	1300	10000			4740		30700	-2	0.3
OL-STA-60081	4.5	1760	15300			7510		40800	-2	0.4
OL-STA-60081	5.5	2200	22600			9450		52000	-10	0.4
OL-STA-60081	6.5	3370	37400			15500		72300	-11	0.5
OL-STA-60081	7.5	2530	29700			11700		62800	-14	0.5
OL-STA-60081	8.5	3810	42800			17300		80600	-12	0.5
OL-STA-60081	9.5	1920	44400			8910		82000	-44	0.5
OL-STA-60087	0.5	352	3020			1550		10400	0	0.3
OL-STA-60087	1.5	433	6220			3530		19600	0	0.3
OL-STA-60087	2.5	587	9460			5210		27600	-2	0.3
OL-STA-60087	3.5	641	11500			6160		31300	-4	0.4
OL-STA-60087	4.5	685	13300			6970		35100	-5	0.4
OL-STA-60087	5.5	719	15000			8050		38100	-5	0.4
OL-STA-60087	6.5	733	16700			8630		41700	-7	0.4
OL-STA-60087	7.5	764	18300			9530		44600	-7	0.4
OL-STA-60087	8.5	791	20000			10400		47500	-7	0.4
OL-STA-60087	9.5	793	20500			11100		49200	-5	0.4
OL-STA-60090	0.5	266	529			254		3250	24	0.2
OL-STA-60090	1.5	482	1000			409		5820	19	0.2
OL-STA-60090	2.5	594	1330			523		7240	17	0.2
OL-STA-60090	3.5	714	1670			598		8450	13	0.2
OL-STA-60090	4.5	718	2110			746		9880	7	0.2
OL-STA-60090	5.5	853	2310			879		11300	11	0.2
OL-STA-60090	6.5	806	2640			1060		12500	7	0.2
OL-STA-60090	7.5	718	3190			1260		13400	0	0.2
OL-STA-60090	8.5	340	3600			1300		13300	-16	0.3
OL-STA-60096	0.5	257	856			327		4080	6	0.2
OL-STA-60096	1.5	657	1870			834		10100	13	0.2
OL-STA-60096	2.5	790	1470			1150		13100	37	0.1
OL-STA-60096	3.5	890	3550			1520		16200	5	0.2
OL-STA-60096	4.5	1060	4320			2040		19600	8	0.2
OL-STA-60096	5.5	1180	33300			2690		21300	-68	1.6
OL-STA-60096	6.5	1280	8670			3100		23800	-10	0.4
OL-STA-60096	7.5	1650	8520			3910		27400	2	0.3
OL-STA-70005-PW	1	1120	10100			4750		33600	-4	0.3
OL-STA-70005-PW	3	1330	13000			6660		8680	-1	1.5
OL-STA-70005-PW	5	816	16900			10100		56200	0	0.3
OL-STA-70006-PW	1	1080	6980			2360		22100	-11	0.3
OL-STA-70006-PW	3	2020	12700			5300		41100	-4	0.3
OL-STA-70006-PW	4	2170	15300			5080		48000	-13	0.3
OL-STA-70007-PW	1	2400	30700			11300		79800	-17	0.4
OL-STA-70007-PW	3	2960	55200			17100		113400	-27	0.5
OL-STA-70007-PW	4	2660	61700			20000		134000	-27	0.5
OL-STA-70008-PW	1	584	12800			5550		36500	-14	0.4
OL-STA-70008-PW	3	905	26800			10400		68800	-21	0.4
OL-STA-70008-PW	5	1000	35300			16100		90600	-14	0.4
OL-STA-70040	0.5	1590	13100			6900		34200	1	0.4
OL-STA-70040	1.5	2750	37200			17000		66900	-9	0.6
OL-STA-70040	2.5	2900	40400			20300		71400	-5	0.6
OL-STA-70040	3.5	2790	43600			21300		74500	-7	0.6
OL-STA-70040	4.5	2280	46100			25500		77100	-3	0.6
OL-STA-70040	5.5	1900	47300			26400		79100	-4	0.6

Table V-1

General Chemistry Data from Vibracores and Cation-Anion Balance

Location ID	Sample Depth (feet)	Calcium mg/L	Chloride mg/L	Magnesium mg/L	Potassium mg/L	Sodium mg/L	Sulfate mg/L	Conductance uS/cm	Balance %	Chloride/ Conductivity
OL-STA-70040	6.5	1460	48400			27400		80400	-4	0.6
OL-STA-70040	7.5	1260	49700			26900		81500	-6	0.6
OL-STA-70042	0.5	238	495			273		3400	26	0.1
OL-STA-70042	1.5	351	756			403		5300	24	0.1
OL-STA-70042	2.5	455	1220			576		7310	16	0.2
OL-STA-70042	3.5	510	1680			709		9220	9	0.2
OL-STA-70042	4.5	500	2000			855		10600	5	0.2
OL-STA-70042	5.5	566	2440			1030		11400	3	0.2
OL-STA-70042	6.5	621	2880			1210		12900	1	0.2
OL-STA-70042	7.5	663	3430			1450		14000	0	0.2
OL-STA-70042	8.5	573	3890			1530		14500	-7	0.3
OL-STA-70043	0.5	275	2290			290		4180	-42	0.5
OL-STA-70043	1.5	386	894			452		6550	21	0.1
OL-STA-70043	2.5	374	1410			657		9340	9	0.2
OL-STA-70043	3.5	267	2290			914		12700	-10	0.2
OL-STA-70043	4.5	347	2010			854		11900	-2	0.2
OL-STA-70043	5.5	391	2780			1060		13500	-9	0.2
OL-STA-70043	6.5	438	2960			1110		13600	-9	0.2
OL-STA-70043	7.5	596	3390			1250		14300	-6	0.2
OL-STA-70043	8.5	616	3790			1440		15000	-7	0.3
OL-VC-20111	0-0.3		2550					9690		0.3
OL-VC-20111	0.3-0.5		2980					9010		0.3
OL-VC-20111	0.5-0.8		4710					15500		0.3
OL-VC-20111	0.8-1		6720					20600		0.3
OL-VC-20111	1-1.3		12800					35100		0.4
OL-VC-20111	1.3-1.5		14800					41500		0.4
OL-VC-20111	1.5-1.8		17000					47400		0.4
OL-VC-20111	2-2.5	719	19000	63.3	319	10400	20.8	60600	-3	0.3
OL-VC-20111	3-3.5	784	22900	67.6	367	11600	201	82000	-8	0.3
OL-VC-20111	4-4.5	801	27300	71.4	415	14000	191	92500	-8	0.3
OL-VC-20111	5-5.5	680	30700	57.6	365	14400	218	101000	-13	0.3
OL-VC-20113	0-0.3		8110					26900		0.3
OL-VC-20113	0.3-0.5		8010					28100		0.3
OL-VC-20113	0.5-0.8		13400					39400		0.3
OL-VC-20113	0.8-1		17400					46100		0.4
OL-VC-20113	1-1.3		1920					67800		0.0
OL-VC-20113	1.3-1.5		1930					67100		0.0
OL-VC-20113	1.5-1.8		2030					75000		0.0
OL-VC-20113	2-2.5	1350	33400	174	111	14000	2690	132000	-18	0.3
OL-VC-20113	3-3.5	1610	36800	218	141	17800	2990	137000	-11	0.3
OL-VC-20113	4-4.5	1570	40100	241	156	19200	3980	141000	-13	0.3
OL-VC-20113	5-5.5	1080	44800	174	110	14000	2930	154000	-32	0.3
OL-VC-20113	6-6.5	1430	47600	234	163	19200	3460	182000	-21	0.3
OL-VC-20113	7.5-8	1450	45800	243	167	19800	3360	190000	-17	0.2
OL-VC-20113	9-9.5	1380	49000	229	157	19400	3510	195000	-22	0.3
OL-VC-20118	0-0.3		1480					6350		0.2
OL-VC-20118	0.3-0.5		2080					8840		0.2
OL-VC-20118	0.5-0.8		2790					12000		0.2
OL-VC-20118	0.8-1		3500					14200		0.2
OL-VC-20118	1-1.3		5930					20600		0.3
OL-VC-20118	1.3-1.5		6610					21800		0.3
OL-VC-20118	1.5-1.8		7350					22700		0.3
OL-VC-20118	2-2.5	175	9350	450	32.5	5590	118	39600	4	0.2
OL-VC-20118	3-3.5	29.4	12400	519	34.3	6380	106	55900	-4	0.2
OL-VC-20118	4-4.5	111	15400	428	42.3	8610	27.1	68400	-2	0.2
OL-VC-20118	5-5.5	237	19300	295	42.6	9410	108	88300	-10	0.2
OL-VC-20118	6-6.5	317	23500	135	40.8	8580	86.7	101000	-25	0.2
OL-VC-20119	0-0.3		1230					5920		0.2
OL-VC-20119	0.3-0.5		1330					5500		0.2
OL-VC-20119	1-1.3		4250					17000		0.3
OL-VC-20119	1.3-1.5		5950					22200		0.3
OL-VC-20119	1.5-1.8		6710					25200		0.3
OL-VC-20119	2-2.5	621	13900	7	50.4	7020	29.8	43200	-7	0.3
OL-VC-20119	3-3.5	766	20000	2.4	59.6	9600	29	59700	-10	0.3
OL-VC-20119	4-4.5	428	22100	74.9	70.1	12800	12.5	69300	-3	0.3

Table V-1

General Chemistry Data from Vibracores and Cation-Anion Balance

Location ID	Sample Depth (feet)	Calcium mg/L	Chloride mg/L	Magnesium mg/L	Potassium mg/L	Sodium mg/L	Sulfate mg/L	Conductance uS/cm	Balance %	Chloride/ Conductivity
OL-VC-20119	5-5.5	294	25400	149	69.4	13100	61.5	79900	-9	0.3
OL-VC-20119	6-6.5	345	31800	237	73.3	14700	184	96500	-14	0.3
OL-VC-20119	7.5-8	362	40300	117	42.9	9440	1010	136000	-45	0.3
OL-VC-20133	0-0.3		31000					89400		0.3
OL-VC-20133	0.3-0.5		32400					81200		0.4
OL-VC-20133	1-1.3		40400					98600		0.4
OL-VC-20133	1.3-1.5		40300					105000		0.4
OL-VC-20133	1.5-1.8		42700					94200		0.5
OL-VC-20133	2-2.5	458	43600	130	56.7	10700	2010	167000	-44	0.3
OL-VC-20133	3-3.5	671	46900	176	85.8	15400	2360	190000	-31	0.2
OL-VC-20133	4-4.5	1170	54200	284	169	26300	2820	203000	-13	0.3
OL-VC-20133	5-5.5	1400	56400	326	218	31500	2960	216000	-6	0.3
OL-VC-20133	6-6.5	1600	61400	362	252	36500	3180	230000	-3	0.3
OL-VC-20133	7.5-8	1530	78000	338	248	35200	3380	249000	-16	0.3
OL-VC-40083	0.5-1	14100	48200	81.8	383	9350	8.4	131000	-9	0.4
OL-VC-40083	1-1.5	15700	49300	82.8	386	10700	9.4	136000	-5	0.4
OL-VC-40083	1.5-2	14800	51000	84	398	10100	7.7	136000	-9	0.4
OL-VC-40083	2-2.5	16300	50200	85.7	385	11100	5.4	142000	-4	0.4
OL-VC-40083	2.5-3	16600	50900	87.2	400	11300	50	142000	-4	0.4
OL-VC-40083	3.5-4	15500	54200	87.5	411	10600	4.7	140000	-10	0.4
OL-VC-40083	4.5-5	17800	55600	108	410	12900	50	154000	-3	0.4
OL-VC-40083	6-6.5	17700	80800	168	427	14300	5.6	171000	-20	0.5
OL-VC-40083	7.5-8	18100	66500	120	429	13600	50	154000	-11	0.4
OL-VC-40084	0.5-1	14100	43700	78	373	8510	12.4	119000	-6	0.4
OL-VC-40084	1-1.5	14300	44400	74.2	393	8970	9.4	118000	-6	0.4
OL-VC-40084	1.5-2	13600	43300	69.8	379	8340	7.4	121000	-7	0.4
OL-VC-40084	2-2.5	14400	44500	70.9	368	8950	6.2	118000	-6	0.4
OL-VC-40084	2.5-3	12800	42000	55.4	322	8120	6.1	118000	-8	0.4
OL-VC-40084	3.5-4	13500	42200	54.3	350	8570	50	123000	-6	0.3
OL-VC-40084	4.5-5	13200	46600	54	336	8600	50	121000	-11	0.4
OL-VC-40084	6-6.5	14900	52900	77.1	365	11500	4.4	135000	-8	0.4
OL-VC-40084	7.5-8	19600	51000	118	376	14900	50	159000	7	0.3
OL-VC-40085	0.5-1	4230	34700	199	141	15000	53.3	96800	-5	0.4
OL-VC-40085	1-1.5	4620	40700	203	176	17000	46.2	112000	-7	0.4
OL-VC-40085	1.5-2	4850	45200	222	121	18500	44.5	122000	-9	0.4
OL-VC-40085	2-2.5	5720	52000	222	264	21300	43.2	136000	-9	0.4
OL-VC-40085	2.5-3	5820	52400	223	268	21300	41.2	140000	-9	0.4
OL-VC-40085	3.5-4	8010	58300	201	291	22200	23.4	148000	-8	0.4
OL-VC-40085	4.5-5	9000	59300	201	326	22300	21.1	150000	-7	0.4
OL-VC-40085	6-6.5	9920	63400	187	348	22000	18.5	154000	-10	0.4
OL-VC-40085	7.5-8	10200	58700	177	332	20100	25.5	153000	-8	0.4
OL-VC-40087	0.5-1	15900	45400	12.8	371	8560	8.3	123000	-4	0.4
OL-VC-40087	1-1.5	16500	45900	12.4	375	8760	5.2	128000	-3	0.4
OL-VC-40087	1.5-2	15200	45800	11.9	370	8070	50	130000	-7	0.4
OL-VC-40087	2-2.5	15100	46400	11.2	347	8070	50	132000	-8	0.4
OL-VC-40087	2.5-3	15300	46200	12.3	381	8550	50	128000	-6	0.4
OL-VC-40087	3.5-4	15700	45500	12.2	374	8480	50	128000	-5	0.4
OL-VC-40087	4.5-5	14200	46000	11.4	347	7670	2.9	127000	-10	0.4
OL-VC-40087	6-6.5	14200	457000	11.2	342	7660	50	126000	-85	3.6
OL-VC-40087	7.5-8	15600	45000	11.8	352	8440	50	126000	-5	0.4
OL-VC-40088	0.5-1	15300	43600	14.3	373	8350	11.4	122000	-4	0.4
OL-VC-40088	1-1.5	14800	44900	13.5	386	7970	7.5	126000	-7	0.4
OL-VC-40088	1.5-2	13500	44500	12.2	341	7300	4.8	130000	-11	0.3
OL-VC-40088	2-2.5	13300	45100	10.8	313	7290	50	126000	-13	0.4
OL-VC-40088	2.5-3	13300	46400	11	320	7300	50	126000	-14	0.4
OL-VC-40088	3.5-4	14800	44900	11.4	346	8160	50	126000	-7	0.4
OL-VC-40088	4.5-5	15400	45200	11.3	361	8570	50	125000	-5	0.4
OL-VC-40088	6-6.5	14600	45000	11	335	7890	50	126000	-8	0.4
OL-VC-40088	7.5-8	12300	43800	10.4	321	6640	5.8	127000	-15	0.3
OL-VC-40089	0.5-1	16300	45400	13.9	383	8900	8	120000	-3	0.4
OL-VC-40089	1-1.5	15600	46700	13.5	382	8500	7.3	126000	-6	0.4
OL-VC-40089	1.5-2	15900	48100	12.8	373	8800	6.7	126000	-7	0.4
OL-VC-40089	2-2.5	16500	46100	12.3	377	9190	4.7	126000	-3	0.4
OL-VC-40089	2.5-3	14200	46500	11.9	388	8450	4.5	126000	-9	0.4
OL-VC-40089	3.5-4	15600	46000	11.9	373	8540	50	127000	-6	0.4

Table V-1

General Chemistry Data from Vibracores and Cation-Anion Balance

Location ID	Sample Depth (feet)	Calcium mg/L	Chloride mg/L	Magnesium mg/L	Potassium mg/L	Sodium mg/L	Sulfate mg/L	Conductance uS/cm	Balance %	Chloride/ Conductivity
OL-VC-40089	4.5-5	14400	47100	11.8	402	7840	50	128000	-11	0.4
OL-VC-40089	6-6.5	15200	54900	11.4	384	8380	50	127000	-15	0.4
OL-VC-40089	7.5-8	15300	60400	11.8	373	8580	3.4	126000	-20	0.5
OL-VC-40091	0.5-1	6340	35300	105	113	9950	16.6	82100	-13	0.4
OL-VC-40091	1-1.5	7250	42300	124	155	11700	10.5	96200	-15	0.4
OL-VC-40091	1.5-2	8580	45700	130	184	14100	9.1	110000	-10	0.4
OL-VC-40091	2-2.5	9530	46300	133	219	15700	50	122000	-5	0.4
OL-VC-40091	2.5-3	9790	50200	134	237	15900	6.1	128000	-8	0.4
OL-VC-40091	3.5-4	10300	52600	131	274	16900	50	136000	-8	0.4
OL-VC-40091	4.5-5	10300	56900	141	293	17500	50	144000	-11	0.4
OL-VC-40091	6-6.5	10000	56000	151	275	19300	50	144000	-8	0.4
OL-VC-40091	7.5-8	7460	53900	184	276	19400	1.8	136000	-10	0.4
OL-VC-40092	0.5-1	6230	30600	115	117	10600	15.1	83600	-5	0.4
OL-VC-40092	1-1.5	6740	38200	131	171	12900	50	10500	-8	3.6
OL-VC-40092	1.5-2	8120	43200	138	204	15400	7.3	118000	-5	0.4
OL-VC-40092	2-2.5	8990	44600	145	238	17400	50	128000	-1	0.3
OL-VC-40092	2.5-3	9430	44000	147	242	17300	50	130000	0	0.3
OL-VC-40092	3.5-4	10000	50900	154	259	18900	3.3	128000	-3	0.4
OL-VC-40092	4.5-5	9400	54300	162	276	19100	3.6	141000	-7	0.4
OL-VC-40092	6-6.5	10800	54800	146	282	19900	50	146000	-4	0.4
OL-VC-40092	7.5-8	9890	57500	147	272	19300	5.4	148000	-9	0.4
OL-VC-40093	0.5-1	6890	41100	153	166	14700	14.3	108000	-7	0.4
OL-VC-40093	1-1.5	7470	40900	164	202	16600	7.5	122000	-2	0.3
OL-VC-40093	1.5-2	8090	44700	167	224	18000	6.6	127000	-2	0.4
OL-VC-40093	2-2.5	8220	54100	172	253	19200	4.4	140000	-9	0.4
OL-VC-40093	2.5-3	8500	49700	181	267	19700	3.8	137000	-4	0.4
OL-VC-40093	3.5-4	8050	50400	179	278	20100	4.5	138000	-5	0.4
OL-VC-40093	4.5-5	7850	54400	190	289	20900	50	144000	-7	0.4
OL-VC-40093	6-6.5	7810	53200	197	289	22000	50	146000	-5	0.4
OL-VC-40093	7.5-8	7820	54600	193	295	21700	50	147000	-6	0.4
OL-VC-40126	0.5-1	4060	37100	109	73.5	9280	500	91400	-26	0.4
OL-VC-40126	1-1.5	4900	42800	128	105	11900	500	112000	-22	0.4
OL-VC-40126	1.5-2	5950	48900	155	149	15700	500	121000	-16	0.4
OL-VC-40126	2-2.5	5910	52500	153	155	16200	500	130000	-19	0.4
OL-VC-40126	2.5-3	7410	58000	186	202	19900	500	134000	-13	0.4
OL-VC-40126	3.5-4	6760	54000	182	204	19600	500	140000	-12	0.4
OL-VC-40126	4.5-5	4870	50500	153	153	16400	500	142000	-19	0.4
OL-VC-40126	6-6.5	5420	56600	200	203	21000	500	146000	-14	0.4
OL-VC-40126	7.5-8	5360	57800	225	225	23300	500	146000	-11	0.4
OL-VC-40127	0.5-1	4820	41000	126	103	11900	500	106000	-20	0.4
OL-VC-40127	1-1.5	5440	57400	141	135	14400	500	122000	-28	0.5
OL-VC-40127	1.5-2	6610	49900	163	173	16900	500	129000	-13	0.4
OL-VC-40127	2-2.5	6450	53100	162	184	17600	500	140000	-15	0.4
OL-VC-40127	2.5-3	6940	56400	174	202	19500	500	141000	-14	0.4
OL-VC-40127	3.5-4	6310	53800	171	192	18600	500	142000	-14	0.4
OL-VC-40127	4.5-5	6990	56700	206	234	22300	500	144000	-9	0.4
OL-VC-40127	6-6.5	4520	53900	159	160	17200	500	145000	-21	0.4
OL-VC-40127	7.5-8	4890	51800	200	199	20900	500	145000	-11	0.4
OL-VC-40128	0.5-1	4680	39500	126	103	11600	500	102000	-20	0.4
OL-VC-40128	1-1.5	6400	52400	162	161	16400	500	121000	-17	0.4
OL-VC-40128	1.5-2	6290	52600	158	172	16500	500	128000	-18	0.4
OL-VC-40128	2-2.5	5700	54900	148	166	16400	500	137000	-21	0.4
OL-VC-40128	2.5-3	6430	82900	164	188	17800	500	140000	-36	0.6
OL-VC-40128	3.5-4	6210	58400	171	193	18300	500	142000	-19	0.4
OL-VC-40128	4.5-5	5560	60600	161	178	17900	500	144000	-23	0.4
OL-VC-40128	6-6.5	5880	58400	189	210	20400	500	143000	-16	0.4
OL-VC-40128	7.5-8	6320	60300	215	230	22700	500	144000	-13	0.4
OL-VC-40129	0.5-1	17300	59700	187	295	12400	500	147000	-9	0.4
OL-VC-40129	1-1.5	18800	63900	208	338	13400	500	154000	-8	0.4
OL-VC-40129	1.5-2	16800	78300	199	293	12000	500	156000	-23	0.5
OL-VC-40129	2-2.5	21800	70900	266	418	16000	500	164000	-5	0.4
OL-VC-40129	2.5-3	3590	70400	250	378	2590	500	166000	-72	0.4
OL-VC-40129	3-3.5	17800	69600	222	337	13100	500	168000	-14	0.4
OL-VC-40129	3.5-4	16500	72500	215	309	12300	500	169000	-20	0.4
OL-VC-40129	4.5-5	23100	71500	301	433	17300	500	172000	-2	0.4

Table V-1

General Chemistry Data from Vibracores and Cation-Anion Balance

Location ID	Sample Depth (feet)	Calcium mg/L	Chloride mg/L	Magnesium mg/L	Potassium mg/L	Sodium mg/L	Sulfate mg/L	Conductance uS/cm	Balance %	Chloride/ Conductivity
OL-VC-40129	6-6.5	21700	77300	298	427	16500	500	172000	-9	0.4
OL-VC-40129	7.5-8	21600	75200	295	405	16600	500	172000	-7	0.4
OL-VC-40130	0.5-1	18100	63500	183	330	13700	500	154000	-8	0.4
OL-VC-40130	1-1.5	19100	61100	184	344	13500	500	148000	-5	0.4
OL-VC-40130	1.5-2	17300	54300	160	286	12700	500	135000	-4	0.4
OL-VC-40130	2-2.5	17700	68200	197	316	13600	500	165000	-13	0.4
OL-VC-40130	2.5-3	21200	69800	243	403	15300	500	166000	-6	0.4
OL-VC-40130	3-3.5	20000	129000	238	372	14800	500	168000	-37	0.8
OL-VC-40130	3.5-4	19900	71700	250	392	14700	500	169000	-10	0.4
OL-VC-40130	4.5-5	18000	80200	233	320	13000	500	170000	-21	0.5
OL-VC-40130	6-6.5	19300	74300	263	344	14300	500	175000	-13	0.4
OL-VC-40130	7.5-8	19700	73200	273	384	15300	500	176000	-10	0.4
OL-VC-40131	0.5-1	14500	63500	151	214	10100	500	144000	-21	0.4
OL-VC-40131	1-1.5	15400	65700	168	239	10900	500	152000	-19	0.4
OL-VC-40131	1.5-2	14200	66400	161	222	10200	500	156000	-23	0.4
OL-VC-40131	2-2.5	17600	66600	210	302	13000	500	166000	-13	0.4
OL-VC-40131	2.5-3	20900	68100	247	378	15200	500	167000	-5	0.4
OL-VC-40131	3-3.5	19800	68100	239	346	14700	500	170000	-8	0.4
OL-VC-40131	3.5-4	22800	72600	281	421	17000	500	170000	-4	0.4
OL-VC-40131	4.5-5	18000	82400	235	315	13800	500	174000	-21	0.5
OL-VC-40131	6-6.5	19500	76000	254	351	15700	500	175000	-12	0.4
OL-VC-40131	7.5-8	19800	76300	246	334	16800	500	174000	-11	0.4
OL-VC-40149	0-0.3		659					6090		0.1
OL-VC-40149	0.3-0.5		644					4740		0.1
OL-VC-40149	0.5-0.8		653					4100		0.2
OL-VC-40149	0.8-1		653					4010		0.2
OL-VC-40149	1-1.3		2500					13700		0.2
OL-VC-40149	1.3-1.5		3080					16700		0.2
OL-VC-40149	1.5-1.8		3630					19600		0.2
OL-VC-40149	2-2.5	45.4	4090	796	24.4	1990	187	24800	13	0.2
OL-VC-40149	3-3.5	63.8	5470	863	30.7	3120	167	34000	14	0.2
OL-VC-40149	4-4.5	219	7570	705	36.2	4310	330	41700	8	0.2
OL-VC-40149	5-5.5	369	9520	528	37.6	5510	376	50400	5	0.2
OL-VC-40149	6-6.5	391	11400	337	31.7	5340	329	61000	-8	0.2
OL-VC-40151	0-0.3		541					3340		0.2
OL-VC-40151	0.3-0.5		641					3950		0.2
OL-VC-40151	0.5-0.8		934					5520		0.2
OL-VC-40151	0.8-1		1120					6660		0.2
OL-VC-40151	1-1.3		1700					10000		0.2
OL-VC-40151	1.3-1.5		1760					10200		0.2
OL-VC-40151	1.5-1.8		1800					10200		0.2
OL-VC-40151	2-2.5	153	1870	604	27	773	232	12200	23	0.2
OL-VC-40151	3-3.5	96.7	2170	328	15.3	450	169	11600	-11	0.2
OL-VC-40151	4-4.5	171	2600	735	35.8	1030	203	15300	19	0.2
OL-VC-40151	5-5.5	93.3	2970	596	27.1	850	216	17800	2	0.2
OL-VC-40151	6-6.5	68.8	3450	944	40.8	1430	155	25100	18	0.1
OL-VC-40151	7.5-8	44.1	4260	1410	60.4	2500	155	26100	30	0.2
OL-VC-40151	9-9.5	19.5	5560	881	37.2	2170	202	32500	2	0.2
OL-VC-40154	0-0.3		527					3140		0.2
OL-VC-40154	0.3-0.5		546					3130		0.2
OL-VC-40154	0.5-0.8		567					3520		0.2
OL-VC-40154	0.8-1		687					3860		0.2
OL-VC-40154	1-1.3		2170					9940		0.2
OL-VC-40154	1.3-1.5		2480					10600		0.2
OL-VC-40154	1.5-1.8		2870					12700		0.2
OL-VC-40154	2-2.5	359	4270	459	17.4	1300	487	18800	-7	0.2
OL-VC-40154	3-3.5	410	5570	550	20.8	1900	583	20600	-6	0.3
OL-VC-40154	4-4.5	480	7270	531	23.9	2860	400	33300	-5	0.2
OL-VC-40154	5-5.5	661	9300	470	26.6	3990	428	33500	-5	0.3
OL-VC-40154	6-6.5	829	11000	300	25	4530	601	34100	-10	0.3
OL-VC-40154	7.5-8	694	13700	138	20.2	4600	680	44900	-24	0.3
OL-VC-40154	9-9.5	667	18000	107	22.2	6010	786	66700	-27	0.3
OL-VC-40157	0-0.3		1970					6880		0.3
OL-VC-40157	0.3-0.5		2330					8410		0.3
OL-VC-40157	0.5-0.8		3320					10400		0.3

Table V-1

General Chemistry Data from Vibracores and Cation-Anion Balance

Location ID	Sample Depth (feet)	Calcium mg/L	Chloride mg/L	Magnesium mg/L	Potassium mg/L	Sodium mg/L	Sulfate mg/L	Conductance uS/cm	Balance %	Chloride/ Conductivity
OL-VC-40157	0.8-1		2760					8980		0.3
OL-VC-40157	1-1.3		3230					11000		0.3
OL-VC-40157	1.3-1.5		3580					11400		0.3
OL-VC-40157	1.5-1.8		3850					11700		0.3
OL-VC-40157	2-2.5	25.4	4960	528	37.5	1350	99.2	17900	-15	0.3
OL-VC-40157	3-3.5	30.1	6050	650	40.2	1830	245	20600	-13	0.3
OL-VC-40157	4-4.5	40.4	7110	786	46.2	2520	260	23100	-7	0.3
OL-VC-40157	5-5.5	125	8670	827	41.5	3030	1020	33200	-12	0.3
OL-VC-40157	6-6.5	114	10900	726	39.2	3990	428	38800	-14	0.3
OL-VC-40157	7.5-8	254	13400	689	45	5550	456	39800	-11	0.3
OL-VC-40157	9-9.5	424	18500	424	45	7190	540	64500	-18	0.3
OL-VC-40165	0-0.3		3500					14500		0.2
OL-VC-40165	0.3-0.5		5560					20500		0.3
OL-VC-40165	0.5-0.8		8340					30800		0.3
OL-VC-40165	0.8-1		10900					35000		0.3
OL-VC-40165	1-1.3		14700					45100		0.3
OL-VC-40165	1.3-1.5		14500					47200		0.3
OL-VC-40165	1.5-1.8		15500					47100		0.3
OL-VC-40165	2-2.5	920	20100	180	77.3	11500	2420	97500	-5	0.2
OL-VC-40165	3-3.5	1100	24700	204	100	14100	2260	107000	-4	0.2
OL-VC-40165	4-4.5	1310	30200	248	134	17700	2340	135000	-2	0.2
OL-VC-40165	5-5.5	1440	32400	280	167	19900	2370	140000	0	0.2
OL-VC-40165	6-6.5	1290	35500	247	156	19000	2500	151000	-7	0.2
OL-VC-40165	7.5-8	1530	38700	294	201	22400	2540	161000	-3	0.2
OL-VC-40165	9-9.5	1180	40800	228	154	18000	2550	167000	-16	0.2
OL-VC-40168	0-0.3		840					4380		0.2
OL-VC-40168	0.3-0.5		1190					5100		0.2
OL-VC-40168	0.5-0.8		1910					7090		0.3
OL-VC-40168	0.8-1		3080					9540		0.3
OL-VC-40168	1-1.3		3310					13900		0.2
OL-VC-40168	1.3-1.5		3330					13600		0.2
OL-VC-40168	1.5-1.8		3390					13800		0.2
OL-VC-40168	2-2.5	640	3950	46.7	97	904	26.4	13300	-18	0.3
OL-VC-40168	3-3.5	906	4130	11	99.4	900	34.9	14600	-14	0.3
OL-VC-40168	4-4.5	1040	4240	1.31	95.6	852	72.7	15400	-14	0.3
OL-VC-40168	5-5.4	1150	4380	1.2	110	928	100	15600	-11	0.3
OL-VC-40172	0-0.3		1410					6300		0.2
OL-VC-40172	0.3-0.5		1430					6010		0.2
OL-VC-40172	0.5-0.8		1840					7440		0.2
OL-VC-40172	0.8-1		2660					8950		0.3
OL-VC-40172	1-1.3		2590					9720		0.3
OL-VC-40172	1.3-1.5		2960					10400		0.3
OL-VC-40172	1.5-1.8		3150					11300		0.3
OL-VC-40172	2-2.5	1280	3720	66.1	13.4	1830	2480	20700	-2	0.2
OL-VC-40172	3-3.5	473	5260	32	8.85	1210	1310	22400	-38	0.2
OL-VC-40172	4-4.5	537	6880	52	14.7	2350	494	26100	-21	0.3
OL-VC-40172	5-5.5	455	8180	50	13.3	2380	269	31700	-29	0.3
OL-VC-40172	6-6.5	570	9980	69.1	19.1	3540	443	32800	-21	0.3
OL-VC-40172	7.5-8	539	12000	72.1	20.3	4020	112	38100	-24	0.3
OL-VC-40179	0-0.3		1160					7090		0.2
OL-VC-40179	0.3-0.5		1480					7880		0.2
OL-VC-40179	0.5-0.8		2250					10800		0.2
OL-VC-40179	0.8-1		2490					13200		0.2
OL-VC-40179	1-1.3		5340					23900		0.2
OL-VC-40179	1.3-1.5		5780					25000		0.2
OL-VC-40179	1.5-1.8		6030					26200		0.2
OL-VC-40179	2-2.5	618	8360	435	34.3	2070	117	26500	-20	0.3
OL-VC-40179	3-3.5	1310	9600	535	62.9	3840	111	32700	1	0.3
OL-VC-40179	4-4.5	1350	12300	232	49.3	3450	101	44800	-19	0.3
OL-VC-40179	5-5.5	1800	15200	108	61.2	4460	84.9	60800	-19	0.3
OL-VC-40179	6-6.5	2380	17800	33.4	90.1	6380	120	71200	-11	0.3
OL-VC-40179	7.5-8	3470	22100	0.327	125	9760	51.4	90300	-2	0.2
OL-VC-40184	0-0.3		19500					70600		0.3
OL-VC-40184	0.3-0.5		19100					67900		0.3
OL-VC-40184	0.5-0.8		18400					65400		0.3

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General Chemistry Data from Vibracores and Cation-Anion Balance

Location ID	Sample Depth (feet)	Calcium mg/L	Chloride mg/L	Magnesium mg/L	Potassium mg/L	Sodium mg/L	Sulfate mg/L	Conductance uS/cm	Balance %	Chloride/ Conductivity
OL-VC-40184	0.8-1		18000					64400		0.3
OL-VC-40184	1-1.3		7850					32500		0.2
OL-VC-40184	1.3-1.5		10600					42100		0.3
OL-VC-40184	1.5-1.8		16100					59200		0.3
OL-VC-40184	2-2.5	1660	42400	289	171	21900	1090	196000	-7	0.2
OL-VC-40184	3-3.5	1150	40900	316	192	24400	1130	181000	-1	0.2
OL-VC-40184	4-4.5	1100	46000	319	198	25100	1100	183000	-6	0.3
OL-VC-40184	5-5.5	914	45900	269	161	21700	1100	183000	-13	0.3
OL-VC-60125	0-0.3		591					3860		0.2
OL-VC-60125	0.3-0.5		667					4110		0.2
OL-VC-60125	0.5-0.8		830					5040		0.2
OL-VC-60125	0.8-1		848					5110		0.2
OL-VC-60125	1-1.3		1650					9770		0.2
OL-VC-60125	1.3-1.5		1700					9820		0.2
OL-VC-60125	1.5-1.8		1830					9780		0.2
OL-VC-60125	2-2.5	746	3140	74.6	24.9	1560	83.5	13200	11	0.2
OL-VC-60125	3-3.5	762	4050	89.7	25.5	1880	77.5	16200	5	0.3
OL-VC-60125	4-4.5	771	4270	119	27.3	2360	75	19000	11	0.2
OL-VC-60125	5-5.5	709	5310	143	25.1	2540	77.2	21800	2	0.2
OL-VC-60125	6-6.5	713	6750	187	25	3050	77.3	22200	-2	0.3
OL-VC-60125	7.5-8	851	9440	265	30.5	4440	21.7	27300	-2	0.3
OL-VC-60125	9-9.5	915	11200	285	29.6	5110	9.6	35500	-4	0.3
OL-VC-60127	0-0.3		1190					7070		0.2
OL-VC-60127	0.3-0.5		1660					8420		0.2
OL-VC-60127	1-1.3		2360					13300		0.2
OL-VC-60127	1.3-1.5		2620					14300		0.2
OL-VC-60127	1.5-1.8		2850					15000		0.2
OL-VC-60127	2-2.5	784	3720	130	28.7	1690	100	10300	7	0.4
OL-VC-60127	3-3.5	744	4630	134	26.2	1860	84.5	10900	-1	0.4
OL-VC-60127	4-4.5	885	5580	178	31.4	2620	87.7	8420	4	0.7
OL-VC-60127	5-5.5	906	6520	195	34	3140	201	9000	3	0.7
OL-VC-60127	6-6.5	885	7830	188	31.1	3150	648	17500	-9	0.4
OL-VC-60127	7.5-8	1060	10100	244	40.6	4300	51.3	9420	-5	1.1
OL-VC-60129	0-0.3		796					3860		0.2
OL-VC-60129	0.3-0.5		860					4340		0.2
OL-VC-60129	0.5-0.8		1170					5490		0.2
OL-VC-60129	0.8-1		1250					5740		0.2
OL-VC-60129	1-1.3		3160					15800		0.2
OL-VC-60129	1.3-1.5		4130					18400		0.2
OL-VC-60129	1.5-1.8		5990					23200		0.3
OL-VC-60129	2-2.5	1070	8630	252	79.2	7250	55.5	33000	23	0.3
OL-VC-60129	3-3.5	1210	18100	322	93.7	8920	220	39300	-4	0.5
OL-VC-60129	4-4.5	1300	19100	416	124	10900	112	59900	3	0.3
OL-VC-60129	5-5.5	1400	24300	482	143	12500	104	56300	-2	0.4
OL-VC-60129	6-6.5	1730	30100	622	197	16100	76.2	64900	0	0.5
OL-VC-60129	7.5-8	1640	33300	580	180	15400	9.3	69500	-8	0.5
OL-VC-60129	9-9.1	1890	36200	668	220	18200	9.4	80000	-4	0.5
OL-VC-60150	0-0.3		564					3760		0.2
OL-VC-60150	0.3-0.5		644					3790		0.2
OL-VC-60150	0.5-0.8		750					5000		0.2
OL-VC-60150	0.8-1		756					5310		0.1
OL-VC-60150	1-1.3		1260					7720		0.2
OL-VC-60150	1.3-1.5		1400					8270		0.2
OL-VC-60150	1.5-1.8		1560					9090		0.2
OL-VC-60150	2-2.5	580	2160	74.1	25	968	103	11000	10	0.2
OL-VC-60150	3-3.5	654	3040	85	26.9	1310	53.2	13300	6	0.2
OL-VC-60150	4-4.5	668	3870	96.3	27.8	1640	118	15300	1	0.3
OL-VC-60150	5-5.5	727	4980	109	25.1	1930	61.1	17800	-4	0.3
OL-VC-60150	6-6.5	839	4750	134	27.6	2600	49.8	20200	10	0.2
OL-VC-60150	7.5-8	897	6720	155	24.9	3510	10.8	25200	5	0.3
OL-VC-60150	9-9.5	672	8500	130	19	3750	25.5	29700	-7	0.3
OL-VC-60152	0-0.3		247					4460		0.1
OL-VC-60152	0.3-0.5		825					5090		0.2
OL-VC-60152	0.5-0.8		1280					7600		0.2
OL-VC-60152	0.8-1		1310					8340		0.2

Table V-1

General Chemistry Data from Vibracores and Cation-Anion Balance

Location ID	Sample Depth (feet)	Calcium mg/L	Chloride mg/L	Magnesium mg/L	Potassium mg/L	Sodium mg/L	Sulfate mg/L	Conductance uS/cm	Balance %	Chloride/ Conductivity
OL-VC-60152	1-1.3		1510					9080		0.2
OL-VC-60152	1.3-1.5		1590					9420		0.2
OL-VC-60152	1.5-1.8		1660					9730		0.2
OL-VC-60152	2-2.5	663	2070	107	24.7	935	437	11000	10	0.2
OL-VC-60152	3-3.5	673	2560	118	24	1110	380	12800	7	0.2
OL-VC-60152	4-4.5	611	3000	115	23.5	1270	160	13400	4	0.2
OL-VC-60152	5-5.5	609	3530	124	24.3	1570	312	14800	2	0.2
OL-VC-60152	6-6.5	604	3430	120	20.4	1740	450	14000	5	0.2
OL-VC-60152	7.5-8	588	4560	117	20	2290	67.3	17700	3	0.3
OL-VC-60154	0-0.3		1140					8200		0.1
OL-VC-60154	0.3-0.5		1270					7860		0.2
OL-VC-60154	0.5-0.8		1880					7940		0.2
OL-VC-60154	0.8-1		2690					11100		0.2
OL-VC-60154	1-1.3		3530					14700		0.2
OL-VC-60154	1.3-1.5		4190					17200		0.2
OL-VC-60154	1.5-1.8		4770					18700		0.3
OL-VC-60154	2-2.5	678	6420	113	16.6	2740	261	10200	-7	0.6
OL-VC-60154	3-3.5	849	8270	159	16.9	3620	152	8500	-5	1.0
OL-VC-60154	4-4.5	920	9750	190	18.4	4040	367	4600	-9	2.1
OL-VC-60154	5-5.5	977	10800	218	17.3	4550	332	9600	-8	1.1
OL-VC-60154	6-6.5	994	11300	232	17.3	5090	256	28900	-5	0.4
OL-VC-60154	7.5-8	952	13200	230	15.3	5190	34.1	15200	-12	0.9
OL-VC-60154	9-9.5	1050	15200	258	18.3	6200	200	11900	-11	1.3
OL-VC-60162	0-0.3		498					3850		0.1
OL-VC-60162	0.3-0.5		611					4580		0.1
OL-VC-60162	0.5-0.8		716					5780		0.1
OL-VC-60162	0.8-1		751					5840		0.1
OL-VC-60162	1-1.3		1080					7740		0.1
OL-VC-60162	1.3-1.5		1080					8400		0.1
OL-VC-60162	1.5-1.8		1200					8910		0.1
OL-VC-60162	2-2.5	439	1970	76.2	22.4	705	99.7	10300	2	0.2
OL-VC-60162	3-3.5	529	2850	104	24.8	998	79.2	12300	-2	0.2
OL-VC-60162	4-4.5	560	3860	122	25.5	1350	58	14700	-6	0.3
OL-VC-60162	5-5.5	615	4590	138	25.6	1680	86.9	16200	-6	0.3
OL-VC-60162	6-6.5	586	4430	138	22.8	1840	56.1	17100	-2	0.3
OL-VC-60162	7.5-8	819	6060	196	28.7	3160	8.3	19800	7	0.3
OL-VC-60162	9-9.2	862	7750	214	28.5	4010	10.3	25000	4	0.3
OL-VC-60168	0-0.3		475					3670		0.1
OL-VC-60168	0.3-0.5		501					4080		0.1
OL-VC-60168	0.5-0.8		559					4560		0.1
OL-VC-60168	0.8-1		597					5160		0.1
OL-VC-60168	1-1.3		864					7020		0.1
OL-VC-60168	1.3-1.5		884					7800		0.1
OL-VC-60168	1.5-1.8		1020					7590		0.1
OL-VC-60168	2-2.5	478	1420	91.7	24.6	733	165	9760	19	0.1
OL-VC-60168	3-3.5	560	2010	122	24.2	882	977	12600	0	0.2
OL-VC-60168	4-4.5	522	3070	150	25.6	1310	318	15300	1	0.2
OL-VC-60168	5-5.5	558	3720	175	26.9	1680	171	17100	3	0.2
OL-VC-60168	6-6.5	675	4390	198	29.4	2180	569	18400	4	0.2
OL-VC-60168	7.5-8	744	5630	210	27.8	2780	80.9	22000	5	0.3
OL-VC-60168	9-9.2	779	7040	219	28.2	3590	24.7	24000	4	0.3
OL-VC-60171	0-0.3		500					3470		0.1
OL-VC-60171	0.3-0.5		597					3610		0.2
OL-VC-60171	0.5-0.8		654					3900		0.2
OL-VC-60171	0.8-1		688					4050		0.2
OL-VC-60171	1-1.3		1390					7480		0.2
OL-VC-60171	1.3-1.5		1560					8290		0.2
OL-VC-60171	1.5-1.8		1620					8320		0.2
OL-VC-60171	2-2.5	488	2670	67.4	19.6	1250	192	12100	3	0.2
OL-VC-60171	3-3.5	551	4090	82.1	18	1710	470	14200	-7	0.3
OL-VC-60171	4-4.5	597	4350	97.3	20.4	2660	304	16900	9	0.3
OL-VC-60171	5-5.5	531	5210	92.1	17.1	2850	73.9	16900	3	0.3
OL-VC-60171	6-6.5	472	6010	89.2	14.2	2970	66.7	20400	-3	0.3
OL-VC-60171	7.5-8	615	7610	120	14.9	4220	29.8	21600	2	0.4
OL-VC-60171	9-9.5	570	9300	111	12.3	4490	76.1	27300	-6	0.3

Table V-1

General Chemistry Data from Vibracores and Cation-Anion Balance

Location ID	Sample Depth (feet)	Calcium mg/L	Chloride mg/L	Magnesium mg/L	Potassium mg/L	Sodium mg/L	Sulfate mg/L	Conductance uS/cm	Balance %	Chloride/ Conductivity
OL-VC-60179	0-0.3		1260					7790		0.2
OL-VC-60179	0.3-0.5		1200					7230		0.2
OL-VC-60179	0.5-0.8		1140					6850		0.2
OL-VC-60179	0.8-1		1040					7000		0.1
OL-VC-60179	1-1.3		1770					8920		0.2
OL-VC-60179	1.3-1.5		2530					8940		0.3
OL-VC-60179	1.5-1.8		3380					4180		0.8
OL-VC-60179	2-2.5	474	5810	121	44.5	3080	325	10000	-1	0.6
OL-VC-60179	3-3.5	499	7280	131	48.1	3960	184	8560	0	0.9
OL-VC-60179	4-4.5	464	10100	135	46.8	5260	138	10200	-4	1.0
OL-VC-60179	5-5.5	468	13800	143	41.9	6390	188	17600	-11	0.8
OL-VC-60179	6-6.5	416	21000	179	35.5	9780	128	22800	-13	0.9
OL-VC-60181	0-0.3		552					3830		0.1
OL-VC-60181	0.3-0.5		780					4060		0.2
OL-VC-60181	0.5-0.8		976					4950		0.2
OL-VC-60181	0.8-1		1030					5230		0.2
OL-VC-60181	1-1.3		1540					6800		0.2
OL-VC-60181	1.3-1.5		1640					7900		0.2
OL-VC-60181	1.5-1.8		1900					8800		0.2
OL-VC-60181	2-2.5	451	2400	90	17.3	1360	105	11600	12	0.2
OL-VC-60181	3-3.5	543	3340	113	20.3	1930	660	13800	6	0.2
OL-VC-60181	4-4.5	473	4270	102	19.7	2260	460	16000	0	0.3
OL-VC-60181	5-5.5	466	5100	96	17.8	2520	395	19200	-4	0.3
OL-VC-60181	6-6.5	427	5840	91.4	17.8	2840	186	19100	-5	0.3
OL-VC-60181	7.5-8	490	7070	110	17.9	3860	35.4	23500	0	0.3
OL-VC-60181	9-9.5	520	8670	115	17.3	4870	42	28000	0	0.3
OL-VC-60191	0-0.3		4580					17100		0.3
OL-VC-60191	0.3-0.5		3710					13900		0.3
OL-VC-60191	0.5-0.8		3940					12600		0.3
OL-VC-60191	0.8-1		5030					16500		0.3
OL-VC-60191	1-1.3		14700					38700		0.4
OL-VC-60191	1.3-1.5		19000					54300		0.3
OL-VC-60191	2-2.5	1450	25700	208	26.8	12700	144	111000	-6	0.2
OL-VC-60191	3-3.5	1300	28800	213	26	12900	113	121000	-12	0.2
OL-VC-60191	4-4.5	1270	31200	244	28.8	15300	50.8	130000	-8	0.2
OL-VC-60191	5-5.5	1300	33500	286	34.9	18100	45.6	131000	-4	0.3
OL-VC-60191	6-6.5	1060	34700	275	33.1	17500	26.2	143000	-8	0.2
OL-VC-60191	7.5-8	960	36300	295	33.6	18500	24.8	157000	-8	0.2
OL-VC-70057	0.5-1	1080	7600	63	30	2910	39.7	23200	-7	0.3
OL-VC-70057	1-1.5	1710	9940	58.8	55.7	4900	39.5	35000	4	0.3
OL-VC-70057	1.5-2	1700	11700	45.8	64	5530	47.3	38300	0	0.3
OL-VC-70057	2-2.5	2060	15000	50.5	82.2	6640	21.5	47000	-3	0.3
OL-VC-70057	2.5-3	2050	14100	51.4	82	6920	15	47000	1	0.3
OL-VC-70057	3.5-4	1940	13400	80	80.4	7370	6.4	49500	6	0.3
OL-VC-70057	4.5-5	1750	15500	106	74.6	8280	3	51400	2	0.3
OL-VC-70057	6-6.5	1390	17400	140	67.2	9070	3.1	54400	-1	0.3
OL-VC-70057	7.5-8	1140	16900	165	62.8	9510	3.6	56400	1	0.3
OL-VC-70058	0.5-1	1480	9480	58.1	43.4	3940	43.9	29600	-3	0.3
OL-VC-70058	1-1.5	1820	11500	46.8	60.2	5160	64.8	38400	-1	0.3
OL-VC-70058	1.5-2	1950	13400	46.2	67.9	5310	50.9	40800	-6	0.3
OL-VC-70058	2-2.5	1980	14500	59.5	73.6	6750	15.2	48200	-1	0.3
OL-VC-70058	2.5-3	2010	15100	72.4	77	7200	11.3	49400	-1	0.3
OL-VC-70058	3.5-4	1750	15700	97.4	73	7840	8.9	50400	-1	0.3
OL-VC-70058	4.5-5	1380	14700	135	68	8410	3.4	52600	4	0.3
OL-VC-70058	6-6.5	991	19500	165	62	9380	2.3	55200	-8	0.4
OL-VC-70058	7.5-8	821	16300	174	57.4	9800	1.2	56300	2	0.3
OL-VC-70059	0.5-1	1930	12600	49	64	5190	21.3	39800	-4	0.3
OL-VC-70059	1-1.5	2030	15300	44.2	70.3	5640	27.7	41900	-10	0.4
OL-VC-70059	1.5-2	2120	14900	47.8	77	6330	21.6	45000	-4	0.3
OL-VC-70059	2-2.5	2080	17900	67.2	81.3	7350	5.2	49800	-8	0.4
OL-VC-70059	2.5-3	2030	16400	75.3	80.1	7610	3.3	50200	-2	0.3
OL-VC-70059	3.5-4	1520	16100	96.9	65.5	6980	2.7	51200	-8	0.3
OL-VC-70059	4.5-5	1410	16900	139	72	9050	25	53200	0	0.3
OL-VC-70059	6-6.5	979	17500	159	61.6	9100	2.6	55200	-4	0.3
OL-VC-70059	7.5-8	803	18200	174	58.3	10300	2.2	57800	-1	0.3

Table V-1

General Chemistry Data from Vibracores and Cation-Anion Balance

Location ID	Sample Depth (feet)	Calcium mg/L	Chloride mg/L	Magnesium mg/L	Potassium mg/L	Sodium mg/L	Sulfate mg/L	Conductance uS/cm	Balance %	Chloride/ Conductivity
OL-VC-70061	0.5-1	388	9320	127	14.4	5480	49.1	31400	1	0.3
OL-VC-70061	1-1.5	507	14500	185	16.2	8310	35.9	49000	-1	0.3
OL-VC-70061	1.5-2	632	20200	236	17.9	11400	15.6	60600	-2	0.3
OL-VC-70061	2-2.5	782	24900	279	20.7	13900	50	76700	-3	0.3
OL-VC-70061	2.5-3	761	25600	275	20.3	14400	50	77800	-3	0.3
OL-VC-70061	3.5-4	790	26700	282	21	14300	50	83000	-5	0.3
OL-VC-70061	4.5-5	911	36200	321	24.8	18400	50	95600	-8	0.4
OL-VC-70061	6-6.5	947	38500	341	26.6	17900	50	97400	-12	0.4
OL-VC-70061	7.5-8	960	43800	350	26.1	19300	50	10300	-15	4.3
OL-VC-70062	0.5-1	429	9580	129	12.4	4650	33.2	27800	-7	0.3
OL-VC-70062	1-1.5	562	15200	188	15	8180	27.1	44200	-4	0.3
OL-VC-70062	1.5-2		12900	229	15.6	10100	11	56300	11	0.2
OL-VC-70062	2-2.5	811	27900	279	19.7	13700	50	74000	-9	0.4
OL-VC-70062	2.5-3	844	37900	291	20.6	14200	50	77000	-22	0.5
OL-VC-70062	3.5-4	901	29800	303	21.5	15400	50	83000	-6	0.4
OL-VC-70062	4.5-5	964	34200	319	24.1	16900	50	94000	-9	0.4
OL-VC-70062	6-6.5	990	34900	340	26.1	18600	50	99800	-5	0.3
OL-VC-70062	7.5-8	991	37600	368	29.8	20100	50	102000	-5	0.4
OL-VC-70063	0.5-1	478	10900	135	15	5620	36.6	31200	-5	0.3
OL-VC-70063	1-1.5	624	15200	184	15	8060	28	47200	-4	0.3
OL-VC-70063	1.5-2	771	20000	233	17.5	10800	16.9	60000	-3	0.3
OL-VC-70063	2-2.5	985	27000	290	22.2	14300	50	81200	-5	0.3
OL-VC-70063	2.5-3	986	30400	294	23.6	15600	50	84800	-7	0.4
OL-VC-70063	3.5-4	1060	31800	308	24	15700	50	89800	-8	0.4
OL-VC-70063	4.5-5	1120	34100	318	26.9	18300	50	104000	-5	0.3
OL-VC-70063	6-6.5	1060	36800	339	29	18200	50	108000	-9	0.3
OL-VC-70063	7.5-8	1010	39000	350	27.4	19800	3.2	108000	-8	0.4
OL-VC-70089	0-0.3		492					4380		0.1
OL-VC-70089	0.3-0.5		546					5210		0.1
OL-VC-70089	0.5-0.8		673					6290		0.1
OL-VC-70089	0.8-1		744					6290		0.1
OL-VC-70089	1-1.3		944					9510		0.1
OL-VC-70089	1.3-1.5		1100					10800		0.1
OL-VC-70089	1.5-1.8		1310					12400		0.1
OL-VC-70089	2-2.5	275	2220	526	27.1	850	122	19300	18	0.1
OL-VC-70089	3-3.5	175	2990	957	33.2	1200	119	22800	24	0.1
OL-VC-70089	4-4.5	107	3640	794	30.3	1210	80	23400	9	0.2
OL-VC-70089	5-5.5	204	3920	760	38	1640	93.4	20300	13	0.2
OL-VC-70089	6-6.5	314	4230	390	29	1530	703	27000	-8	0.2
OL-VC-70089	7.5-8	397	3960	250	28.5	1890	88.3	27900	4	0.1
OL-VC-70089	9-9.5	524	4950	204	30.1	2800	56.5	28200	8	0.2
OL-VC-70093	0-0.3		448					3750		0.1
OL-VC-70093	0.3-0.5		429					3840		0.1
OL-VC-70093	1-1.3		787					5430		0.1
OL-VC-70093	1.3-1.5		819					6380		0.1
OL-VC-70093	1.5-1.8		879					7460		0.1
OL-VC-70093	2-2.5	256	2050	242	19	687	149	10400	2	0.2
OL-VC-70093	3-3.5	186	2560	303	18.3	680	213	13600	-9	0.2
OL-VC-70093	4-4.5	179	2840	267	15.6	641	387	12600	-20	0.2
OL-VC-70093	5-5.5	326	3400	426	26.6	1210	664	15500	-2	0.2
OL-VC-70093	6-6.5	340	3860	388	25.4	1340	608	20400	-6	0.2
OL-VC-70093	7.5-8	407	4820	348	23.8	1600	724	20200	-12	0.2
OL-VC-70093	9-9.3	315	6230	250	19.8	1750	821	28400	-26	0.2
OL-VC-70100	0-0.3		719					4290		0.2
OL-VC-70100	0.3-0.5		675					3960		0.2
OL-VC-70100	0.5-0.8		1100					6230		0.2
OL-VC-70100	0.8-1		1200					6880		0.2
OL-VC-70100	1-1.3		2110					10500		0.2
OL-VC-70100	1.3-1.5		2140					10500		0.2
OL-VC-70100	1.5-1.8		2040					11200		0.2
OL-VC-70100	2-2.5	343	3670	233	19.7	1600	313	20400	-2	0.2
OL-VC-70100	3-3.5	395	4780	255	21.1	2020	307	26300	-4	0.2
OL-VC-70100	4-4.5	508	4300	252	22	2470	548	28100	7	0.2
OL-VC-70100	5-5.5	502	5240	206	21.3	2920	381	33100	4	0.2
OL-VC-70100	6-6.5	510	6200	190	23.6	3750	227	39900	7	0.2

Table V-1

General Chemistry Data from Vibracores and Cation-Anion Balance

Location ID	Sample Depth (feet)	Calcium mg/L	Chloride mg/L	Magnesium mg/L	Potassium mg/L	Sodium mg/L	Sulfate mg/L	Conductance uS/cm	Balance %	Chloride/ Conductivity
OL-VC-70100	7.5-8	407	7710	135	19.8	3720	176	41400	-7	0.2
OL-VC-70100	9-9.5	524	9360	181	28.3	5730	54.3	47900	5	0.2
OL-VC-70102	0-0.3		1410					9200		0.2
OL-VC-70102	0.3-0.5		2390					9980		0.2
OL-VC-70102	0.5-0.8		3500					13300		0.3
OL-VC-70102	0.8-1		7160					21400		0.3
OL-VC-70102	1-1.3		11400					42700		0.3
OL-VC-70102	1.3-1.5		14800					520		28.5
OL-VC-70102	1.5-1.8		17700					60800		0.3
OL-VC-70102	2-2.5	500	24500	203	13	9190	246	94600	-22	0.3
OL-VC-70102	3-3.5	496	26300	214	14.1	10000	100	102000	-22	0.3
OL-VC-70102	4-4.5	349	28200	148	10.1	7090	137	89900	-40	0.3
OL-VC-70102	5-5.5	433	30600	183	13	9180	106	117000	-33	0.3
OL-VC-70102	6-6.5	606	31400	256	17.9	12900	93.4	117000	-18	0.3
OL-VC-70102	7.5-8	657	34200	280	19	14200	25.3	126000	-18	0.3
Phase V Data:										
OL-VC-20187	0.0-0.25		980					3690		0.3
OL-VC-20187	0.25-0.5		1250					4430		0.3
OL-VC-20187	0.5-0.75		1630					5500		0.3
OL-VC-20187	0.75-1.0		1860					6270		0.3
OL-VC-20187	1.0-1.25		2400					7360		0.3
OL-VC-20187	1.25-1.5		2650					8280		0.3
OL-VC-20187	1.5-1.75		3090					9150		0.3
OL-VC-20187	2.0-2.5	660	4640	340	42.8	960	160	13200	-13	0.4
OL-VC-20187	3.0-3.5	1380	6980	325	66.5	1520	165	18300	-10	0.4
OL-VC-20187	4.0-4.5	1820	8590	306	82.6	1920	158	22100	-10	0.4
OL-VC-20187	5.0-5.5	1500	9100	450	95	2070	138	23000	-12	0.4
OL-VC-20187	6.0-6.5	761	8200	834	111	2060	247	22700	-9	0.4
OL-VC-20187	7.5-8.0	214	7900	907	114	2100	144	23600	-11	0.3
OL-VC-20187	9.0-9.5	321	9080	575	137	2870	29	26500	-15	0.3
OL-VC-20188	0-0.25		5970					16900		0.4
OL-VC-20188	0.25-0.5		11400					30100		0.4
OL-VC-20188	0.5-0.75		13100					33600		0.4
OL-VC-20188	0.75-1		13900					34900		0.4
OL-VC-20188	1-1.25		15500					38900		0.4
OL-VC-20188	1.25-1.5		15900					40300		0.4
OL-VC-20188	1.5-1.75		16600					41600		0.4
OL-VC-20188	2-2.5	2830	18300	214	95.7	8240	910	44700	-1	0.4
OL-VC-20188	3-3.5	3370	20400	175	98.2	7950	1150	48500	-6	0.4
OL-VC-20188	4-4.5	4100	22300	152	97.2	7710	1260	53100	-8	0.4
OL-VC-20188	5-5.5	3370	22500	115	72.4	5450	1380	54200	-23	0.4
OL-VC-20188	6-6.5	4160	21300	151	92.9	8130	1690	51300	-5	0.4
OL-VC-20188	7.5-8	4670	22300	147	105	6640	1640	53500	-11	0.4
OL-VC-20188	9-9.5	5090	23300	159	106	8350	1590	56100	-4	0.4
OL-VC-20189	0-0.25		6000					17400		0.3
OL-VC-20189	0.25-0.5		8530					24600		0.3
OL-VC-20189	0.5-0.75		9280					26500		0.4
OL-VC-20189	0.75-1		9920					28600		0.3
OL-VC-20189	1-1.25		11400					32600		0.3
OL-VC-20189	1.25-1.5		12400					34800		0.4
OL-VC-20189	1.5-1.75		13000					36200		0.4
OL-VC-20189	2-2.5	599	17000	129	71.6	6140	1320	46400	-24	0.4
OL-VC-20189	3-3.5	845	22400	153	92.7	7430	2020	59100	-28	0.4
OL-VC-20189	4-4.5	1030	27600	178	112	10300	2680	73200	-23	0.4
OL-VC-20189	5-5.5	1250	33200	201	135	12500	3430	86400	-23	0.4
OL-VC-20189	6-6.5	1360	37600	204	148	16500	3740	94300	-17	0.4
OL-VC-20189	7.5-8	1380	40100	209	164	16300	3780	99200	-20	0.4
OL-VC-20189	9-9.5	1370	40500	202	163	15500	3820	100000	-23	0.4
OL-VC-20190	0.0-0.25		2380					6810		0.3
OL-VC-20190	0.25-0.5		2870					8120		0.4
OL-VC-20190	0.5-0.75		3530					9590		0.4
OL-VC-20190	0.75-1.0		3640					10100		0.4
OL-VC-20190	1.0-1.25		4010					11000		0.4
OL-VC-20190	1.25-1.5		3500					11400		0.3
OL-VC-20190	1.5-1.75		4190					11700		0.4

Table V-1

General Chemistry Data from Vibracores and Cation-Anion Balance

Location ID	Sample Depth (feet)	Calcium mg/L	Chloride mg/L	Magnesium mg/L	Potassium mg/L	Sodium mg/L	Sulfate mg/L	Conductance uS/cm	Balance %	Chloride/ Conductivity
OL-VC-20190	2.0-2.5	1460	5180	0.964	68.9	1860	90.5	14800	3	0.4
OL-VC-20190	3.0-3.5	2100	7980	3.82	90.1	2660	97.2	22200	-1	0.4
OL-VC-20190	4.0-4.5	3880	15500	3.59	150	5740	157	41000	1	0.4
OL-VC-20190	5.0-5.5	5230	22200	7.01	199	7930	186	54100	-1	0.4
OL-VC-20190	6.0-6.5	5820	27700	0.37	220	9150	194	64200	-6	0.4
OL-VC-20190	7.5-8.0	6570	31100	0.37	243	11000	185	72600	-4	0.4
OL-VC-20190	9.0-9.5	6240	31700	8.79	234	11900	179	74300	-4	0.4
OL-VC-30129	0.0-0.25		2010					6640		0.3
OL-VC-30129	0.25-0.5		3250					10600		0.3
OL-VC-30129	0.5-0.75		2610					8580		0.3
OL-VC-30129	0.75-1.0		4040					12700		0.3
OL-VC-30129	1.0-1.25		4600					14300		0.3
OL-VC-30129	1.25-1.5		4930					14800		0.3
OL-VC-30129	1.5-1.75		5410					16200		0.3
OL-VC-30129	2.0-2.5	485	6350	66.9	14.5	2630	102	19800	-11	0.3
OL-VC-30129	3.0-3.5	450	7870	66.9	16.1	3100	113	24100	-16	0.3
OL-VC-30129	4.0-4.5	481	9230	72.7	17.8	4150	84.9	27800	-11	0.3
OL-VC-30129	5.0-5.5	395	10300	63.4	15.6	3800	82.8	30900	-21	0.3
OL-VC-30129	6.0-6.5	438	11700	68.1	17.3	4260	103	34000	-22	0.3
OL-VC-30129	7.5-8.0	514	13800	92.8	22.9	7360	48.2	38500	-5	0.4
OL-VC-30129	9.0-9.5	531	15500	86.9	26	7840	116	44000	-8	0.4
OL-VC-30130	0.0-0.25		521					2490		0.2
OL-VC-30130	0.25-0.5		579					2810		0.2
OL-VC-30130	0.5-0.75		681					2990		0.2
OL-VC-30130	0.75-1.0		785					3310		0.2
OL-VC-30130	1.0-1.25		999					4010		0.2
OL-VC-30130	1.25-1.5		1220					4330		0.3
OL-VC-30130	1.5-1.75		1840					5830		0.3
OL-VC-30130	2.0-2.5	589	2340	1.2	38.7	620	120	8020	-9	0.3
OL-VC-30130	3.0-3.5	715	2640	0.71	50.4	894	137	7360	-1	0.4
OL-VC-30130	4.0-4.5	942	2830	17.4	51.9	1040	136	10000	7	0.3
OL-VC-30130	5.0-5.5	789	3300	1.22	50.1	1080	155	12400	-5	0.3
OL-VC-30130	6.0-6.5	862	4200	2.22	61.4	1510	162	15000	-5	0.3
OL-VC-30130	7.5-8.0	1000	5120	0.845	67	1990	230	19400	-4	0.3
OL-VC-30130	9.0-9.5	948	7050	4.63	65.6	3140	305	24700	-5	0.3
OL-VC-30131	0-0.25		1150					4030		0.3
OL-VC-30131	0.25-0.5		1490					5340		0.3
OL-VC-30131	0.5-0.75		1960					6980		0.3
OL-VC-30131	0.75-1		2410					8030		0.3
OL-VC-30131	1-1.25		2480					9330		0.3
OL-VC-30131	1.25-1.5		2700					9830		0.3
OL-VC-30131	1.5-1.75		2970					10700		0.3
OL-VC-30131	2-2.5	1250	3360	3.59	68.6	615	102	12400	-3	0.3
OL-VC-30131	3-3.5	1500	4040	1.98	113	719	118	15100	-3	0.3
OL-VC-30131	4-4.5	1470	4330	1.23	126	707	135	15900	-8	0.3
OL-VC-30131	5-5.5	1480	4400	2.56	146	735	153	17000	-7	0.3
OL-VC-30131	6-6.5	1570	4450	2.22	175	1140	164	16700	1	0.3
OL-VC-30131	7.5-8	1530	4370	2.63	211	1210	166	17300	3	0.3
OL-VC-30131	9-9.5	1550	4250	1.44	248	1270	153	17400	6	0.2
OL-VC-30132	0.0-0.25		650					2160		0.3
OL-VC-30132	0.25-0.5		739					2590		0.3
OL-VC-30132	0.5-0.75		893					3170		0.3
OL-VC-30132	0.75-1.0		1010					3640		0.3
OL-VC-30132	1.0-1.25		1140					4120		0.3
OL-VC-30132	1.25-1.5		1670					4730		0.4
OL-VC-30132	1.5-1.75		2080					8240		0.3
OL-VC-30132	2.0-2.5	471	2200	0.223	156	867	66.5	9370	1	0.2
OL-VC-30132	3.0-3.5	489	2360	0.957	188	922	65.3	9670	1	0.2
OL-VC-30132	4.0-4.5	908	2640	15.4	207	960	74.2	12300	10	0.2
OL-VC-30132	5.0-5.5	911	2800	0.185	235	988	62.5	14000	8	0.2
OL-VC-30132	6.0-6.5	879	2700	3.24	241	976	51.3	13700	9	0.2
OL-VC-30132	7.5-8.0	940	2770	8.16	269	1050	47.4	13400	12	0.2
OL-VC-30132	9.0-9.5	793	2610	3.62	254	1020	69.7	14200	9	0.2
OL-VC-30133	0.0-0.25		977					3610		0.3
OL-VC-30133	0.25-0.5		1420					4830		0.3

Table V-1

General Chemistry Data from Vibracores and Cation-Anion Balance

Location ID	Sample Depth (feet)	Calcium mg/L	Chloride mg/L	Magnesium mg/L	Potassium mg/L	Sodium mg/L	Sulfate mg/L	Conductance uS/cm	Balance %	Chloride/ Conductivity
OL-VC-30133	0.5-0.75		2060					6530		0.3
OL-VC-30133	0.75-1.0		2570					7780		0.3
OL-VC-30133	1.0-1.25		2980					8700		0.3
OL-VC-30133	1.25-1.5		3210					9780		0.3
OL-VC-30133	1.5-1.75		3590					10900		0.3
OL-VC-30133	2.0-2.5	907	5410	4.89	27.7	1980	180	17000	-8	0.3
OL-VC-30133	3.0-3.5	1050	6910	2.19	36.9	2650	232	23100	-8	0.3
OL-VC-30133	4.0-4.5	1000	9540	1.82	45.3	3670	275	29200	-13	0.3
OL-VC-30133	6.0-6.5	812	13200	4.21	51.1	6760	306	38000	-6	0.3
OL-VC-30133	5.0-5.5	916	10800	3.83	49.4	5710	275	33300	-2	0.3
OL-VC-30133	7.5-8.0	608	16200	3.38	51.9	9320	272	45400	-3	0.4
OL-VC-30133	9.0-9.5	97.5	21700	1.37	54.3	11700	98.4	58500	-9	0.4
OL-VC-40238	0.0-0.25		2450					9090		0.3
OL-VC-40238	0.25-0.5		4900					16200		0.3
OL-VC-40238	0.5-0.75		8310					24600		0.3
OL-VC-40238	0.75-1.0		12100					34700		0.3
OL-VC-40238	1.0-1.25		15600					42600		0.4
OL-VC-40238	1.25-1.5		18300					48400		0.4
OL-VC-40238	1.5-1.75		22100					52400		0.4
OL-VC-40238	2.0-2.5	1040	22800	178	117	15000	2470	61800	2	0.4
OL-VC-40238	3.0-3.5	1260	30100	209	144	18800	2950	77300	0	0.4
OL-VC-40238	4.0-4.5	1460	36600	251	171	22800	3200	91800	0	0.4
OL-VC-40238	5.0-5.5	1540	38300	262	181	23200	3190	96600	-2	0.4
OL-VC-40238	6.0-6.5	1550	38200	258	187	23500	3110	99700	-1	0.4
OL-VC-40238	7.5-8.0	1580	40400	257	195	24200	3190	97000	-2	0.4
OL-VC-40238	9.0-9.5	1520	39200	247	190	24000	3090	96700	-1	0.4
OL-VC-40239	0.0-0.25		2160					7680		0.3
OL-VC-40239	0.25-0.5		3450					11200		0.3
OL-VC-40239	0.5-0.75		5780					16800		0.3
OL-VC-40239	0.75-1.0		7880					22600		0.3
OL-VC-40239	1.0-1.25		9970					30100		0.3
OL-VC-40239	1.25-1.5		11700					34900		0.3
OL-VC-40239	1.5-1.75		12700					35200		0.4
OL-VC-40239	2.0-2.5	695	17700	160	60.2	9600	1230	50000	-6	0.4
OL-VC-40239	3.0-3.5	841	23800	203	80.6	12400	1620	63700	-8	0.4
OL-VC-40239	4.0-4.5	910	27800	239	93.6	14000	1820	75200	-10	0.4
OL-VC-40239	5.0-5.5	915	31200	245	104	14700	1970	81100	-13	0.4
OL-VC-40239	6.0-6.5	966	34100	278	123	17900	2010	86400	-8	0.4
OL-VC-40239	7.5-8.0	1010	37700	291	134	19000	2090	96600	-10	0.4
OL-VC-40239	9.0-9.5	1080	40600	321	150	22900	2160	99700	-5	0.4
OL-VC-40240	0.0-0.25		1620					5660		0.3
OL-VC-40240	0.25-0.5		1950					6140		0.3
OL-VC-40240	0.5-0.75		2080					6600		0.3
OL-VC-40240	0.75-1.0		2190					7010		0.3
OL-VC-40240	1.0-1.25		2690					7950		0.3
OL-VC-40240	1.25-1.5		2900					8850		0.3
OL-VC-40240	1.5-1.75		3270					9810		0.3
OL-VC-40240	2.0-2.5	105	3870	236	33.7	1820	61.3	12600	-3	0.3
OL-VC-40240	3.0-3.5	184	5660	223	36.2	2410	131	16600	-10	0.3
OL-VC-40240	4.0-4.5	205	7190	192	55.3	4340	59.3	21100	3	0.3
OL-VC-40240	5.0-5.5	277	9220	152	57.8	5630	92.8	26400	2	0.3
OL-VC-40240	6.0-6.5	307	10900	124	59.7	6410	168	30600	-1	0.4
OL-VC-40240	7.5-8.0	368	13600	125	66.1	7370	334	38500	-5	0.4
OL-VC-40240	9.0-9.5	411	16800	137	73.9	9600	480	45600	-3	0.4
OL-VC-40241	0.0-0.25		854					3250		0.3
OL-VC-40241	0.25-0.5		1320					4520		0.3
OL-VC-40241	0.5-0.75		1650					5210		0.3
OL-VC-40241	0.75-1.0		1860					5800		0.3
OL-VC-40241	1.0-1.25		2260					6890		0.3
OL-VC-40241	1.25-1.5		2740					7800		0.4
OL-VC-40241	1.5-1.75		2780					8230		0.3
OL-VC-40241	2.0-2.5	608	3300	255	66.6	717	30	10200	-5	0.3
OL-VC-40241	3.0-3.5	570	3790	242	83.8	854	28.9	11300	-10	0.3
OL-VC-40241	4.0-4.5	781	3920	187	111	1010	98.5	12400	-5	0.3
OL-VC-40241	5.0-5.5	966	4470	104	122	1110	75	13600	-8	0.3

Table V-1

General Chemistry Data from Vibracores and Cation-Anion Balance

Location ID	Sample Depth (feet)	Calcium mg/L	Chloride mg/L	Magnesium mg/L	Potassium mg/L	Sodium mg/L	Sulfate mg/L	Conductance uS/cm	Balance %	Chloride/ Conductivity
OL-VC-40241	6.0-6.5	992	4740	58	125	1130	18.7	14300	-11	0.3
OL-VC-40241	7.5-8.0	1120	5160	38.3	146	1660	19.7	15200	-4	0.3
OL-VC-40241	8.0-8.5	1190	5680	31	153	1800	8	16000	-5	0.4
OL-VC-40242	0.0-0.25		2360					7590		0.3
OL-VC-40242	0.25-0.5		3050					9350		0.3
OL-VC-40242	0.5-0.75		3530					10600		0.3
OL-VC-40242	0.75-1.0		4000					12200		0.3
OL-VC-40242	1.0-1.25		4750					14100		0.3
OL-VC-40242	1.25-1.5		5310					15500		0.3
OL-VC-40242	1.5-1.75		5860					16900		0.3
OL-VC-40242	2.0-2.5	349	6930	83.2	22.3	4420	452	19900	3	0.3
OL-VC-40242	3.0-3.5	392	8470	92.8	25.8	5430	542	24900	3	0.3
OL-VC-40242	4.0-4.5	358	9980	83.3	23.8	5590	663	29100	-5	0.3
OL-VC-40242	5.0-5.5	406	11700	104	29.4	6720	685	32300	-3	0.4
OL-VC-40242	6.0-6.5	434	12800	119	35	8240	726	35600	2	0.4
OL-VC-40242	7.5-8.0	511	14300	166	46	9360	745	41600	3	0.3
OL-VC-40242	9.0-9.5	433	18500	133	37.4	7550	894	47900	-20	0.4
OL-VC-40243	0.0-0.25		664					3160		0.2
OL-VC-40243	0.25-0.5		665					2980		0.2
OL-VC-40243	0.5-0.75		1050					4000		0.3
OL-VC-40243	0.75-1.0		1350					5490		0.2
OL-VC-40243	1.0-1.25		3020					9120		0.3
OL-VC-40243	1.25-1.5		3500					10400		0.3
OL-VC-40243	1.5-1.75		4490					12800		0.4
OL-VC-40243	2.0-2.5	377	5750	477	26.2	2050	73.5	19300	-5	0.3
OL-VC-40243	3.0-3.5	1140	8680	550	37.9	3660	104	26500	3	0.3
OL-VC-40243	4.0-4.5	999	9790	575	41.8	5080	20	29700	7	0.3
OL-VC-40243	5.0-5.5	1510	11400	441	43.3	4940	29	33800	1	0.3
OL-VC-40243	6.0-6.5	2040	14300	365	41.6	6750	126	40400	2	0.4
OL-VC-40243	7.5-8.0	4070	16100	348	49.4	8200	232	46900	12	0.3
OL-VC-40243	9.0-9.5	5210	17100	336	54	9780	312	52900	19	0.3
OL-VC-40244	0.0-0.25		38700					87000		0.4
OL-VC-40244	0.25-0.5		51500					109000		0.5
OL-VC-40244	0.5-0.75		56000					117000		0.5
OL-VC-40244	0.75-1.0		56800					120000		0.5
OL-VC-40244	1.0-1.25		57600					120000		0.5
OL-VC-40244	1.25-1.5		57100					119000		0.5
OL-VC-40244	1.5-1.75		57100					120000		0.5
OL-VC-40244	2.0-2.5	25100	62100	41.5	318	12100	60	120000	1	0.5
OL-VC-40244	3.0-3.5	24000	62200	38.3	328	12600	60	121000	0	0.5
OL-VC-40244	4.0-4.5	23100	60900	35	330	11700	60	120000	-1	0.5
OL-VC-40244	5.0-5.5	22600	61200	34.7	331	11800	60	119000	-2	0.5
OL-VC-40244	6.0-6.5	24600	61100	35.2	349	12200	60	118000	1	0.5
OL-VC-40244	7.5-8.0	20400	53800	34.2	316	10900	60	101000	-1	0.5
OL-VC-40244	9.0-9.5	20800	54600	35.2	327	11300	70	116000	0	0.5
OL-VC-40245	0.0-0.25		711					3030		0.2
OL-VC-40245	0.25-0.5		1060					3970		0.3
OL-VC-40245	0.5-0.75		1580					5250		0.3
OL-VC-40245	0.75-1.0		1880					6110		0.3
OL-VC-40245	1.0-1.25		2210					6980		0.3
OL-VC-40245	1.25-1.5		2520					7790		0.3
OL-VC-40245	1.5-1.75		2690					8480		0.3
OL-VC-40245	2.0-2.5	719	3140	169	128	1030	6	9670	5	0.3
OL-VC-40245	3.0-3.5	802	3310	87.2	155	1100	8	10100	3	0.3
OL-VC-40245	4.0-4.5	737	3340	44.8	149	1010	8	10800	-3	0.3
OL-VC-40245	5.0-5.5	460	3430	6.91	95.1	575	14.2	11300	-31	0.3
OL-VC-40245	6.0-6.5	703	3840	2.42	100	661	99.2	12300	-25	0.3
OL-VC-40245	7.5-8.0	1080	3870	2.08	152	875	86.3	12200	-7	0.3
OL-VC-40245	9.0-9.5	1030	4250	13.8	131	780	91.1	13100	-15	0.3
OL-VC-40246	0.0-0.25		1090					3990		0.3
OL-VC-40246	0.25-0.5		1330					4780		0.3
OL-VC-40246	0.5-0.75		1530					5460		0.3
OL-VC-40246	0.75-1.0		1920					6240		0.3
OL-VC-40246	1.0-1.25		2020					7200		0.3
OL-VC-40246	1.25-1.5		2380					7400		0.3

Table V-1

General Chemistry Data from Vibracores and Cation-Anion Balance

Location ID	Sample Depth (feet)	Calcium mg/L	Chloride mg/L	Magnesium mg/L	Potassium mg/L	Sodium mg/L	Sulfate mg/L	Conductance uS/cm	Balance %	Chloride/ Conductivity
OL-VC-40246	1.5-1.75		2710					8140		0.3
OL-VC-40246	2.0-2.5	946	2800	9.72	79.5	792	46.8	9320	3	0.3
OL-VC-40246	3.0-3.5	1210	3090	6.87	87.6	842	137	10500	5	0.3
OL-VC-40246	4.0-4.5	1380	3250	8.32	93.6	870	142	10900	7	0.3
OL-VC-40246	5.0-5.5	1190	3120	5.66	100	944	106	11200	7	0.3
OL-VC-40246	6.0-6.5	1160	3510	74.6	93.6	888	32.2	11000	3	0.3
OL-VC-40246	7.5-8.0	725	3440	158	101	931	13.4	10700	-3	0.3
OL-VC-40246	9.0-9.5	455	2770	162	97.6	905	35.7	10800	-1	0.3
OL-VC-40247	0.0-0.25		503					2590		0.2
OL-VC-40247	0.25-0.5		715					3210		0.2
OL-VC-40247	0.5-0.75		950					3830		0.2
OL-VC-40247	0.75-1.0		1360					4790		0.3
OL-VC-40247	1.0-1.25		1650					5740		0.3
OL-VC-40247	1.25-1.5		1880					6430		0.3
OL-VC-40247	1.5-1.75		1980					6910		0.3
OL-VC-40247	2.0-2.5	124	2260	341	81.6	708	70.4	7770	1	0.3
OL-VC-40247	3.0-3.5	99.9	2550	347	112	840	31.5	8430	0	0.3
OL-VC-40247	4.0-4.5	222	2640	266	123	918	21.9	8800	1	0.3
OL-VC-40247	5.0-5.5	487	2930	91.6	149	965	28.8	9420	-3	0.3
OL-VC-40247	6.0-6.5	758	2960	19.9	147	900	59	10200	-1	0.3
OL-VC-40247	7.5-8.0	947	3020	3.61	144	925	155	10300	2	0.3
OL-VC-40247	9.0-9.5	970	3030	7.85	153	1000	89.7	10000	5	0.3
OL-VC-40248	0.0-0.25		1130					4010		0.3
OL-VC-40248	0.25-0.5		841					3300		0.3
OL-VC-40248	0.5-0.75		932					3510		0.3
OL-VC-40248	0.75-1.0		1210					4310		0.3
OL-VC-40248	1.0-1.25		1910					6650		0.3
OL-VC-40248	1.25-1.5		1800					6660		0.3
OL-VC-40248	1.5-1.75		2050					7530		0.3
OL-VC-40248	2.0-2.5	655	2750	142	95.3	728	15.9	8730	0	0.3
OL-VC-40248	3.0-3.5	574	3100	125	118	841	20.8	9520	-6	0.3
OL-VC-40248	4.0-4.5	602	3130	120	147	1120	12.7	10200	2	0.3
OL-VC-40248	5.0-5.5	650	3080	120	152	1110	40.9	10300	4	0.3
OL-VC-40248	6.0-6.5	550	3020	97.1	140	1000	61.6	10500	-2	0.3
OL-VC-40248	7.5-8.0	608	2970	86.1	153	1040	124	11100	0	0.3
OL-VC-40248	8.0-8.5	1020	3380	84.9	171	1230	80.3	11900	9	0.3
OL-VC-40249	0.0-0.25		662					3180		0.2
OL-VC-40249	0.25-0.5		741					3570		0.2
OL-VC-40249	0.5-0.75		1030					4250		0.2
OL-VC-40249	0.75-1.0		1450					6690		0.2
OL-VC-40249	1.0-1.25		2170					7320		0.3
OL-VC-40249	1.25-1.5		2960					8470		0.3
OL-VC-40249	1.5-1.75		3050					8650		0.4
OL-VC-40249	2.0-2.5	1140	2870	7.85	84	800	43.9	9920	7	0.3
OL-VC-40249	3.0-3.5	1330	3340	21.5	84.2	902	71.3	11600	7	0.3
OL-VC-40249	4.0-4.5	1240	3860	25.1	103	983	45.9	12800	0	0.3
OL-VC-40249	5.0-5.5	1230	4260	33.2	115	1200	6	13500	0	0.3
OL-VC-40249	6.0-6.5	1080	4540	24.6	111	1150	11.7	13900	-8	0.3
OL-VC-40249	7.5-8.0	1530	3840	31.2	128	1220	17.4	13900	11	0.3
OL-VC-40249	8.0-8.5	1420	3290	30.7	126	1130	13.4	13900	15	0.2
OL-VC-40250	0.0-0.25		1150					4190		0.3
OL-VC-40250	0.25-0.5		1110					4000		0.3
OL-VC-40250	0.5-0.75		921					3560		0.3
OL-VC-40250	0.75-1.0		1100					4130		0.3
OL-VC-40250	1.0-1.25		1520					5380		0.3
OL-VC-40250	1.25-1.5		1700					5780		0.3
OL-VC-40250	1.5-1.75		1780					6170		0.3
OL-VC-40250	2.0-2.5	346	1890	242	39	529	69.1	6790	6	0.3
OL-VC-40250	3.0-3.5	341	2540	249	60.4	668	123	8540	-4	0.3
OL-VC-40250	4.0-4.5	566	3010	247	82.6	927	42.3	10000	3	0.3
OL-VC-40250	5.0-5.5	478	3210	185	89.1	926	40	10300	-6	0.3
OL-VC-40250	6.0-6.5	502	3180	104	108	1010	36.7	10800	-6	0.3
OL-VC-40250	7.5-8.0	972	3510	34.6	121	1140	6	11200	2	0.3
OL-VC-40250	9.0-9.5	1100	3720	18.9	132	1180	95.1	11700	2	0.3
OL-VC-50071	0.0-0.25		5290					17300		0.3

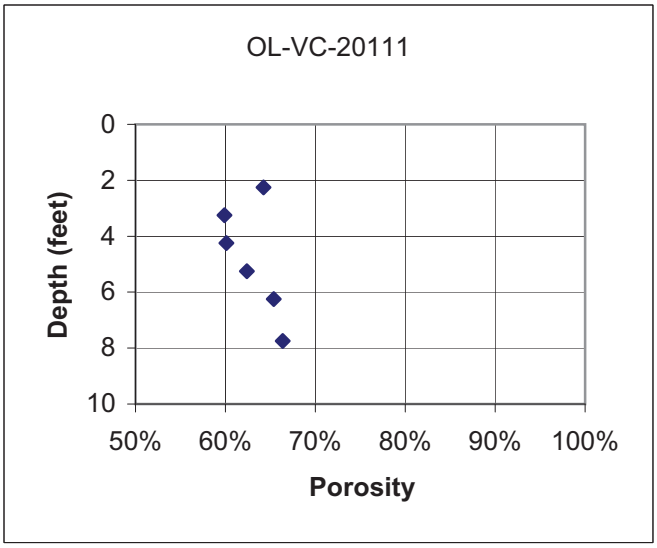
Table V-1

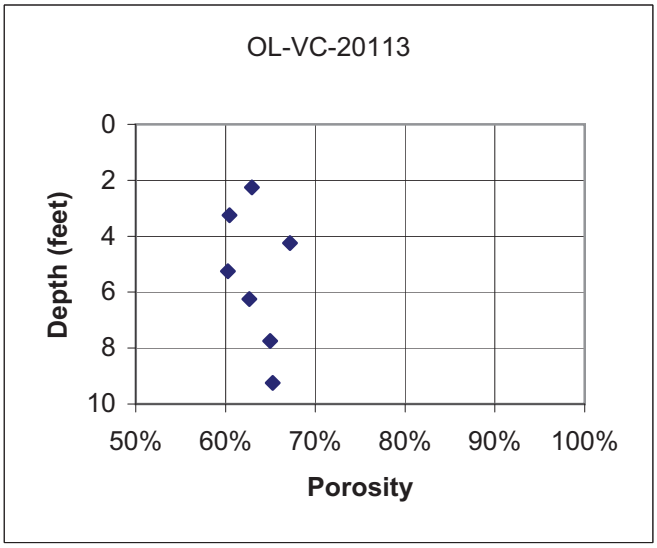
General Chemistry Data from Vibracores and Cation-Anion Balance

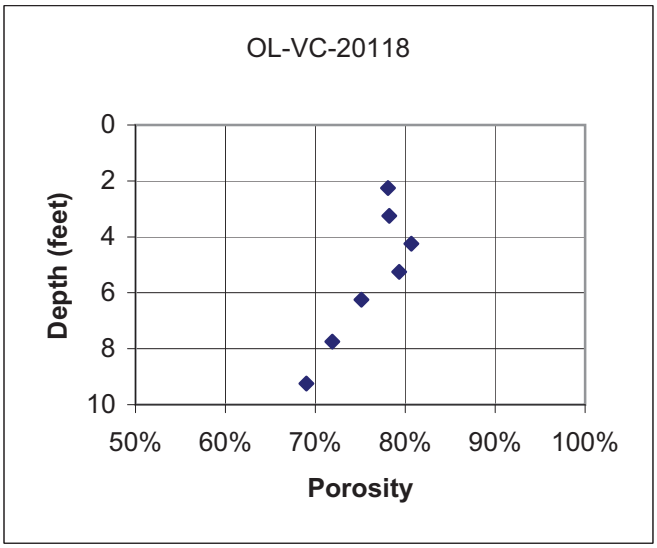
Location ID	Sample Depth (feet)	Calcium mg/L	Chloride mg/L	Magnesium mg/L	Potassium mg/L	Sodium mg/L	Sulfate mg/L	Conductance uS/cm	Balance %	Chloride/ Conductivity
OL-VC-50071	0.25-0.5		8310					25800		0.3
OL-VC-50071	0.5-0.75		10900					31900		0.3
OL-VC-50071	0.75-1.0		11400					32400		0.4
OL-VC-50071	1.0-1.25		12600					35400		0.4
OL-VC-50071	1.25-1.5		13500					37600		0.4
OL-VC-50071	1.5-1.75		13500					38500		0.4
OL-VC-50071	2.0-2.5	745	14300	195	52	8070	1560	42900	-4	0.3
OL-VC-50071	3.0-3.5	843	14000	221	63	9310	1450	43500	5	0.3
OL-VC-50071	4.0-4.5	830	17900	215	66.8	9550	1660	45800	-6	0.4
OL-VC-50071	5.0-5.5	755	18900	199	65.4	9130	1570	48400	-11	0.4
OL-VC-50071	6.0-6.5	835	20300	227	76.8	10300	1520	51100	-8	0.4
OL-VC-50071	7.5-8.0	937	23100	269	94.1	11700	1560	56500	-8	0.4
OL-VC-50071	9.0-9.5	921	26700	289	107	13400	1580	65000	-9	0.4

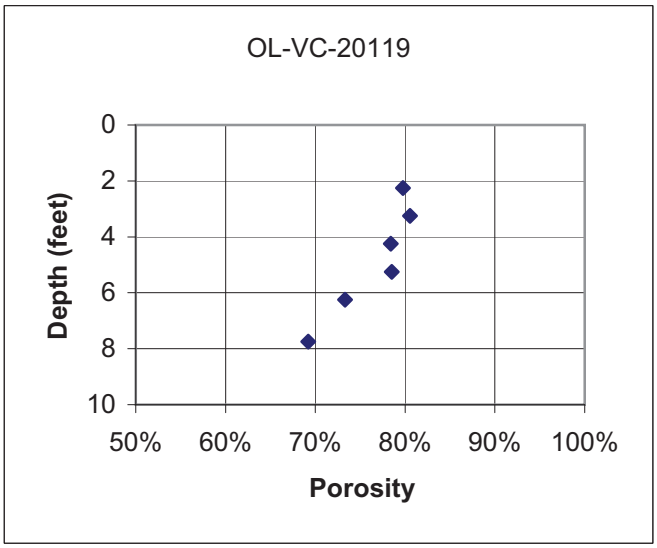
Plots of Porosity Data

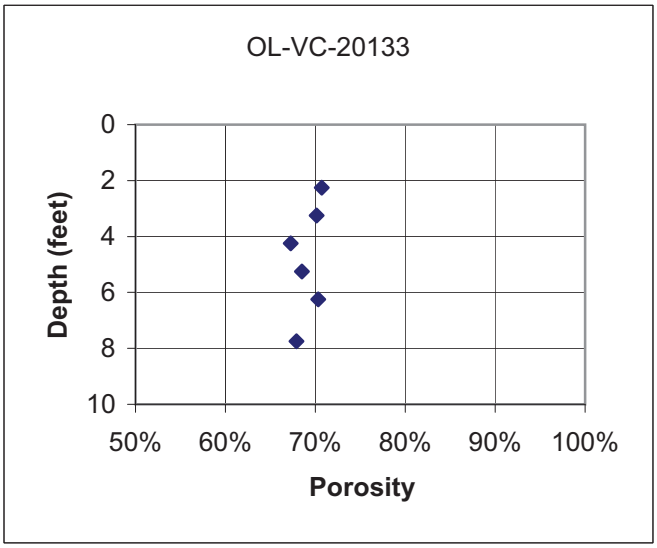
Porosity Depth Profiles from Addendum V Vibracores

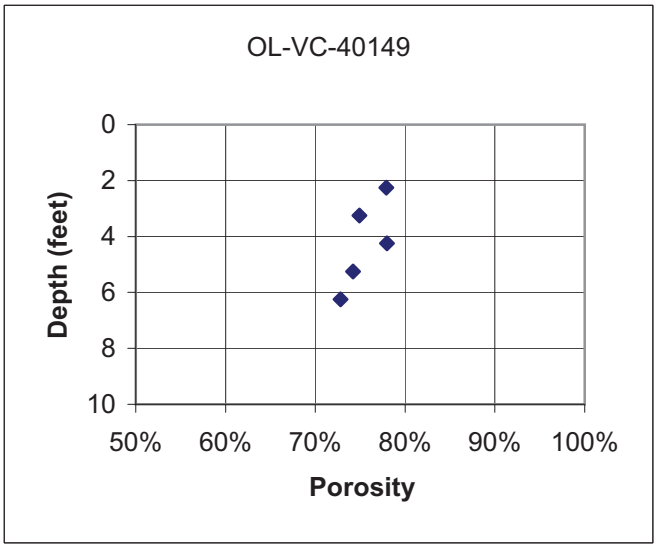




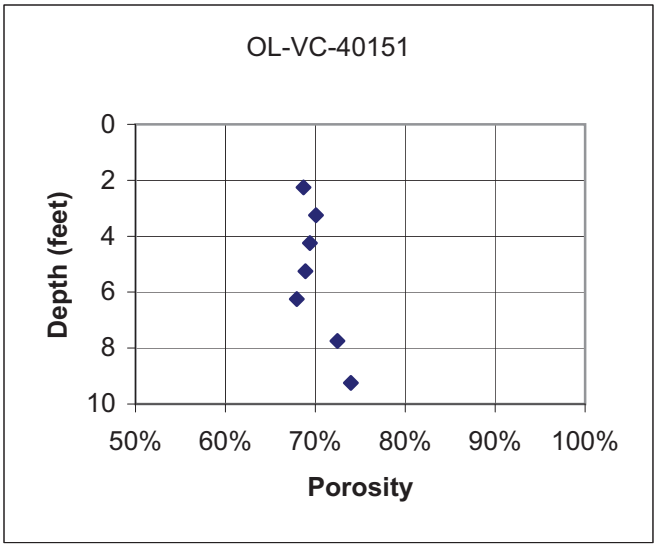


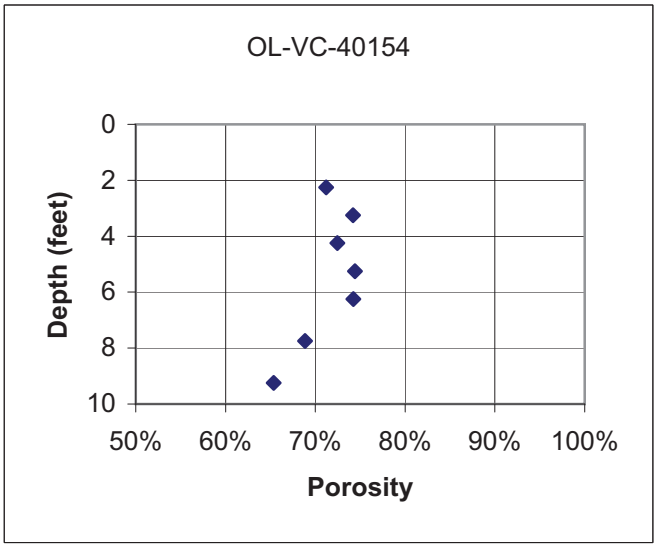


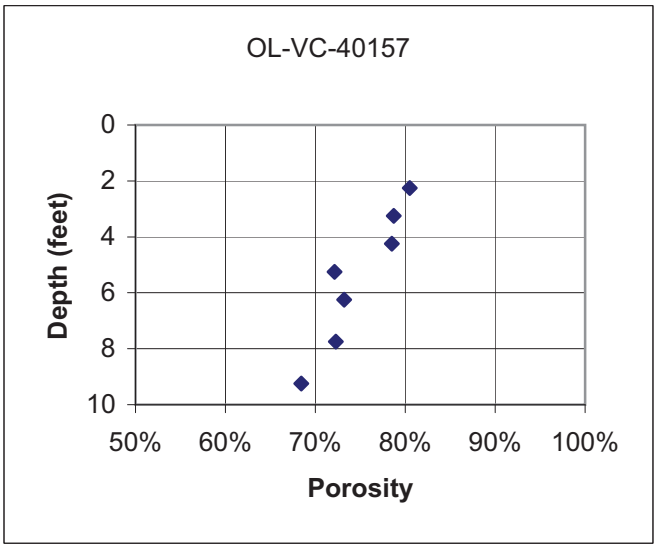


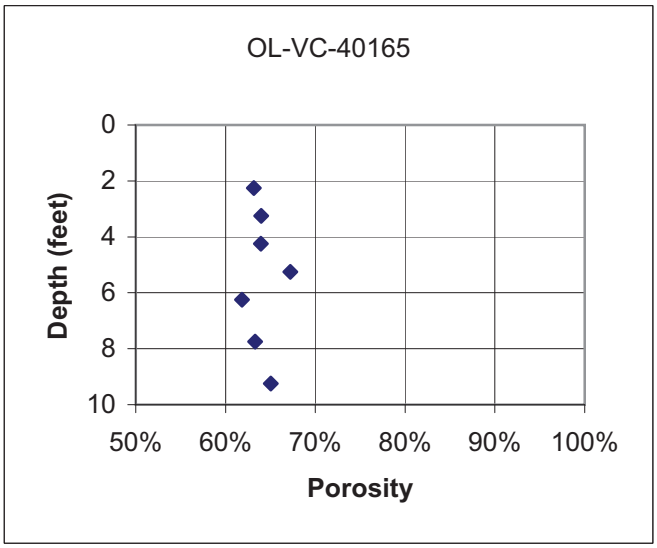


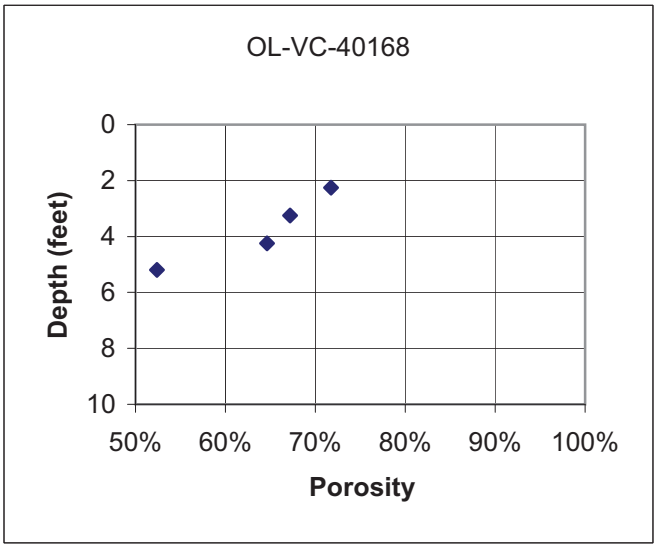
Porosity Depth Profiles from Addendum V Vibracores

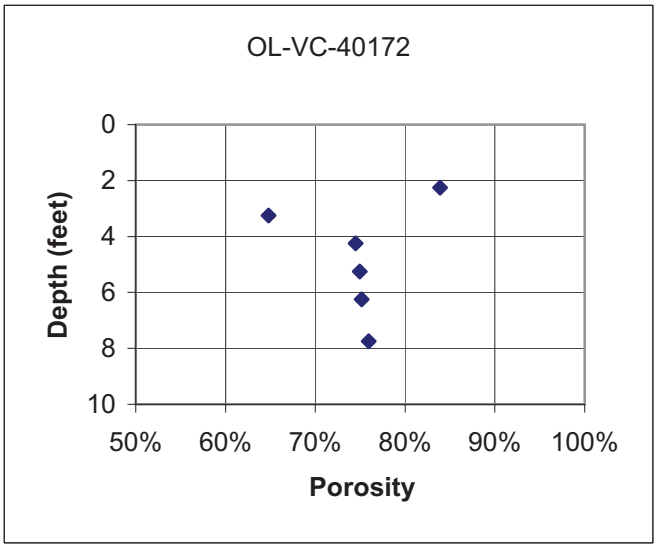




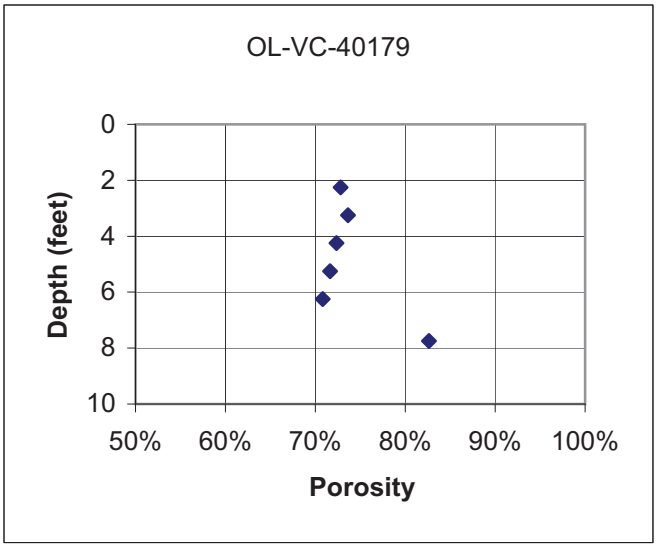


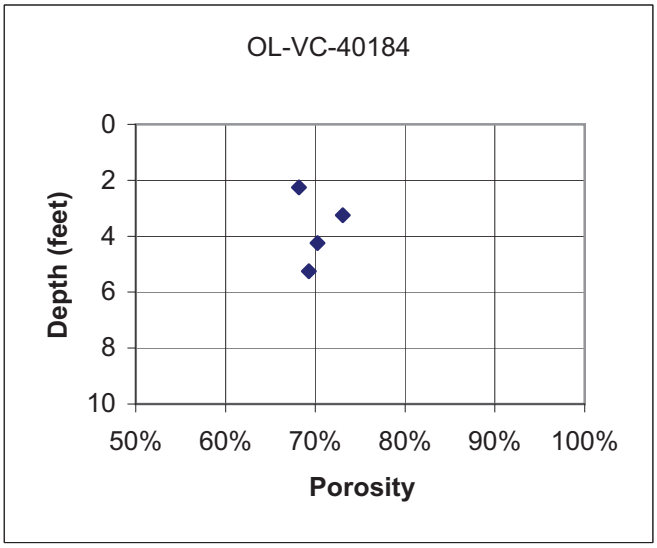


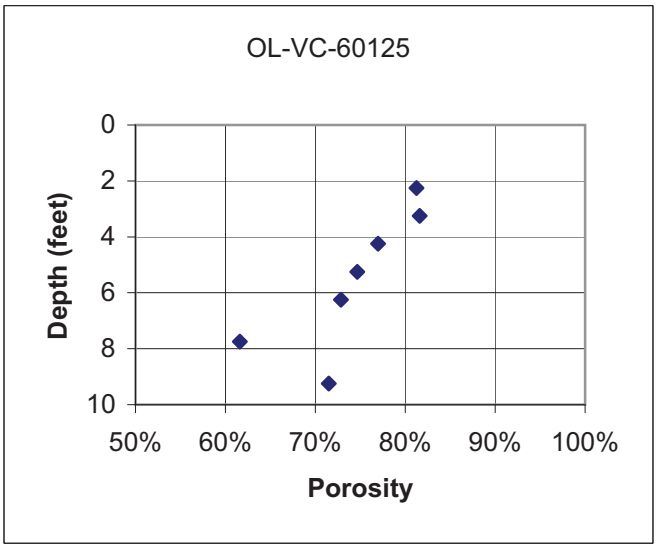


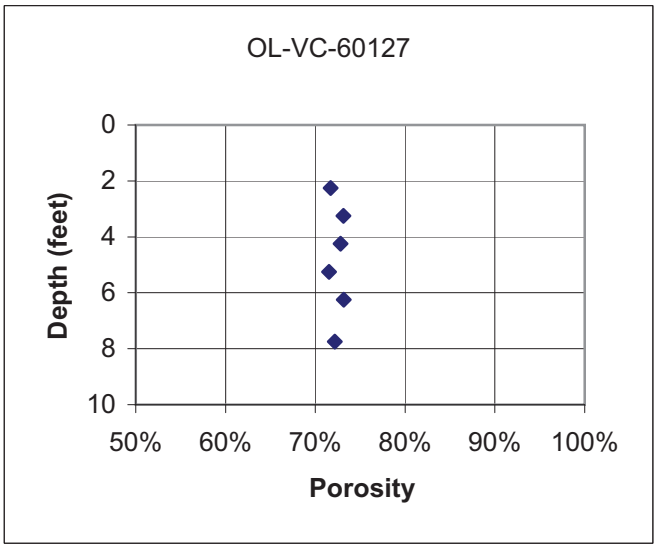


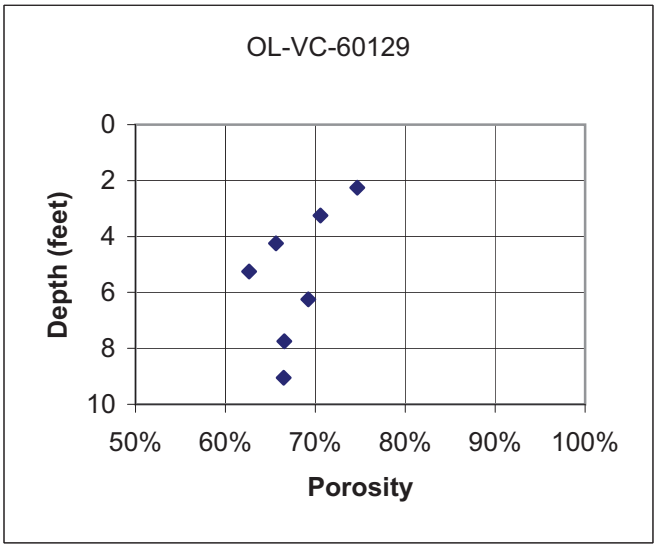
Porosity Depth Profiles from Addendum V Vibracores

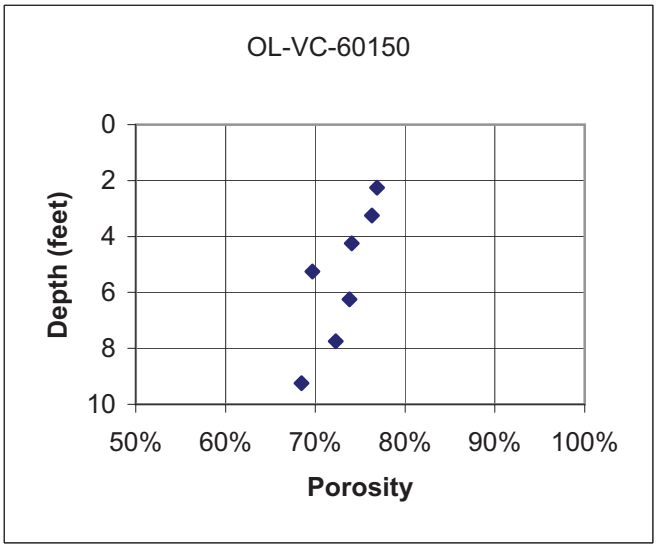




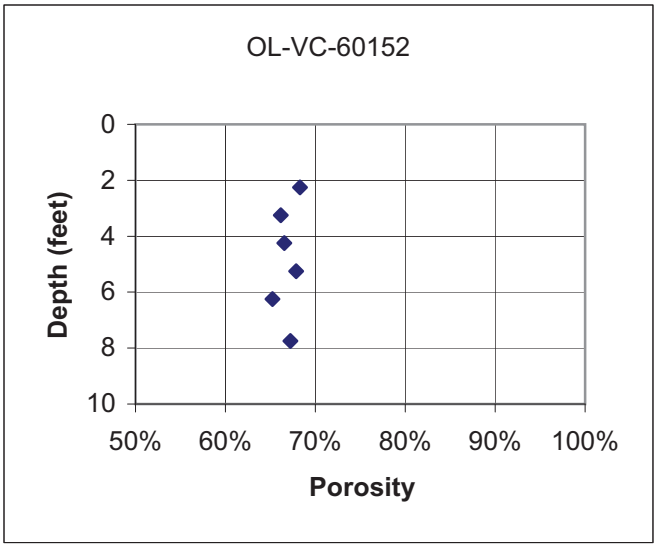


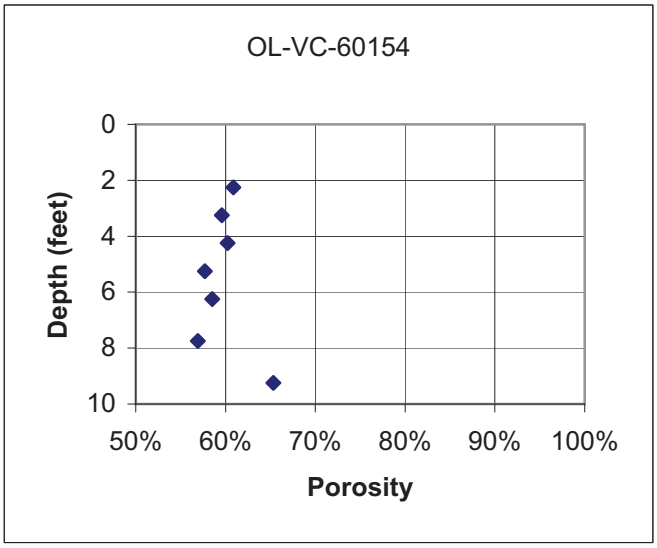


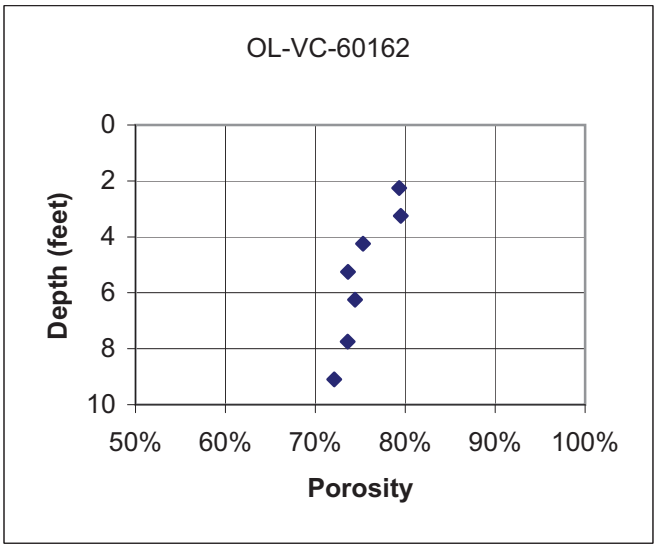


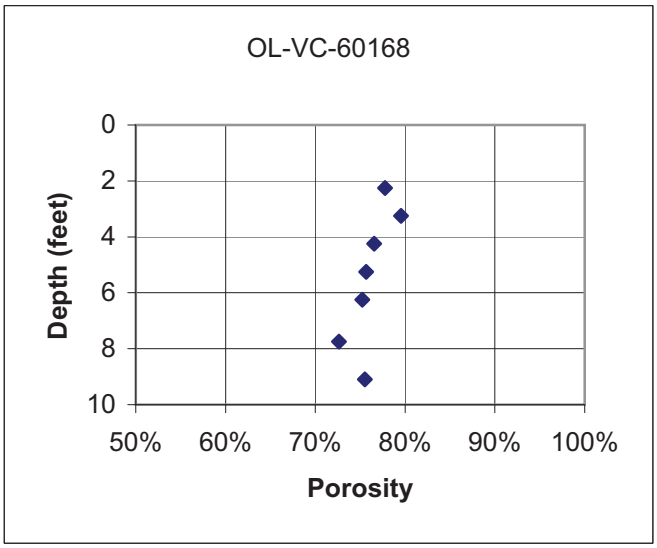


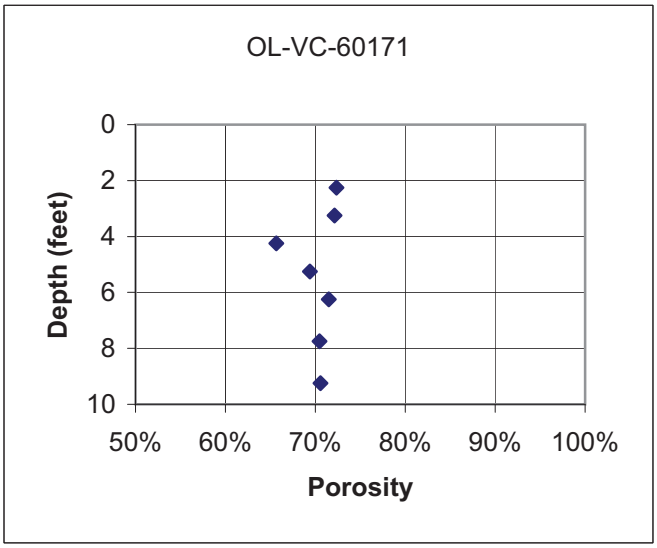
Porosity Depth Profiles from Addendum V Vibracores

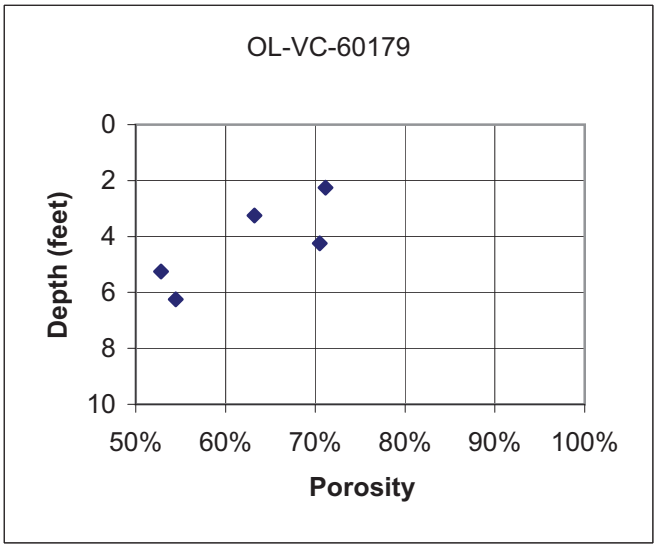




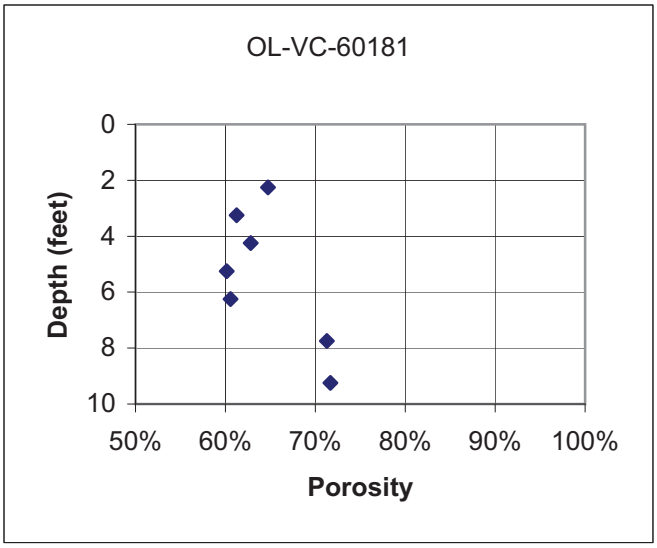


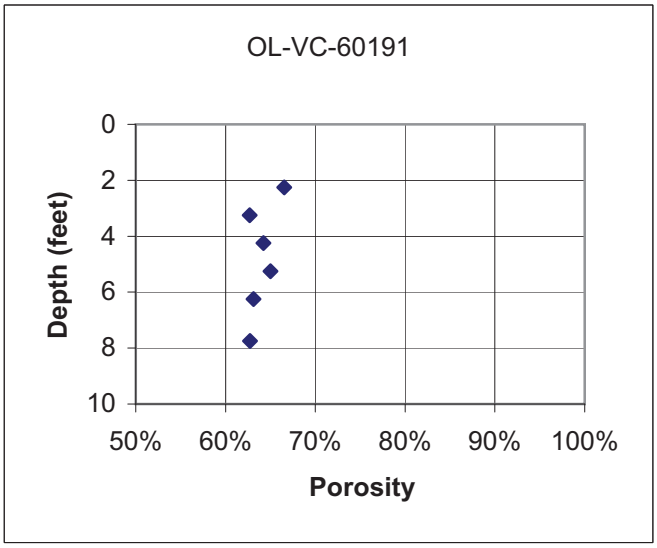


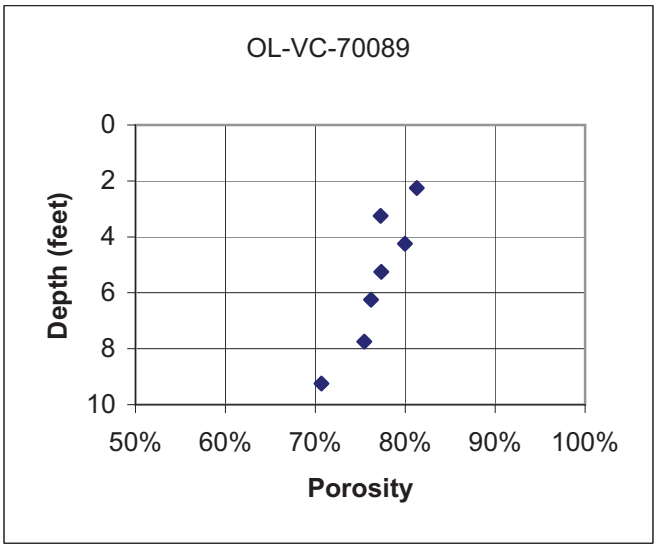


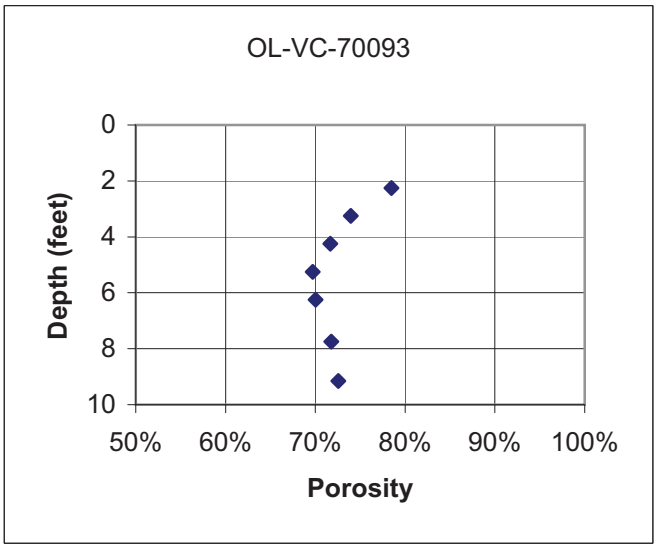


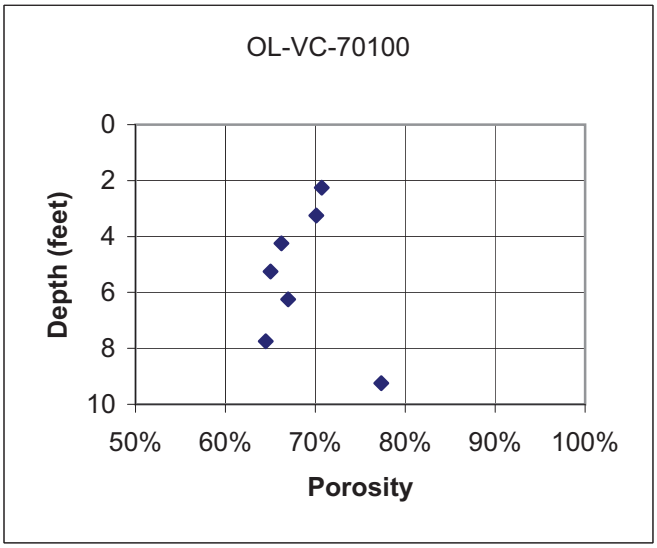
Porosity Depth Profiles from Addendum V Vibracores

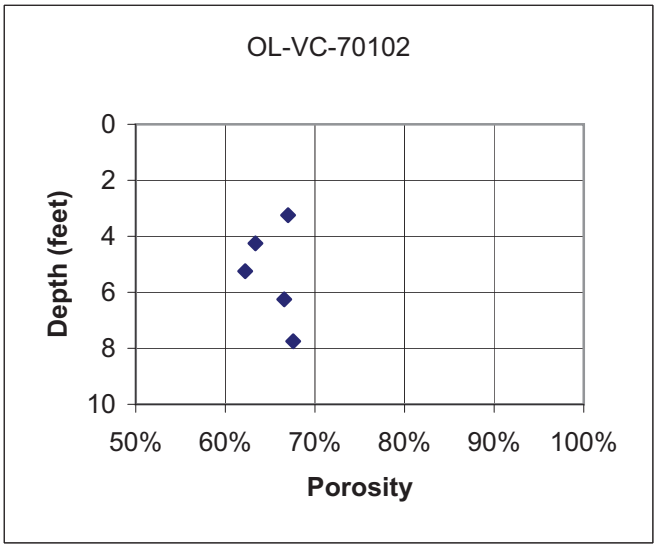




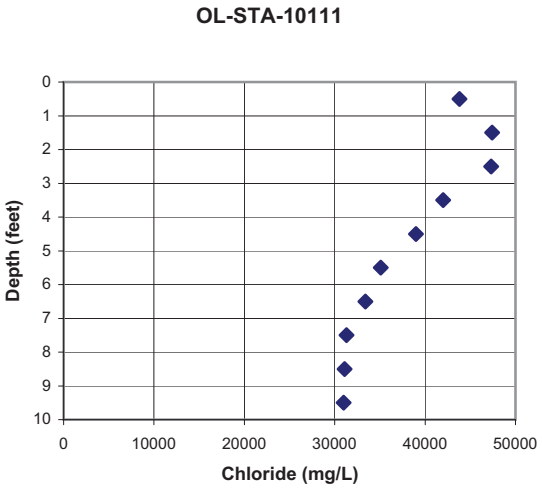


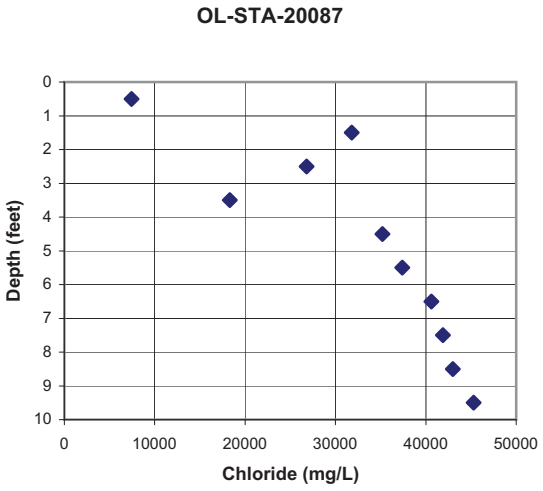


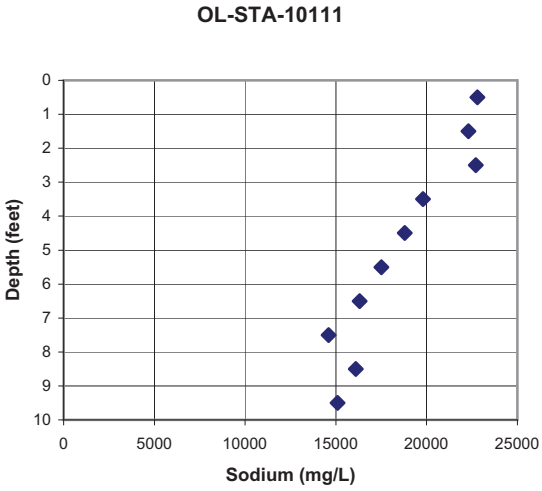


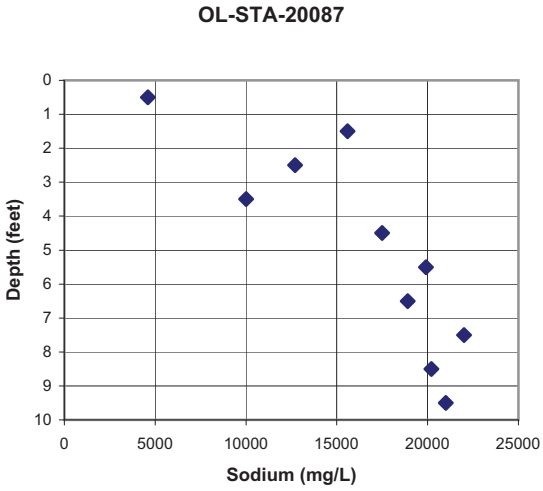


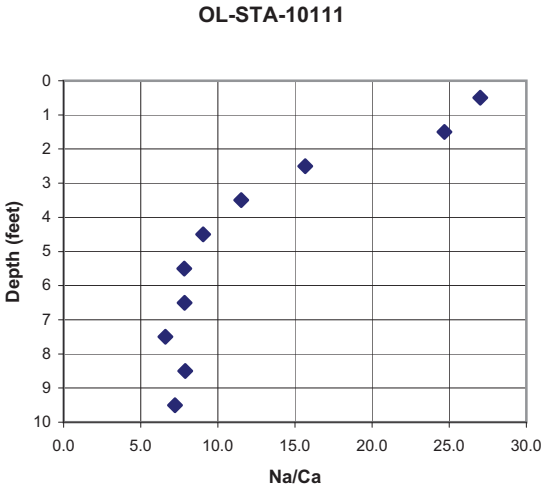
Plots of Chloride, Sodium, and Sodium/Calcium Ratio with Depth

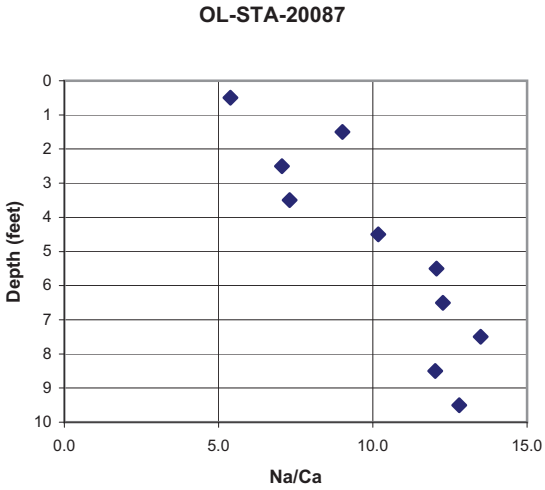

OL-STA-10111
Depth (feet)
Chloride (mg/L)
0
10000
20000
30000
40000
50000

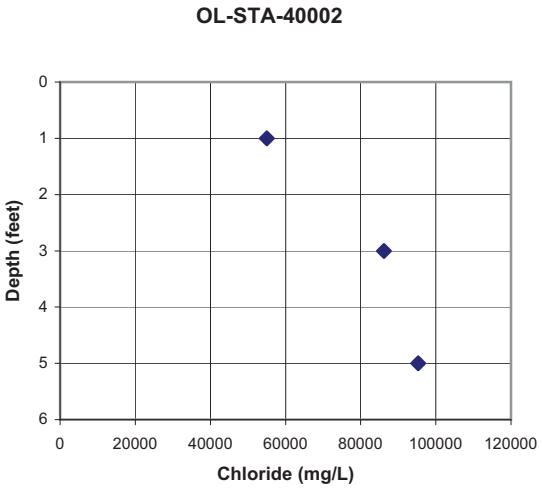

OL-STA-20087
Depth (feet)
Chloride (mg/L)
0
10000
20000
30000
40000
50000

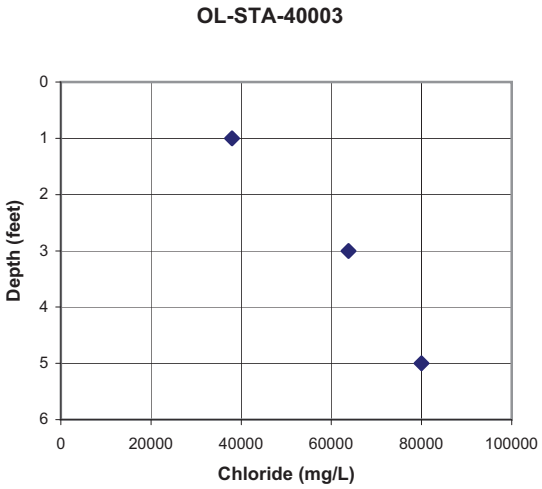

OL-STA-10111
Depth (feet)
Sodium (mg/L)
0
5000
10000
15000
20000
25000

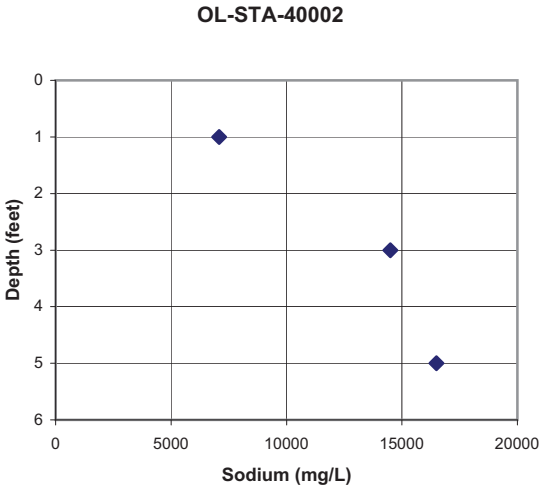

OL-STA-20087
Depth (feet)
Sodium (mg/L)
0
5000
10000
15000
20000
25000

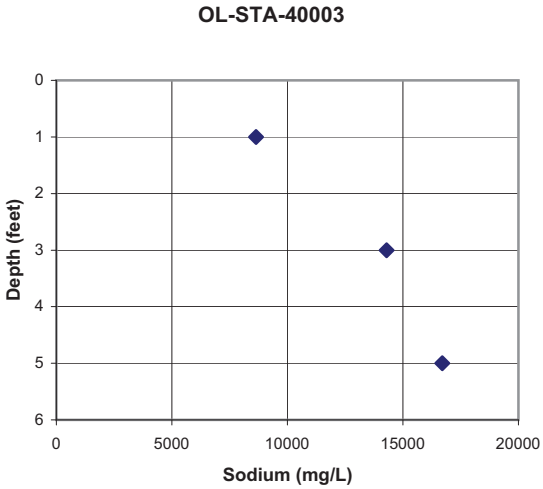

OL-STA-10111
Depth (feet)
Na/Ca
0.0
5.0
10.0
15.0
20.0
25.0
30.0

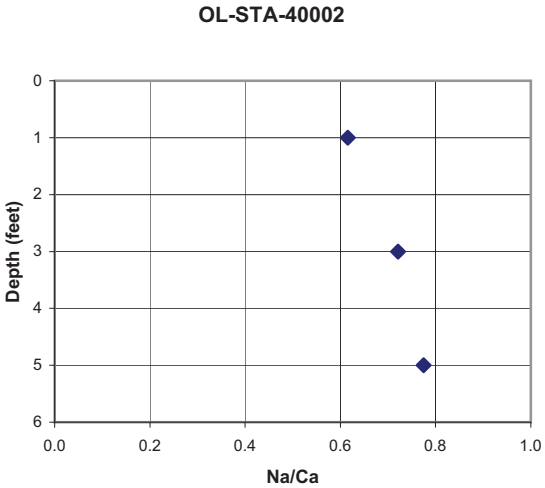

OL-STA-20087
Depth (feet)
Na/Ca
0.0
5.0
10.0
15.0

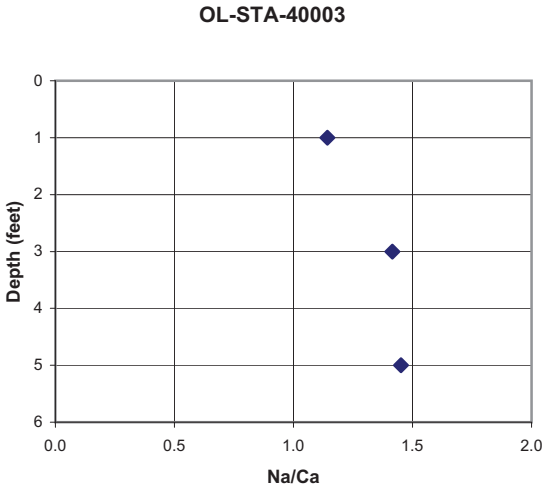

OL-STA-40002
Depth (feet)
0
1
2
3
4
5
6
0
20000
40000
60000
80000
100000
120000
Chloride (mg/L)

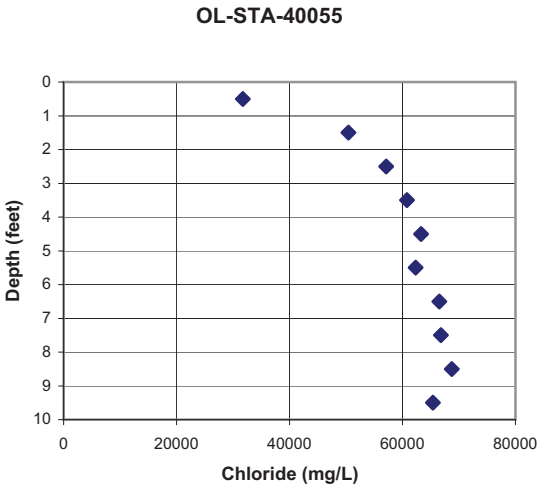

OL-STA-40003
Depth (feet)
0
1
2
3
4
5
6
0
20000
40000
60000
80000
100000
Chloride (mg/L)

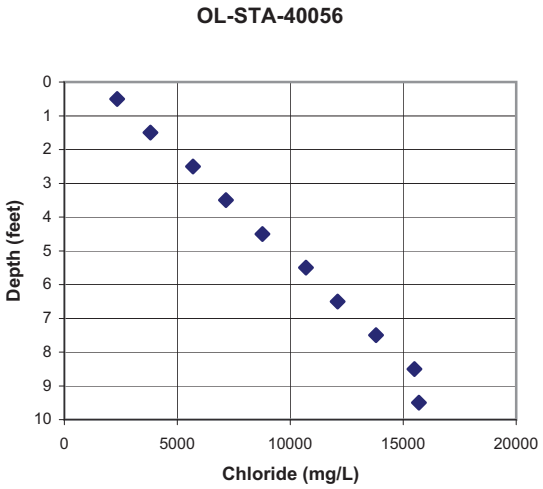

OL-STA-40002
Depth (feet)
0
1
2
3
4
5
6
0
5000
10000
15000
20000
Sodium (mg/L)

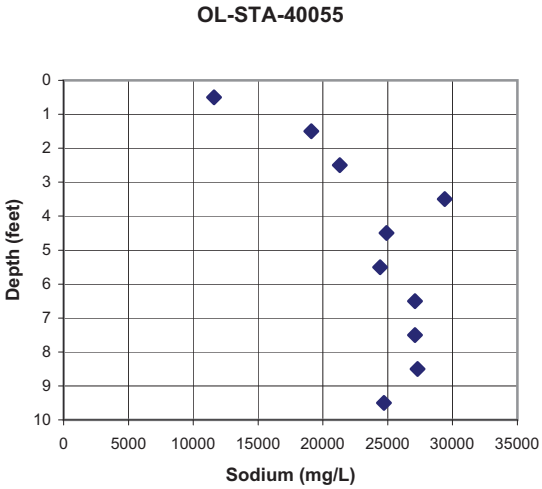

OL-STA-40003
Depth (feet)
0
1
2
3
4
5
6
0
5000
10000
15000
20000
Sodium (mg/L)

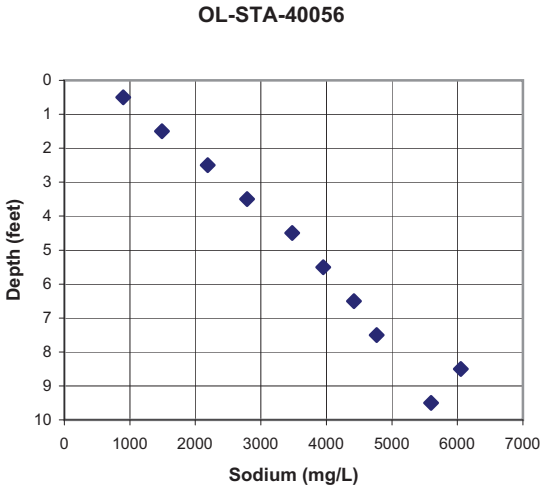

OL-STA-40002
Depth (feet)
0
1
2
3
4
5
6
0.0
0.2
0.4
0.6
0.8
1.0
Na/Ca

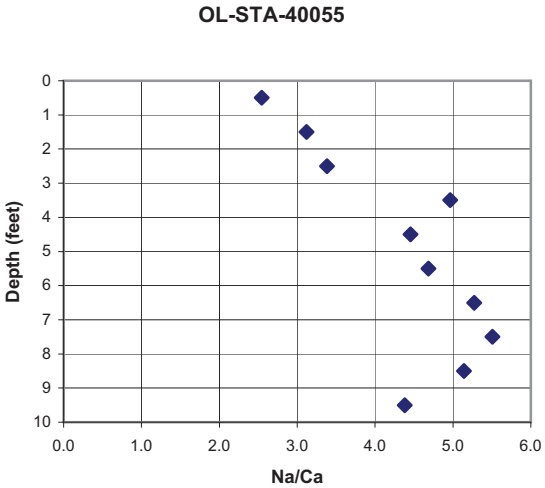

OL-STA-40003
Depth (feet)
0
1
2
3
4
5
6
0.0
0.5
1.0
1.5
2.0
Na/Ca

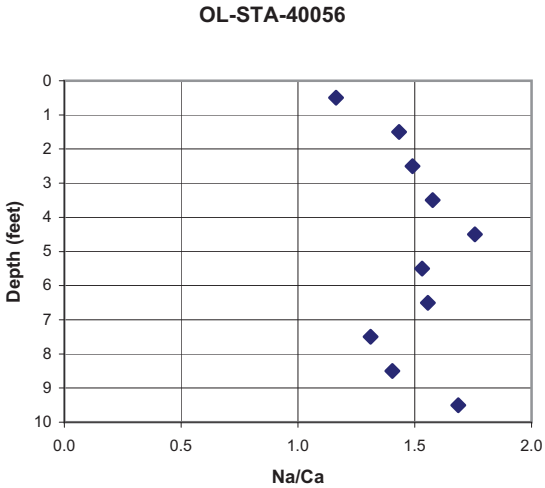

OL-STA-40055
Depth (feet)
Chloride (mg/L)
0
20000
40000
60000
80000


OL-STA-40056
Depth (feet)
Chloride (mg/L)
0
5000
10000
15000
20000

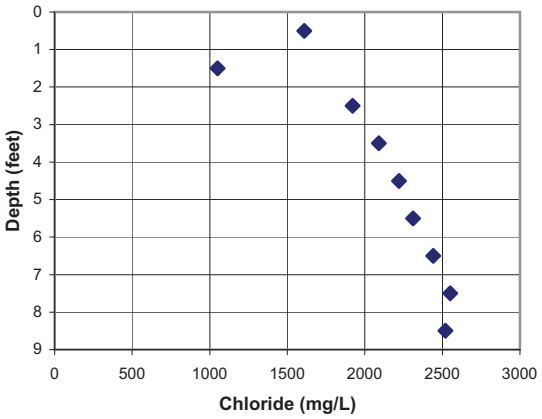

OL-STA-40055
Depth (feet)
Sodium (mg/L)
0
5000
10000
15000
20000
25000
30000
35000


OL-STA-40056
Depth (feet)
Sodium (mg/L)
0
1000
2000
3000
4000
5000
6000
7000

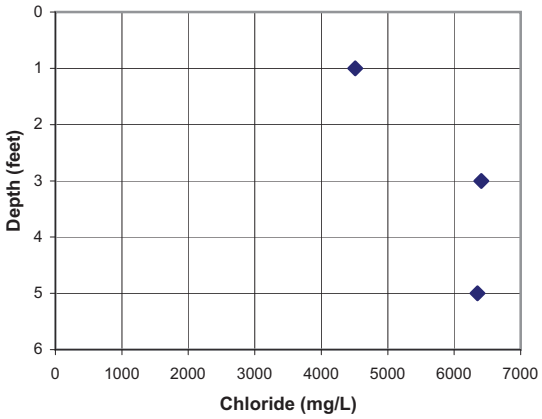

OL-STA-40055
Depth (feet)
Na/Ca
0.0
1.0
2.0
3.0
4.0
5.0
6.0


OL-STA-40056
Depth (feet)
Na/Ca
0.0
0.5
1.0
1.5
2.0

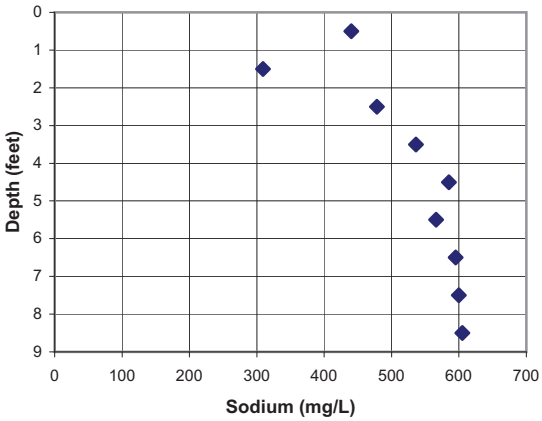
OL-STA-40057



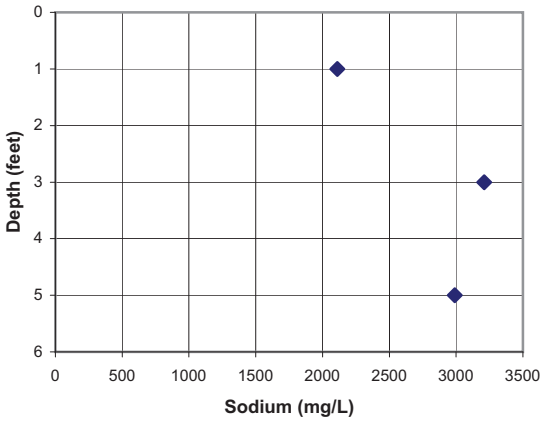
OL-STA-60016



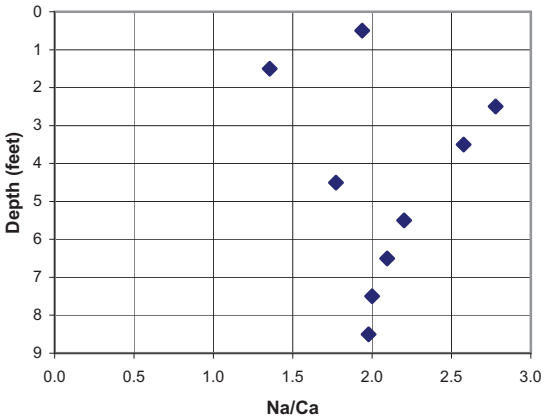
OL-STA-40057



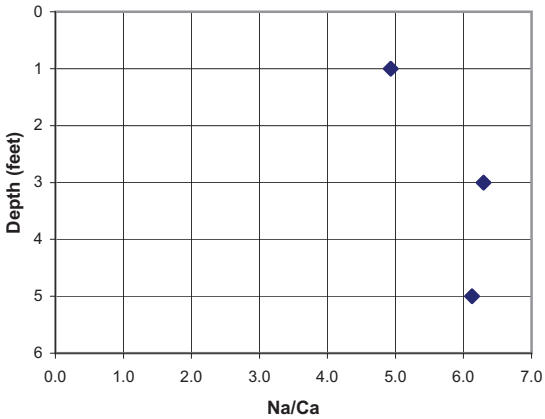
OL-STA-60016

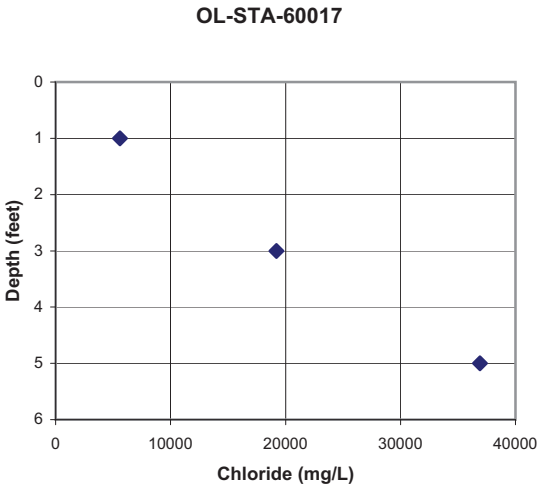


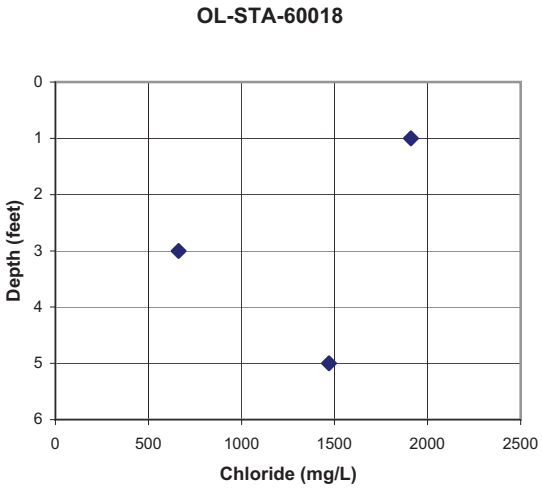
OL-STA-40057

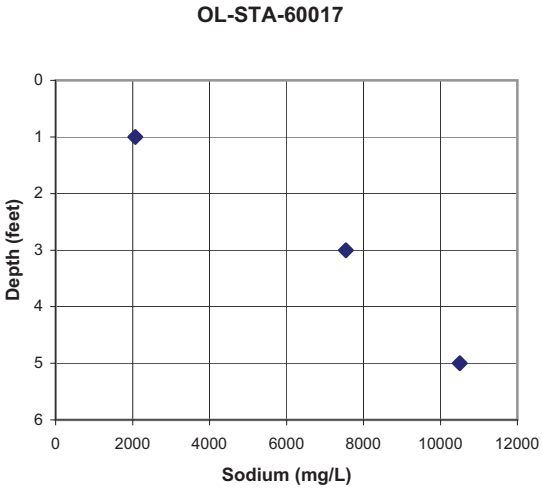


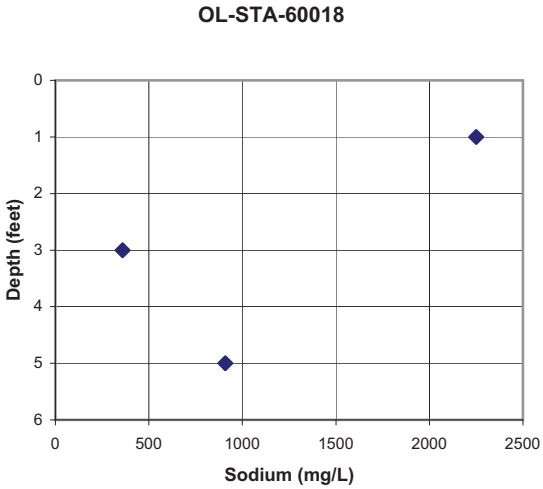
OL-STA-60016

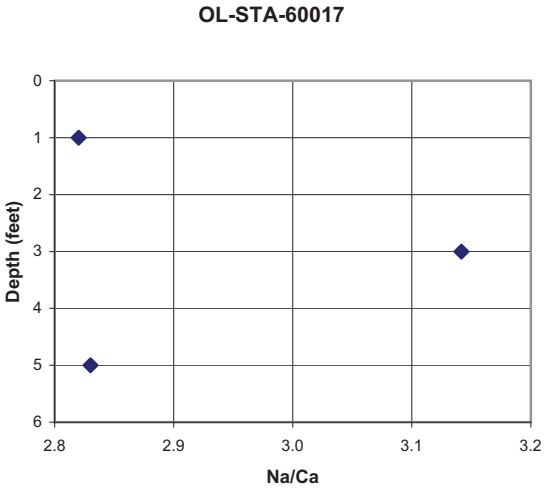


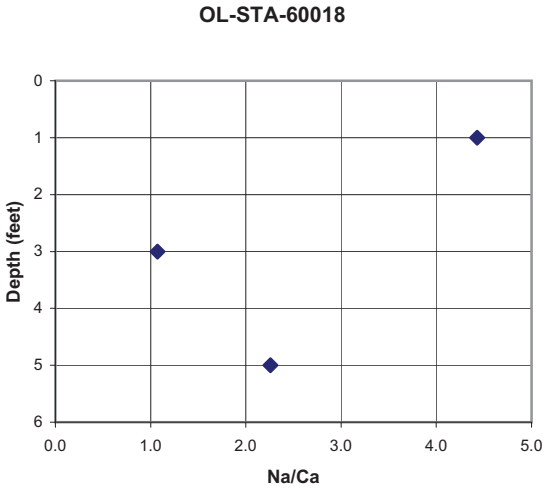

OL-STA-60017
Depth (feet)
0
1
2
3
4
5
6
0
10000
20000
30000
40000
Chloride (mg/L)


OL-STA-60018
Depth (feet)
0
1
2
3
4
5
6
0
500
1000
1500
2000
2500
Chloride (mg/L)

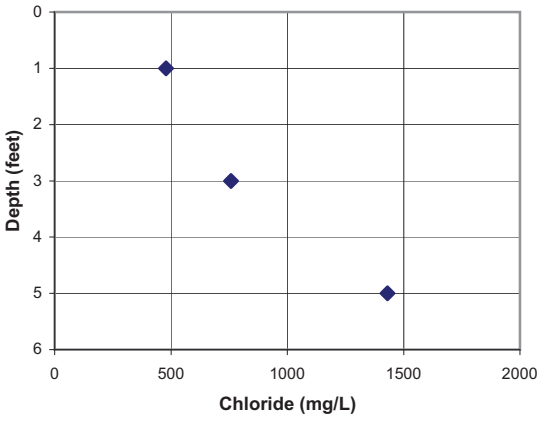

OL-STA-60017
Depth (feet)
0
1
2
3
4
5
6
0
2000
4000
6000
8000
10000
12000
Sodium (mg/L)


OL-STA-60018
Depth (feet)
0
1
2
3
4
5
6
0
500
1000
1500
2000
2500
Sodium (mg/L)

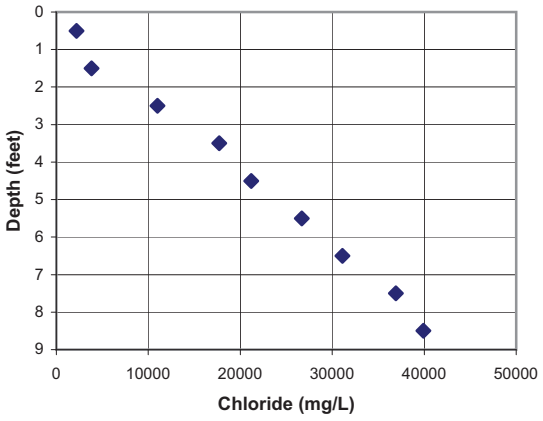

OL-STA-60017
Depth (feet)
0
1
2
3
4
5
6
2.8
2.9
3.0
3.1
3.2
Na/Ca


OL-STA-60018
Depth (feet)
0
1
2
3
4
5
6
0.0
1.0
2.0
3.0
4.0
5.0
Na/Ca

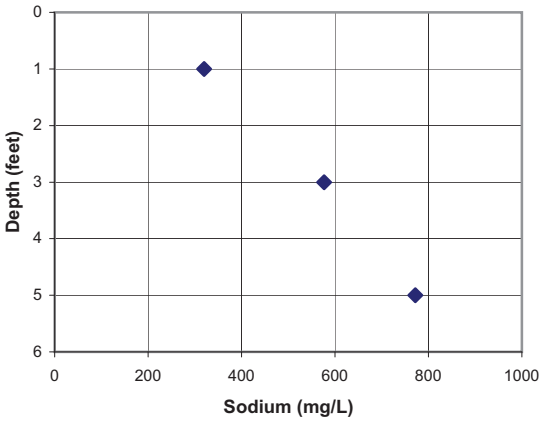
OL-STA-60019



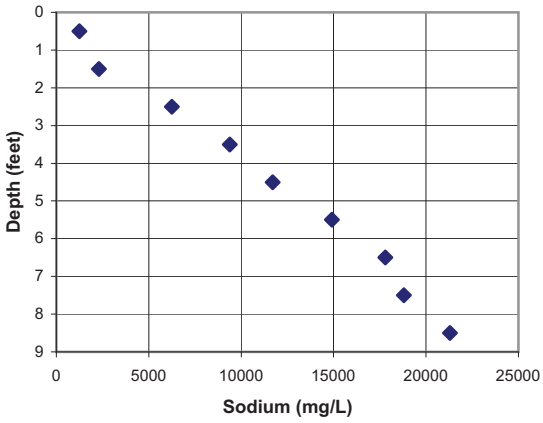
OL-STA-60072



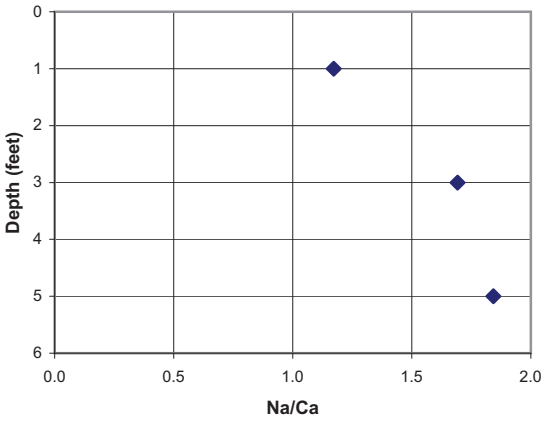
OL-STA-60019



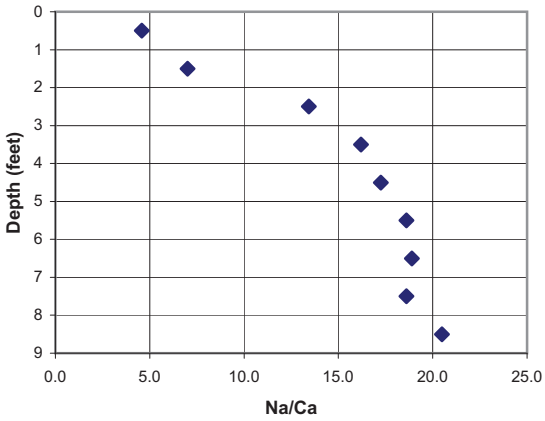
OL-STA-60072



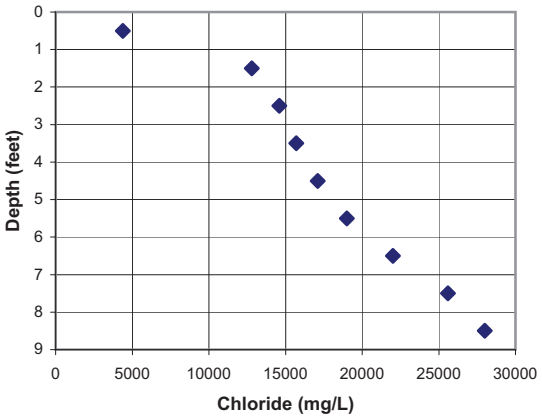
OL-STA-60019



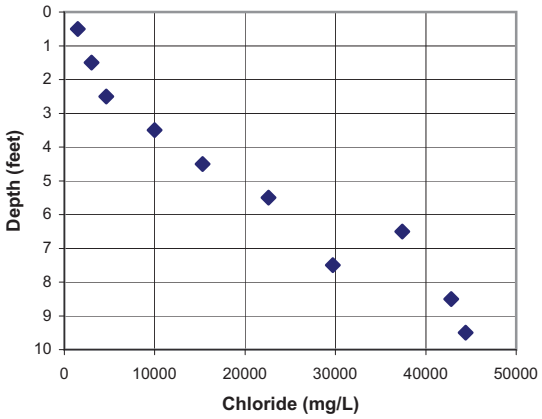
OL-STA-60072



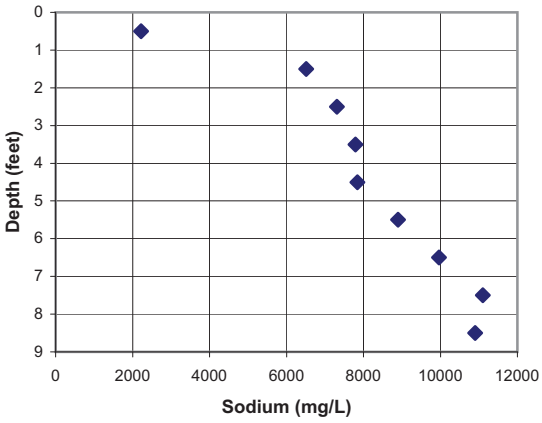
OL-STA-60078



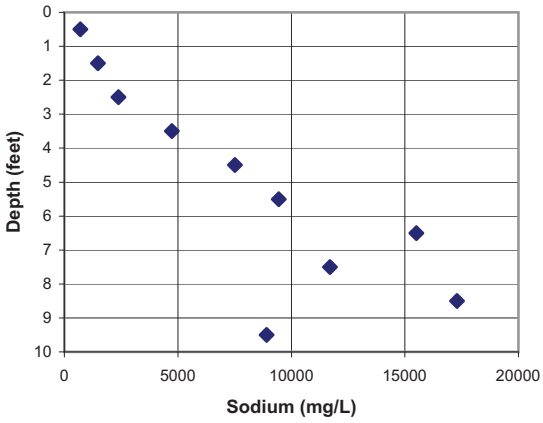
OL-STA-60081



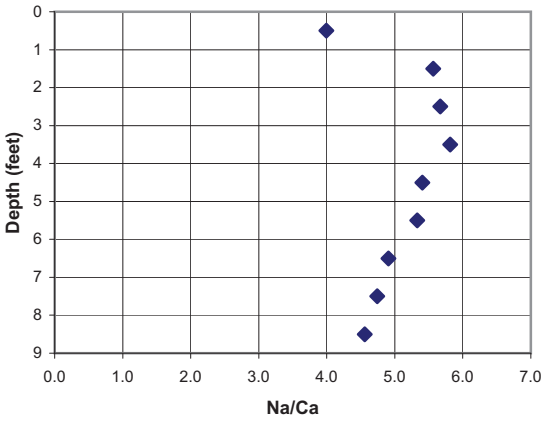
OL-STA-60078



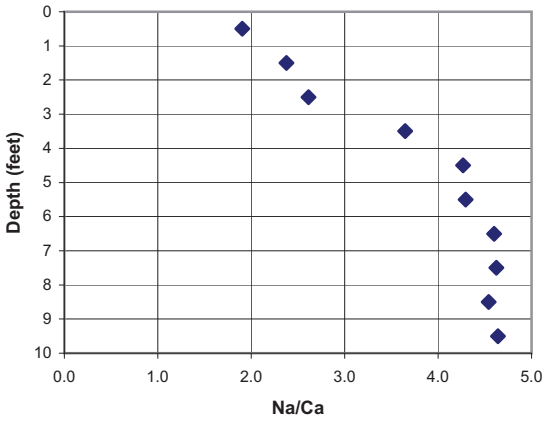
OL-STA-60081

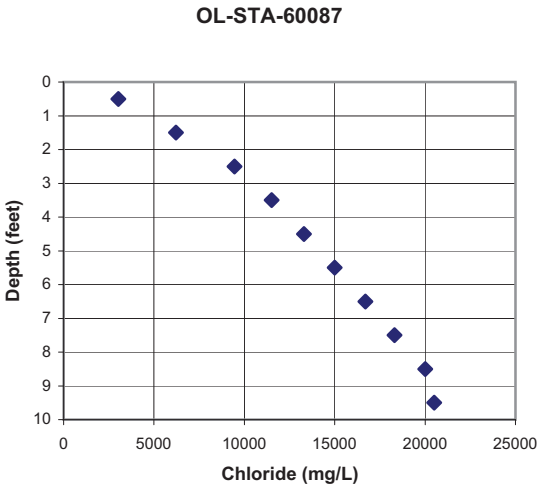


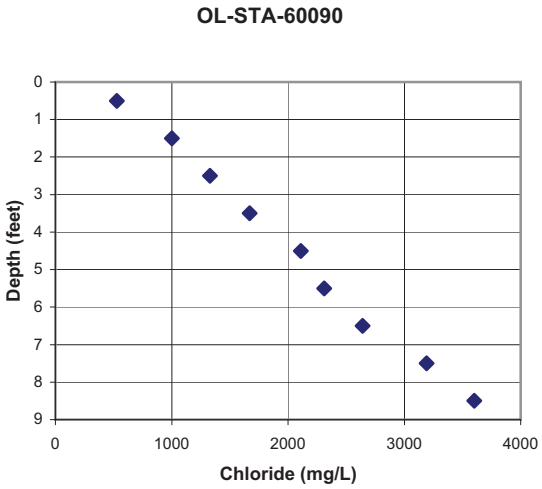
OL-STA-60078

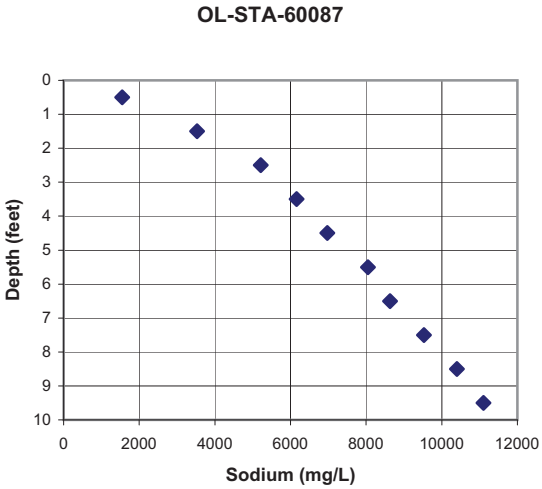


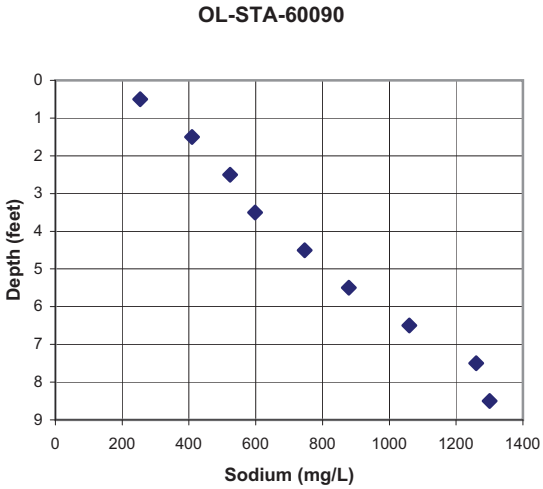
OL-STA-60081

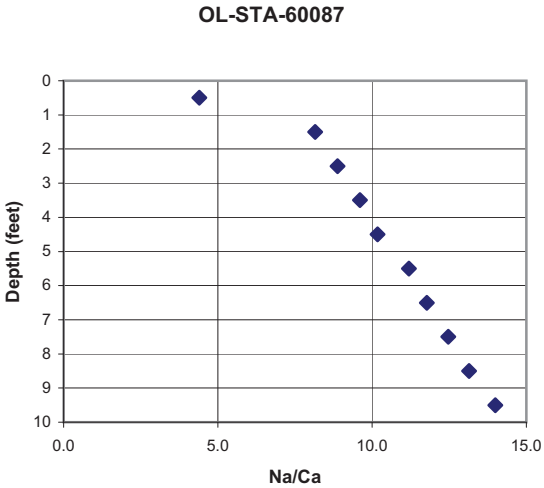


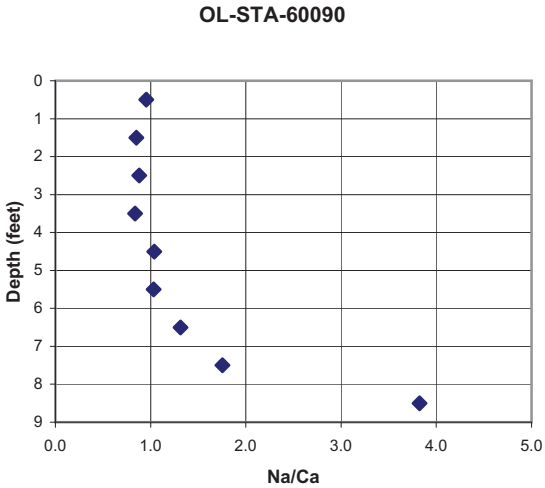

OL-STA-60087
Depth (feet)
0
1
2
3
4
5
6
7
8
9
10
0
5000
10000
15000
20000
25000
Chloride (mg/L)

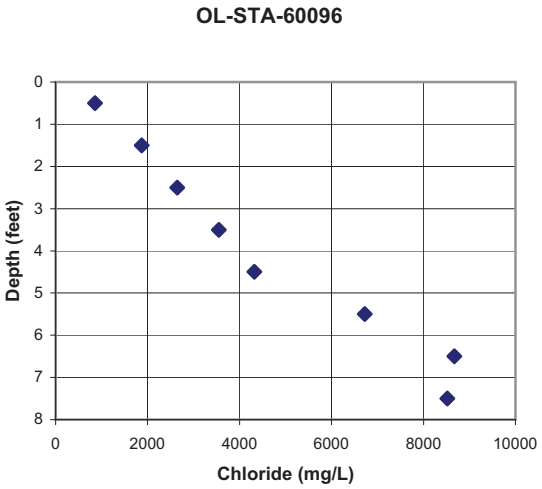

OL-STA-60090
Depth (feet)
0
1
2
3
4
5
6
7
8
9
0
1000
2000
3000
4000
Chloride (mg/L)

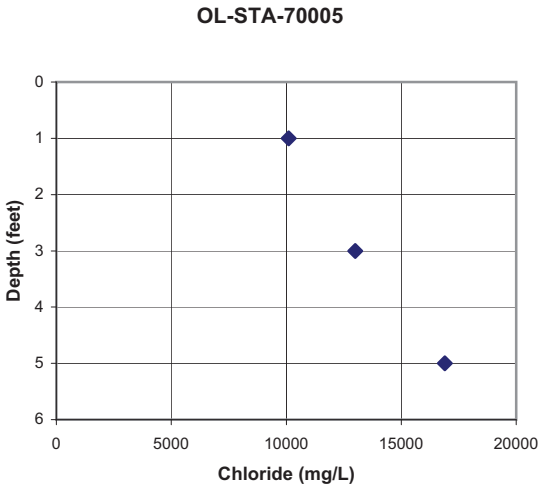

OL-STA-60087
Depth (feet)
0
1
2
3
4
5
6
7
8
9
10
0
2000
4000
6000
8000
10000
12000
Sodium (mg/L)

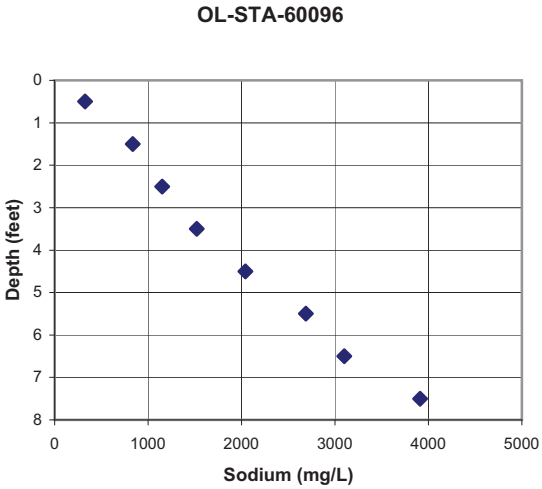

OL-STA-60090
Depth (feet)
0
1
2
3
4
5
6
7
8
9
0
200
400
600
800
1000
1200
1400
Sodium (mg/L)

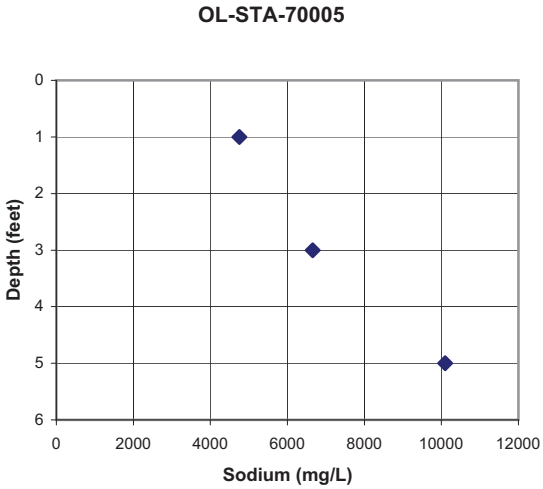

OL-STA-60087
Depth (feet)
0
1
2
3
4
5
6
7
8
9
10
0.0
5.0
10.0
15.0
Na/Ca

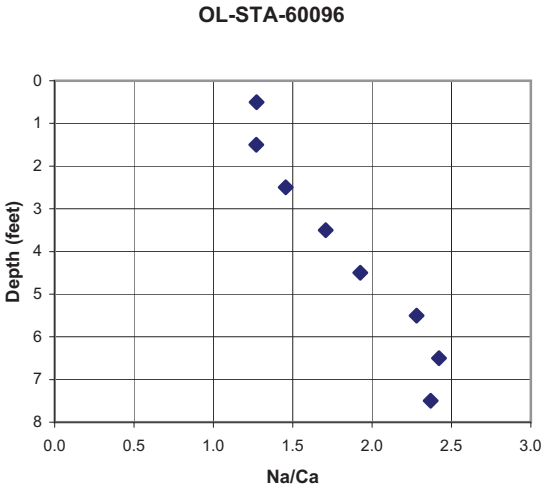

OL-STA-60090
Depth (feet)
0
1
2
3
4
5
6
7
8
9
0.0
1.0
2.0
3.0
4.0
5.0
Na/Ca

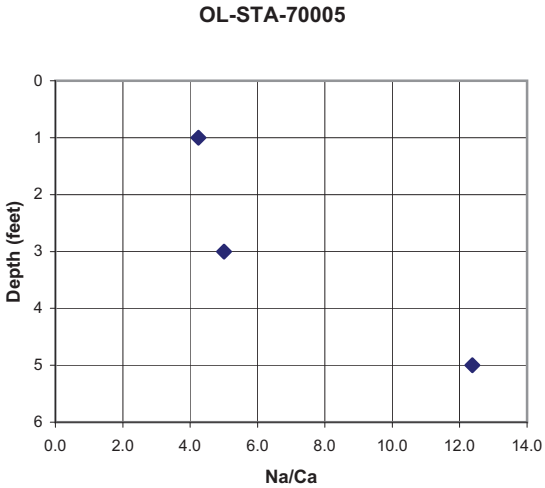

OL-STA-60096
Depth (feet)
0
1
2
3
4
5
6
7
8
0
2000
4000
6000
8000
10000
Chloride (mg/L)

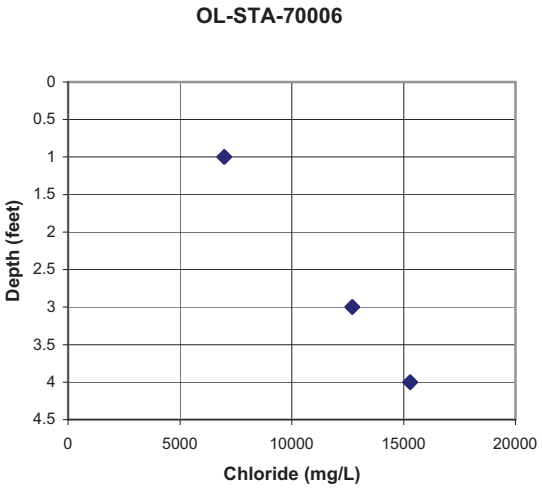

OL-STA-70005
Depth (feet)
0
1
2
3
4
5
6
0
5000
10000
15000
20000
Chloride (mg/L)

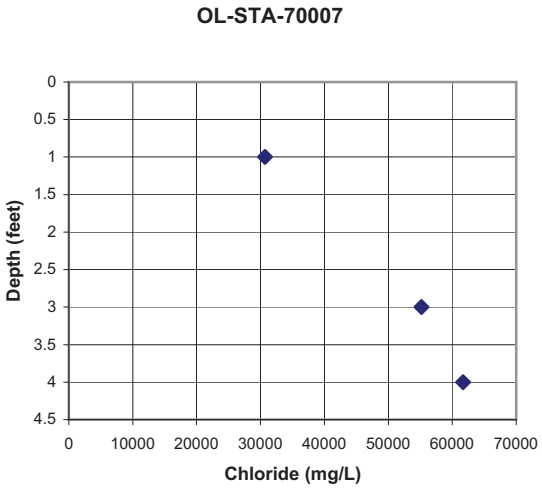

OL-STA-60096
Depth (feet)
0
1
2
3
4
5
6
7
8
0
1000
2000
3000
4000
5000
Sodium (mg/L)

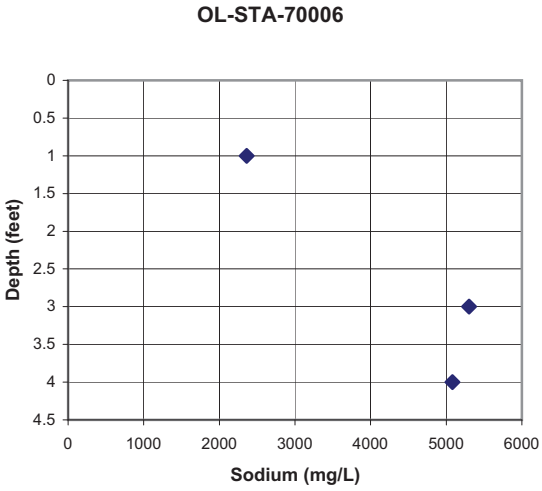

OL-STA-70005
Depth (feet)
0
1
2
3
4
5
6
0
2000
4000
6000
8000
10000
12000
Sodium (mg/L)

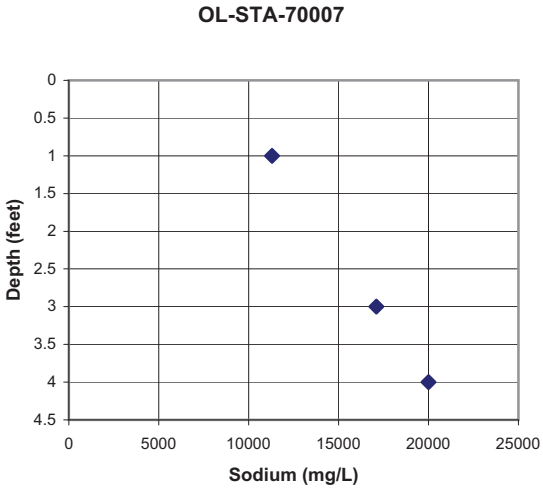

OL-STA-60096
Depth (feet)
0
1
2
3
4
5
6
7
8
0.0
0.5
1.0
1.5
2.0
2.5
3.0
Na/Ca

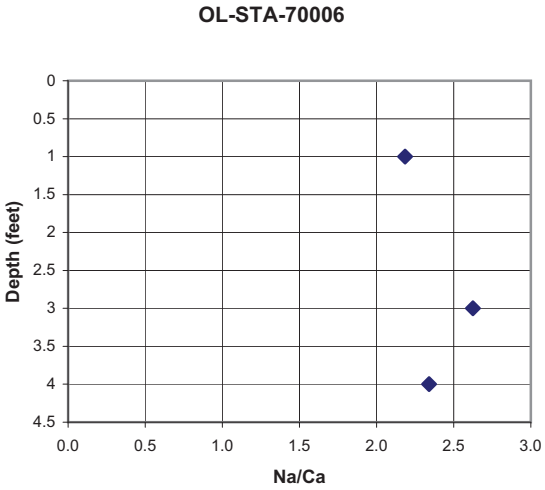

OL-STA-70005
Depth (feet)
0
1
2
3
4
5
6
0.0
2.0
4.0
6.0
8.0
10.0
12.0
14.0
Na/Ca

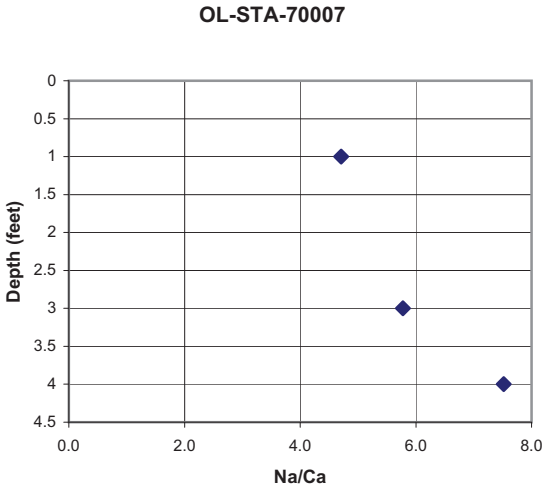

OL-STA-70006
Depth (feet)
0
0.5
1
1.5
2
2.5
3
3.5
4
4.5
0
5000
10000
15000
20000
Chloride (mg/L)


OL-STA-70007
Depth (feet)
0
0.5
1
1.5
2
2.5
3
3.5
4
4.5
0
10000
20000
30000
40000
50000
60000
70000
Chloride (mg/L)

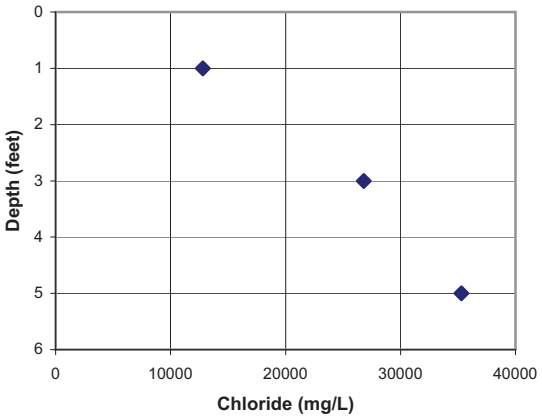

OL-STA-70006
Depth (feet)
0
0.5
1
1.5
2
2.5
3
3.5
4
4.5
0
1000
2000
3000
4000
5000
6000
Sodium (mg/L)


OL-STA-70007
Depth (feet)
0
0.5
1
1.5
2
2.5
3
3.5
4
4.5
0
5000
10000
15000
20000
25000
Sodium (mg/L)

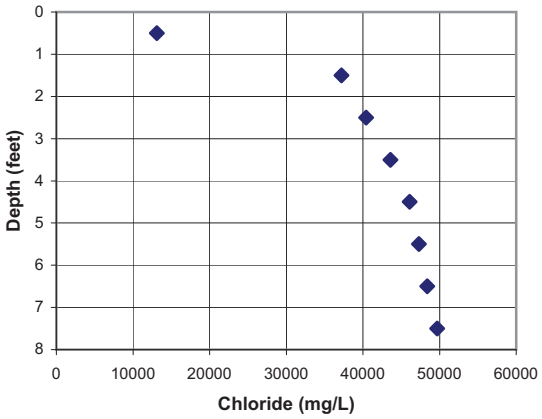

OL-STA-70006
Depth (feet)
0
0.5
1
1.5
2
2.5
3
3.5
4
4.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
Na/Ca


OL-STA-70007
Depth (feet)
0
0.5
1
1.5
2
2.5
3
3.5
4
4.5
0.0
2.0
4.0
6.0
8.0
Na/Ca

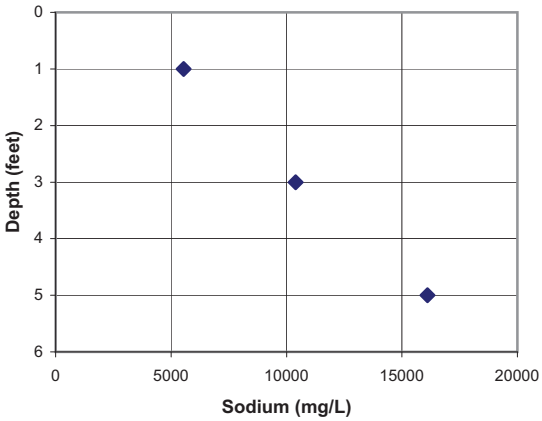
OL-STA-70008



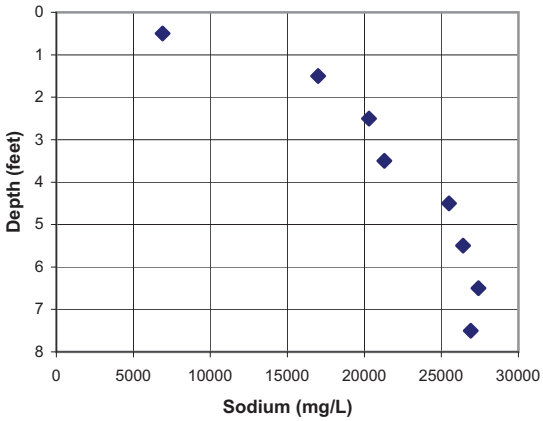
OL-STA-70040



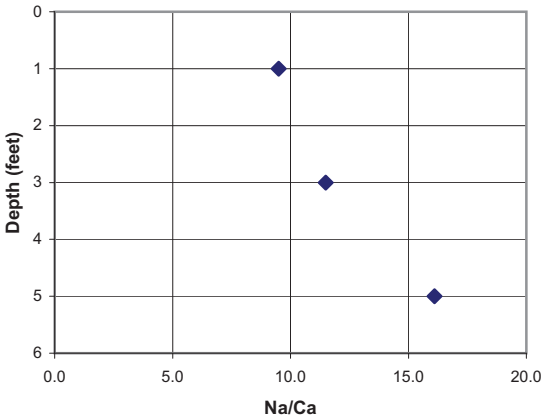
OL-STA-70008



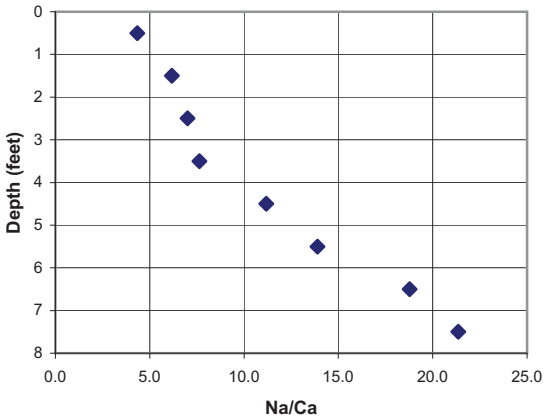
OL-STA-70040

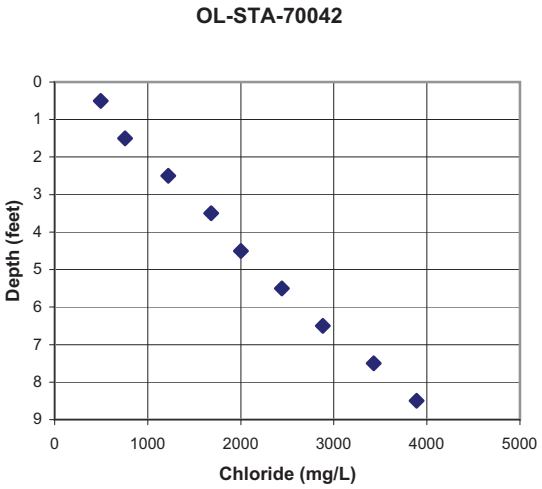


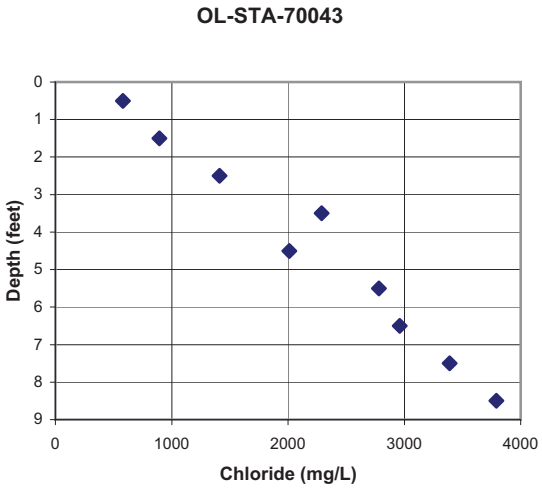
OL-STA-70008

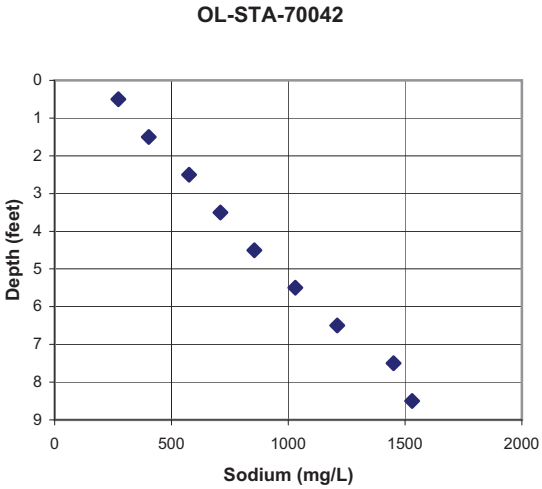


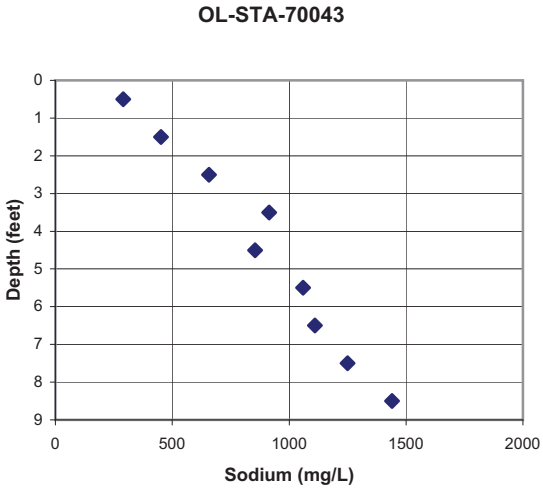
OL-STA-70040

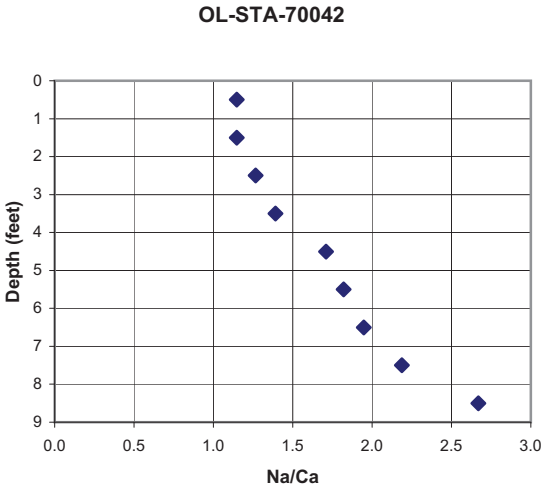


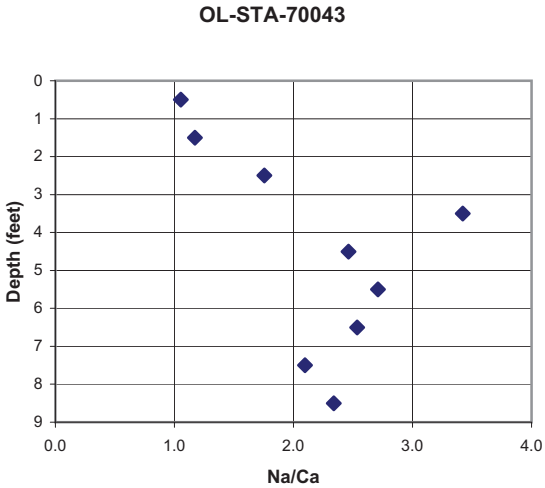

OL-STA-70042
Depth (feet)
Chloride (mg/L)
0
1000
2000
3000
4000
5000

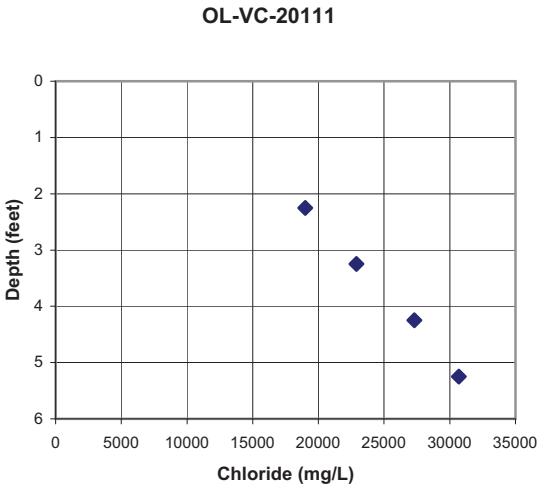

OL-STA-70043
Depth (feet)
Chloride (mg/L)
0
1000
2000
3000
4000

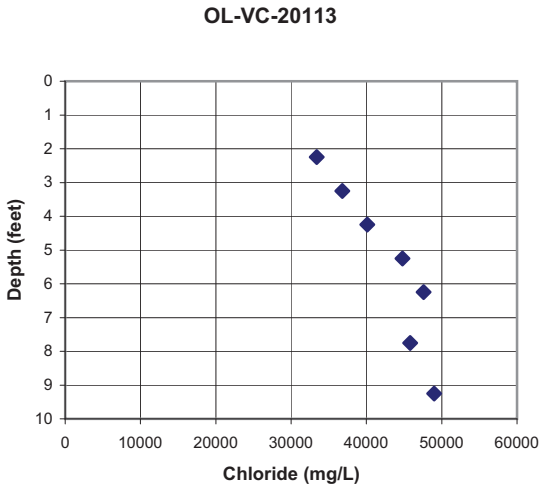

OL-STA-70042
Depth (feet)
Sodium (mg/L)
0
500
1000
1500
2000

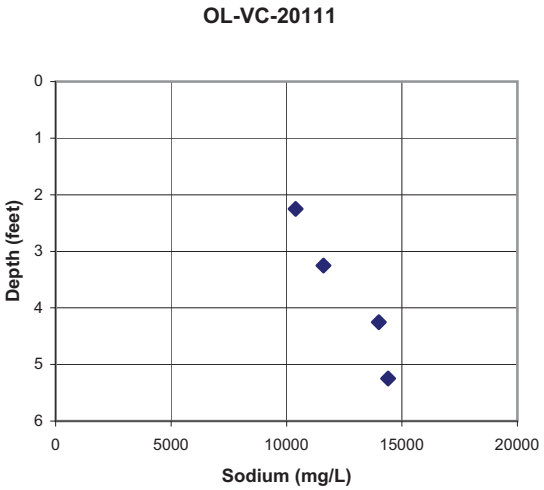

OL-STA-70043
Depth (feet)
Sodium (mg/L)
0
500
1000
1500
2000

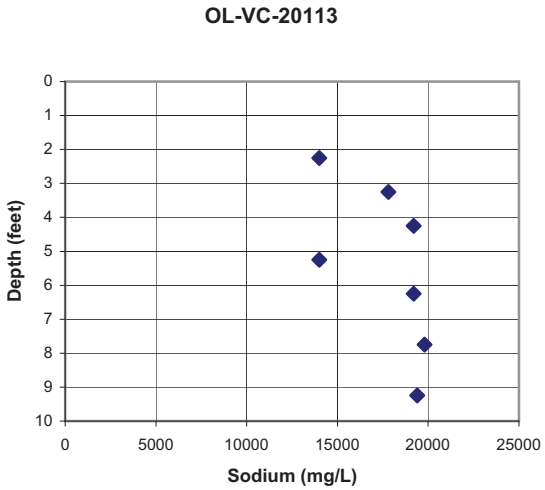

OL-STA-70042
Depth (feet)
Na/Ca
0.0
0.5
1.0
1.5
2.0
2.5
3.0

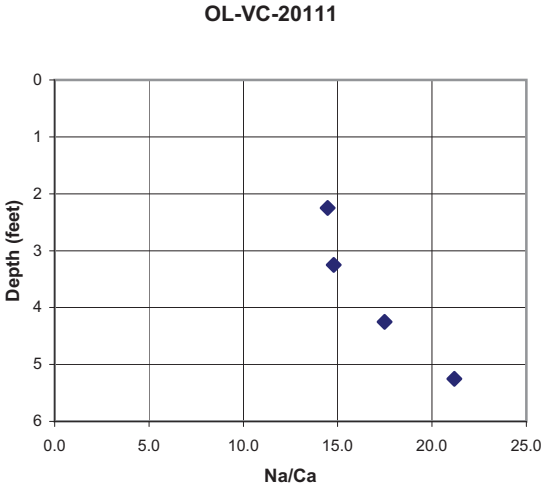

OL-STA-70043
Depth (feet)
Na/Ca
0.0
1.0
2.0
3.0
4.0

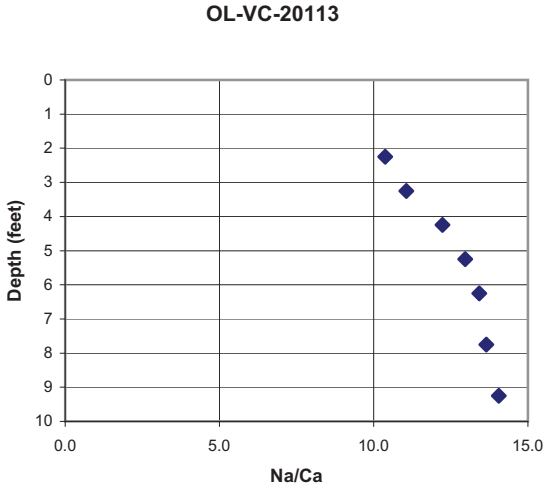

OL-VC-20111
Depth (feet)
0
1
2
3
4
5
6
0
5000
10000
15000
20000
25000
30000
35000
Chloride (mg/L)


OL-VC-20113
Depth (feet)
0
1
2
3
4
5
6
7
8
9
10
0
10000
20000
30000
40000
50000
60000
Chloride (mg/L)

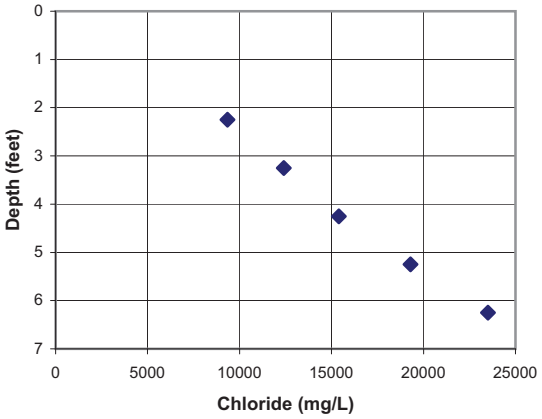

OL-VC-20111
Depth (feet)
0
1
2
3
4
5
6
0
5000
10000
15000
20000
Sodium (mg/L)


OL-VC-20113
Depth (feet)
0
1
2
3
4
5
6
7
8
9
10
0
5000
10000
15000
20000
25000
Sodium (mg/L)

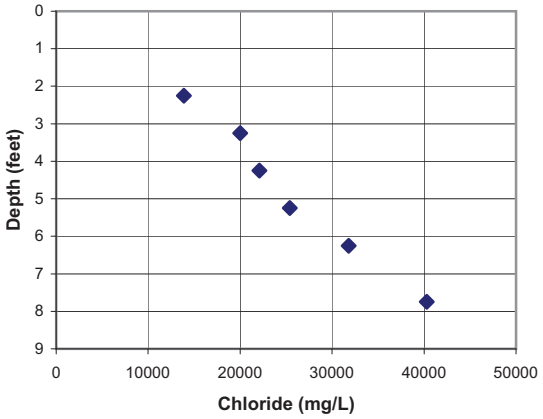

OL-VC-20111
Depth (feet)
0
1
2
3
4
5
6
0.0
5.0
10.0
15.0
20.0
25.0
Na/Ca


OL-VC-20113
Depth (feet)
0
1
2
3
4
5
6
7
8
9
10
0.0
5.0
10.0
15.0
Na/Ca

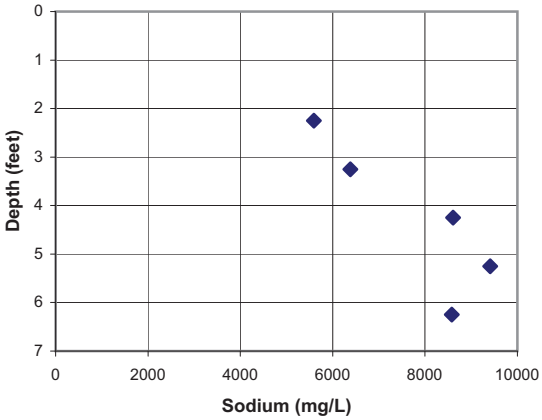
OL-VC-20118



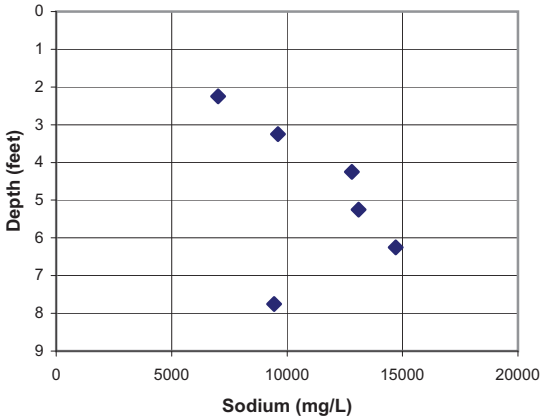
OL-VC-20119



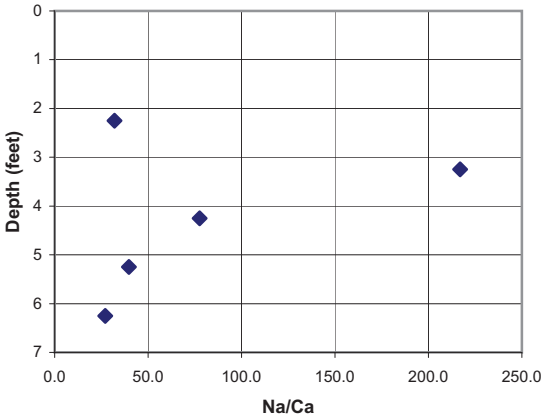
OL-VC-20118



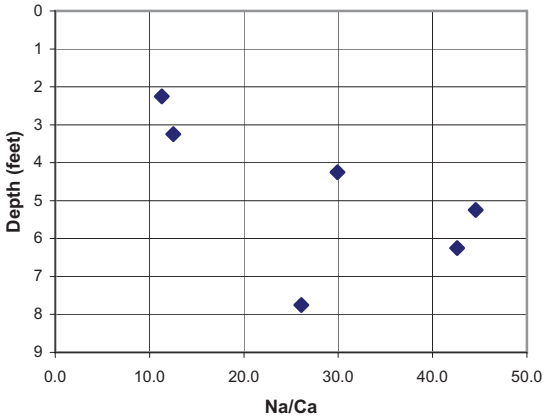
OL-VC-20119

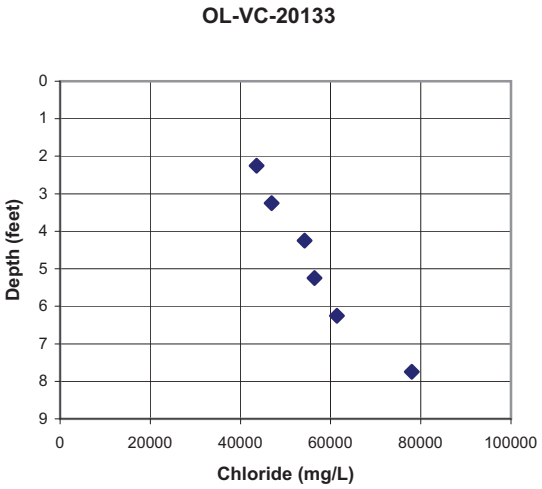


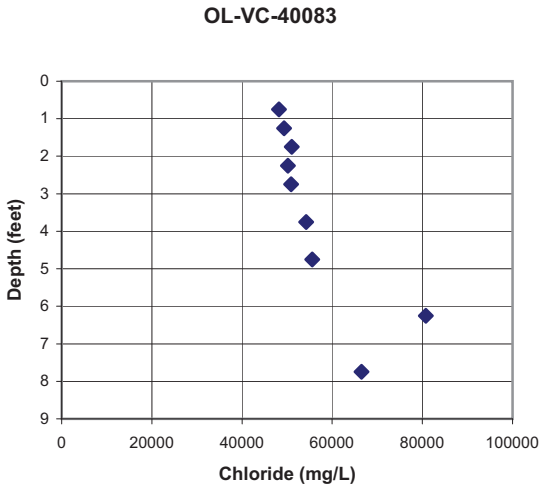
OL-VC-20118

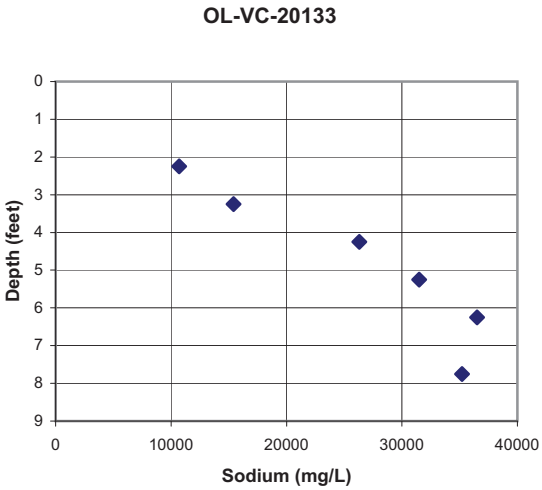


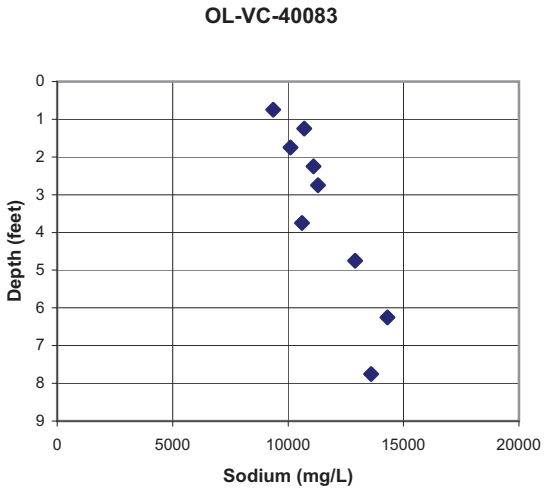
OL-VC-20119

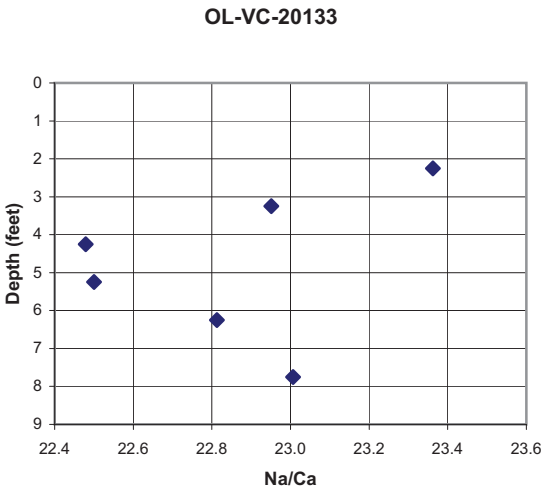


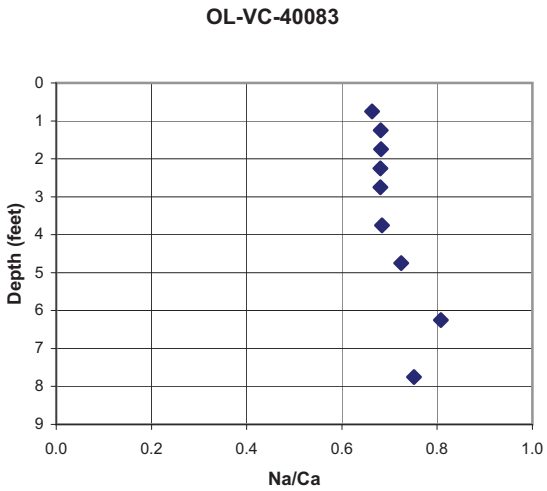

OL-VC-20133
Depth (feet)
Chloride (mg/L)
0
1
2
3
4
5
6
7
8
9
0
20000
40000
60000
80000
100000

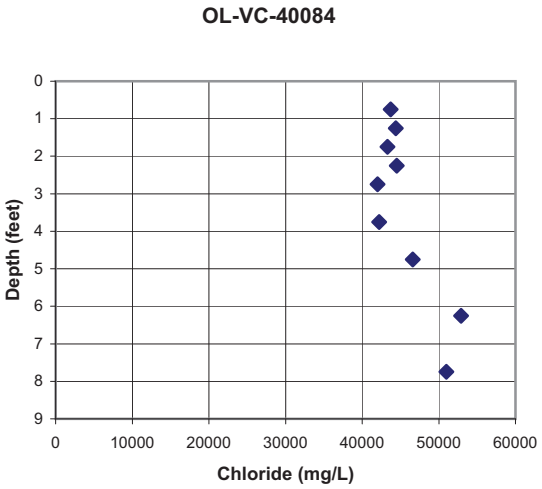

OL-VC-40083
Depth (feet)
Chloride (mg/L)
0
1
2
3
4
5
6
7
8
9
0
20000
40000
60000
80000
100000

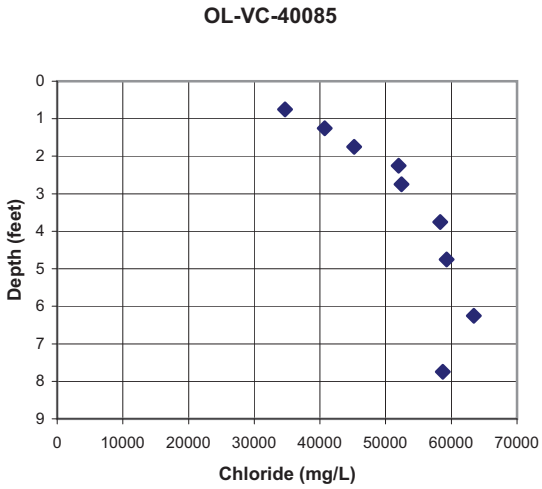

OL-VC-20133
Depth (feet)
Sodium (mg/L)
0
1
2
3
4
5
6
7
8
9
0
10000
20000
30000
40000

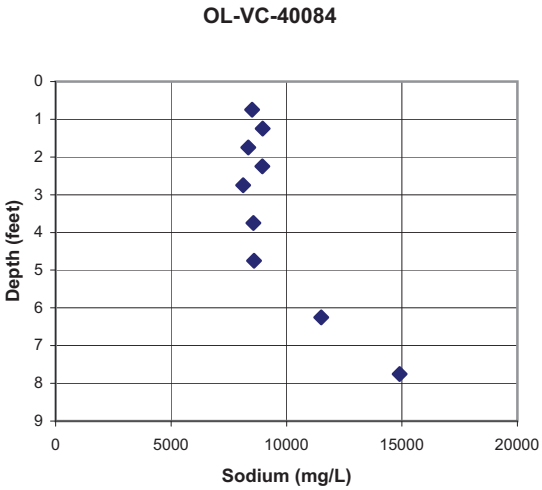

OL-VC-40083
Depth (feet)
Sodium (mg/L)
0
1
2
3
4
5
6
7
8
9
0
5000
10000
15000
20000

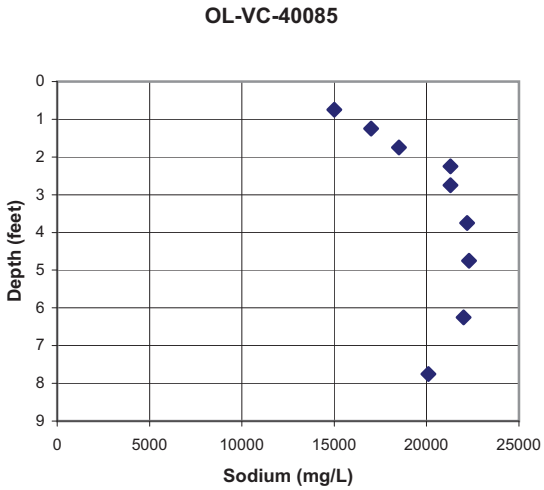

OL-VC-20133
Depth (feet)
Na/Ca
0
1
2
3
4
5
6
7
8
9
22.4
22.6
22.8
23.0
23.2
23.4
23.6

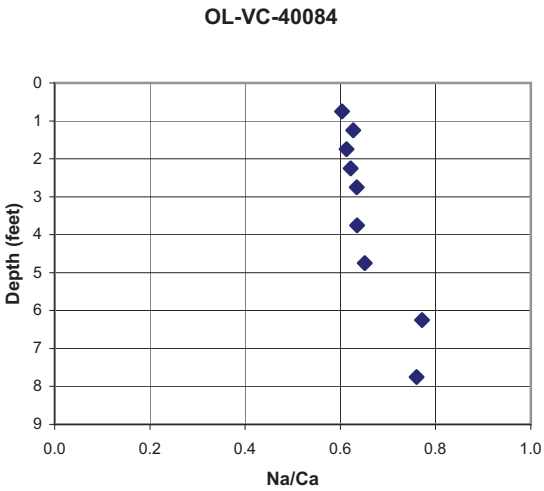

OL-VC-40083
Depth (feet)
Na/Ca
0
1
2
3
4
5
6
7
8
9
0.0
0.2
0.4
0.6
0.8
1.0

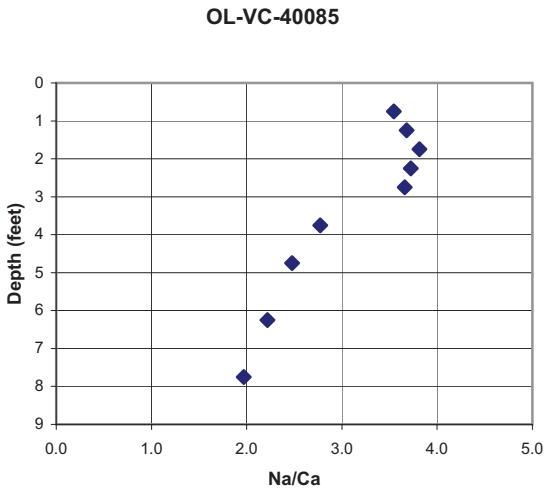

OL-VC-40084
Depth (feet)
Chloride (mg/L)
0
1
2
3
4
5
6
7
8
9
0
10000
20000
30000
40000
50000
60000

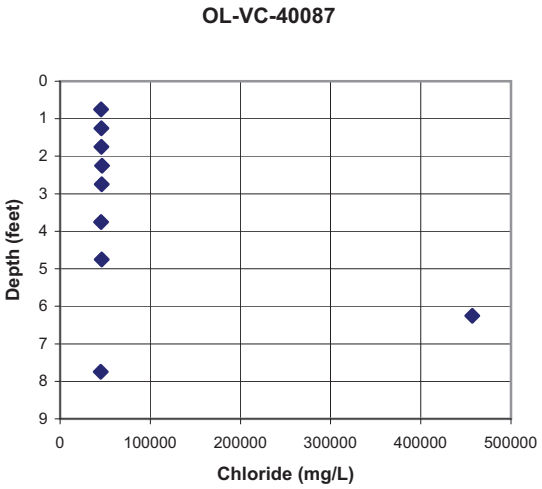

OL-VC-40085
Depth (feet)
Chloride (mg/L)
0
1
2
3
4
5
6
7
8
9
0
10000
20000
30000
40000
50000
60000
70000

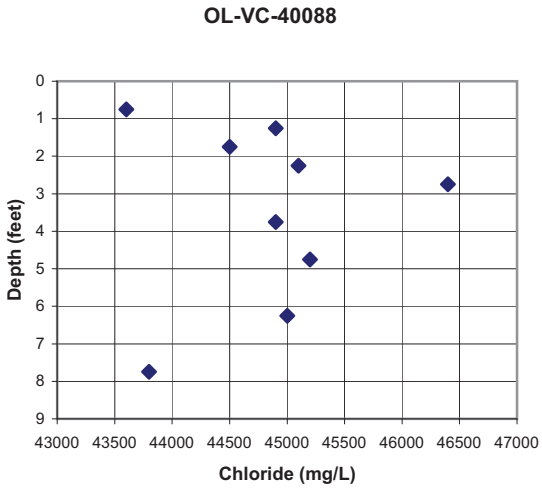

OL-VC-40084
Depth (feet)
Sodium (mg/L)
0
1
2
3
4
5
6
7
8
9
0
5000
10000
15000
20000

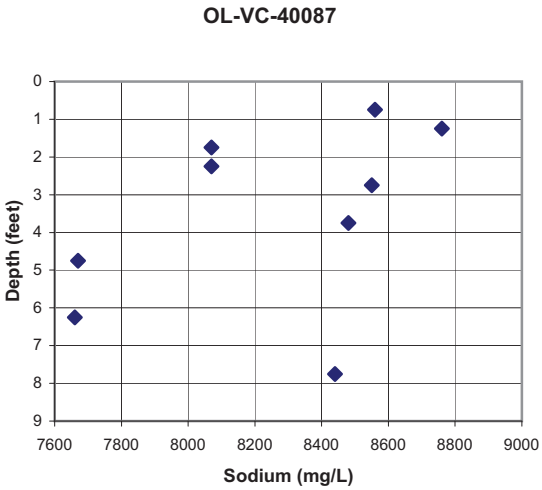

OL-VC-40085
Depth (feet)
Sodium (mg/L)
0
1
2
3
4
5
6
7
8
9
0
5000
10000
15000
20000
25000

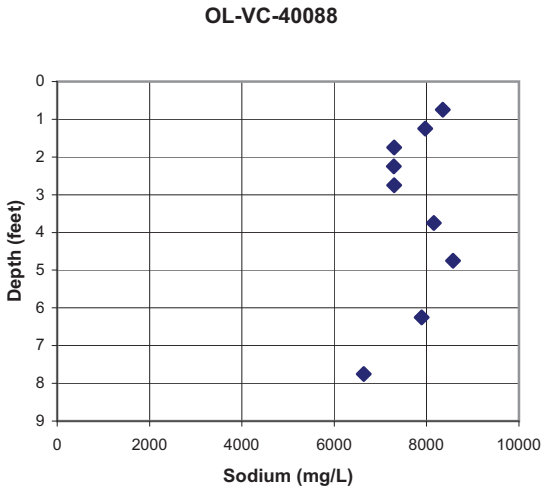

OL-VC-40084
Depth (feet)
Na/Ca
0
1
2
3
4
5
6
7
8
9
0.0
0.2
0.4
0.6
0.8
1.0

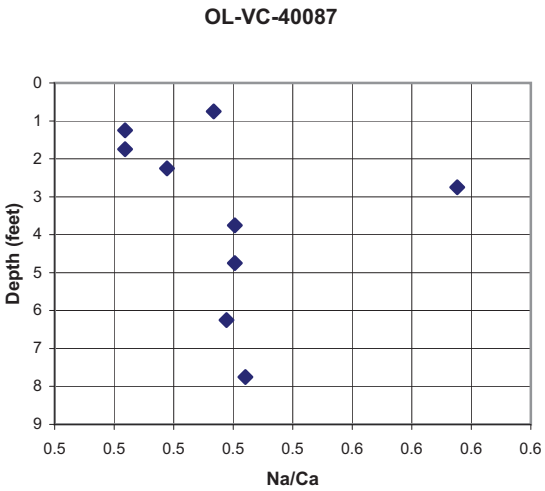

OL-VC-40085
Depth (feet)
Na/Ca
0
1
2
3
4
5
6
7
8
9
0.0
1.0
2.0
3.0
4.0
5.0

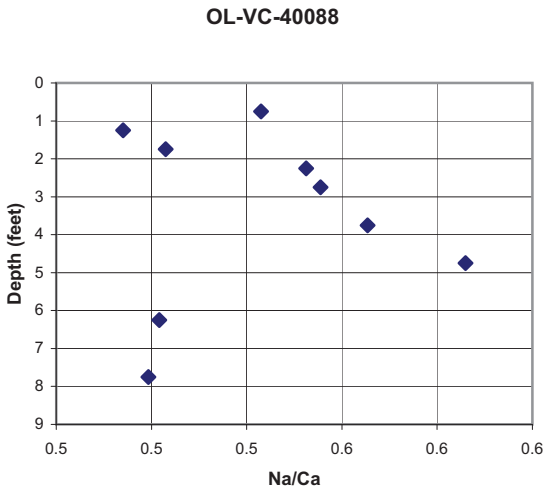

OL-VC-40087
Depth (feet)
0
1
2
3
4
5
6
7
8
9
0
100000
200000
300000
400000
500000
Chloride (mg/L)

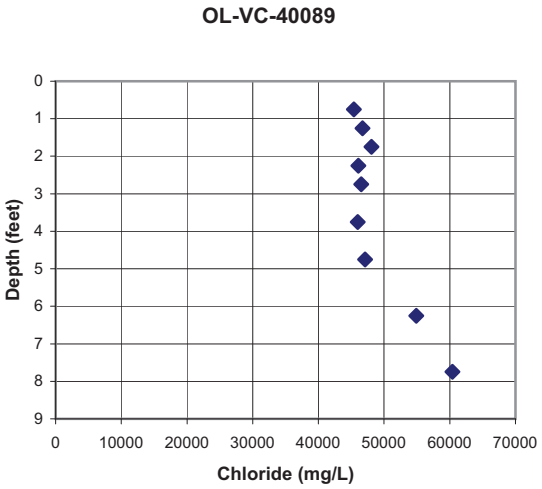

OL-VC-40088
Depth (feet)
0
1
2
3
4
5
6
7
8
9
43000
43500
44000
44500
45000
45500
46000
46500
47000
Chloride (mg/L)

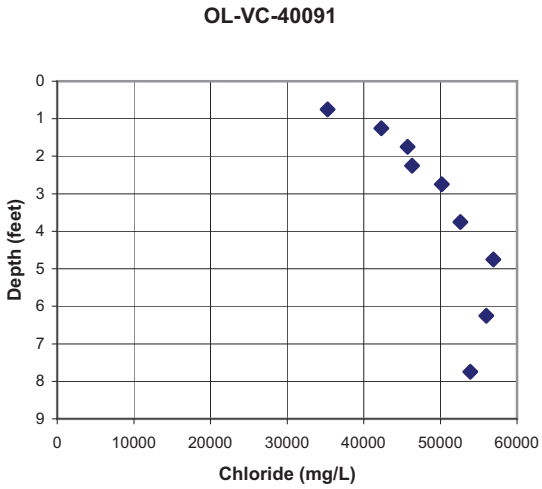

OL-VC-40087
Depth (feet)
0
1
2
3
4
5
6
7
8
9
7600
7800
8000
8200
8400
8600
8800
9000
Sodium (mg/L)

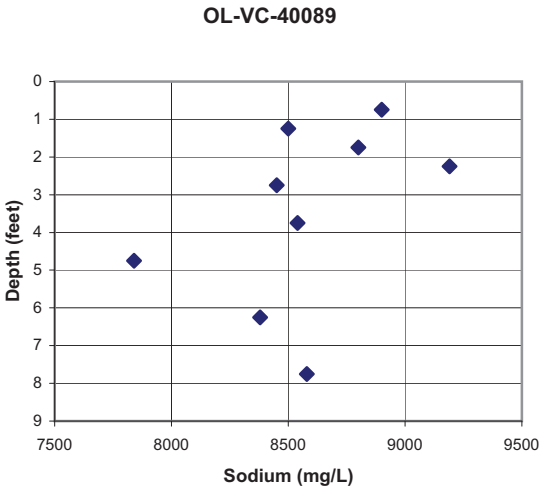

OL-VC-40088
Depth (feet)
0
1
2
3
4
5
6
7
8
9
0
2000
4000
6000
8000
10000
Sodium (mg/L)

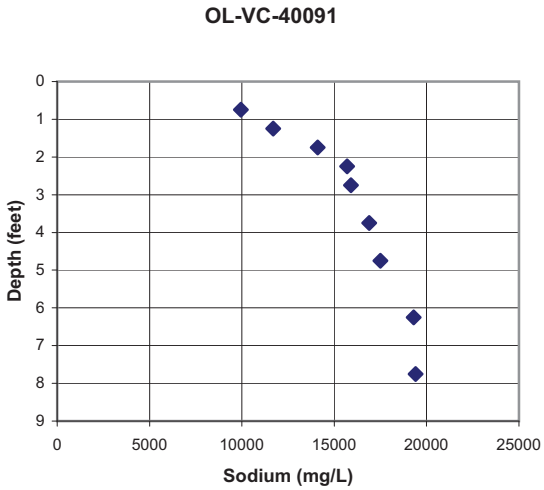

OL-VC-40087
Depth (feet)
0
1
2
3
4
5
6
7
8
9
0.5
0.5
0.5
0.5
0.5
0.6
0.6
0.6
0.6
Na/Ca

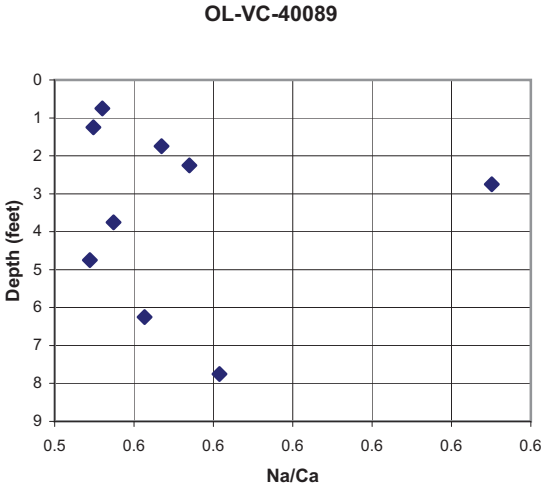

OL-VC-40088
Depth (feet)
0
1
2
3
4
5
6
7
8
9
0.5
0.5
0.5
0.6
0.6
0.6
Na/Ca

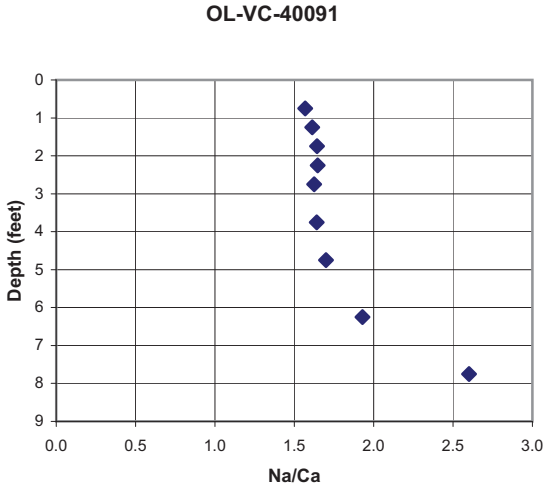

OL-VC-40089
Depth (feet)
Chloride (mg/L)
0
1
2
3
4
5
6
7
8
9
0
10000
20000
30000
40000
50000
60000
70000

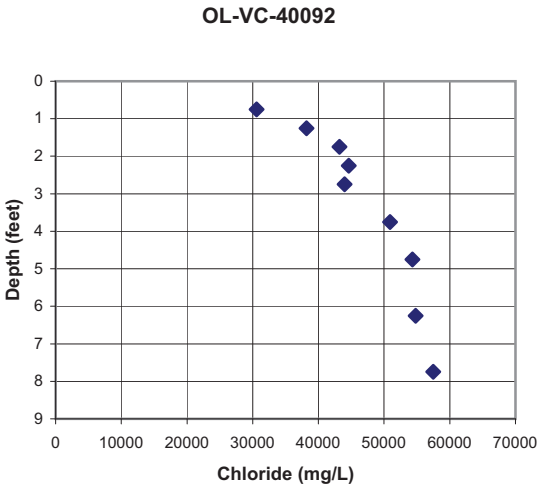

OL-VC-40091
Depth (feet)
Chloride (mg/L)
0
1
2
3
4
5
6
7
8
9
0
10000
20000
30000
40000
50000
60000

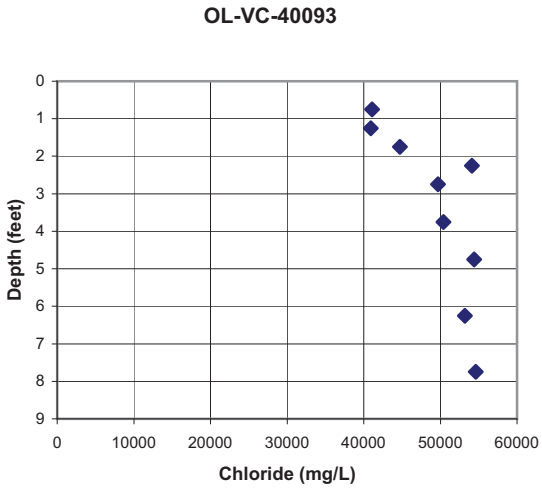

OL-VC-40089
Depth (feet)
Sodium (mg/L)
0
1
2
3
4
5
6
7
8
9
7500
8000
8500
9000
9500

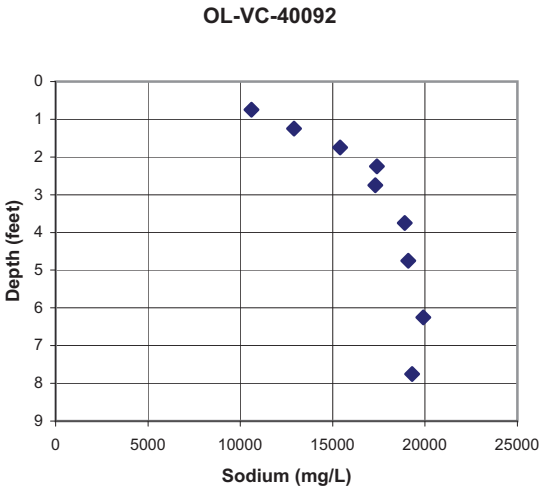

OL-VC-40091
Depth (feet)
Sodium (mg/L)
0
1
2
3
4
5
6
7
8
9
0
5000
10000
15000
20000
25000

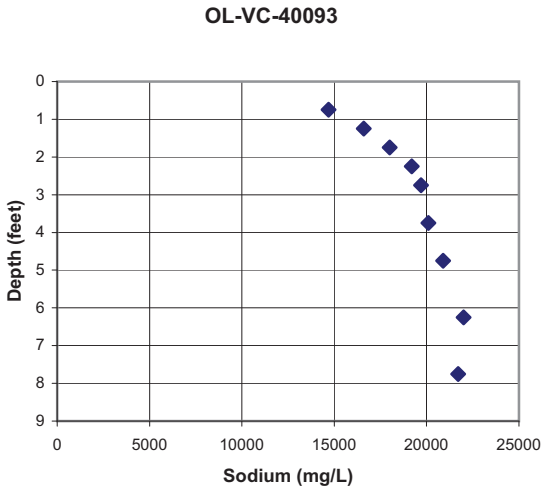

OL-VC-40089
Depth (feet)
Na/Ca
0
1
2
3
4
5
6
7
8
9
0.5
0.6
0.6
0.6
0.6
0.6

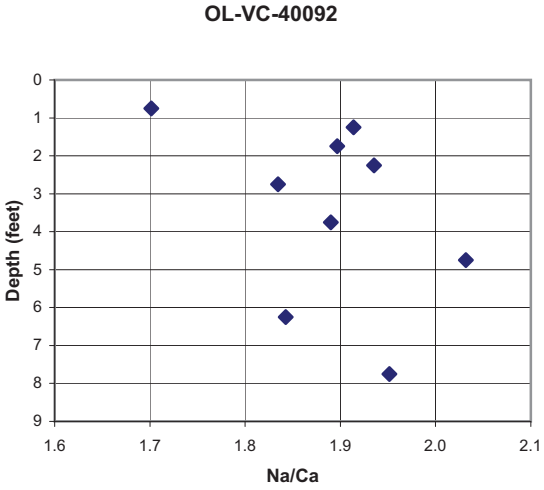

OL-VC-40091
Depth (feet)
Na/Ca
0
1
2
3
4
5
6
7
8
9
0.0
0.5
1.0
1.5
2.0
2.5
3.0

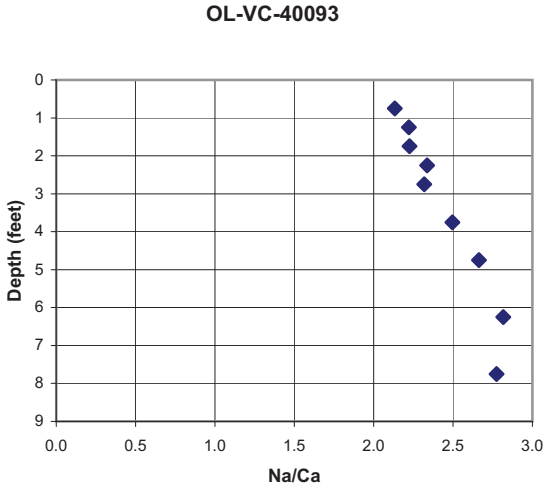

OL-VC-40092
Depth (feet)
Chloride (mg/L)
0
1
2
3
4
5
6
7
8
9
0
10000
20000
30000
40000
50000
60000
70000

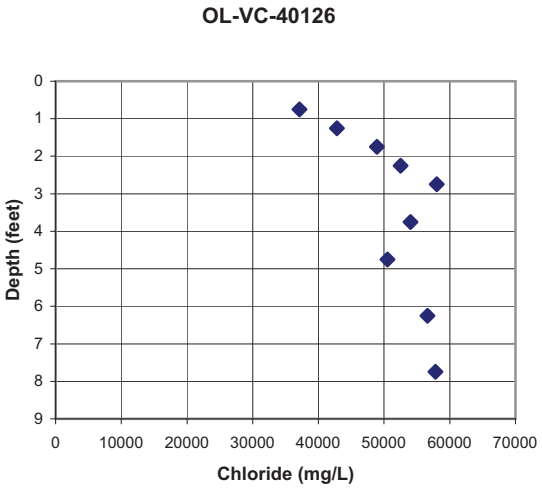

OL-VC-40093
Depth (feet)
Chloride (mg/L)
0
1
2
3
4
5
6
7
8
9
0
10000
20000
30000
40000
50000
60000

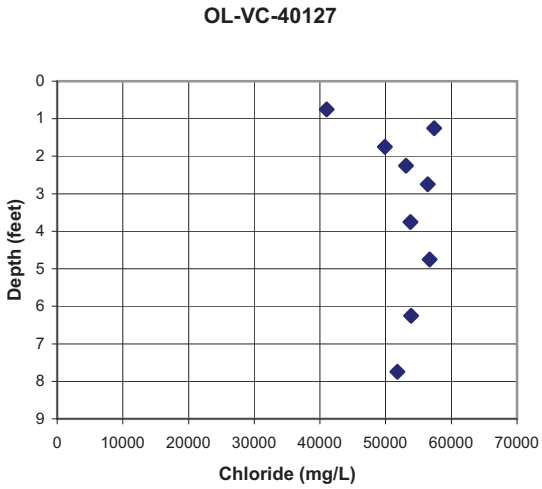

OL-VC-40092
Depth (feet)
Sodium (mg/L)
0
1
2
3
4
5
6
7
8
9
0
5000
10000
15000
20000
25000

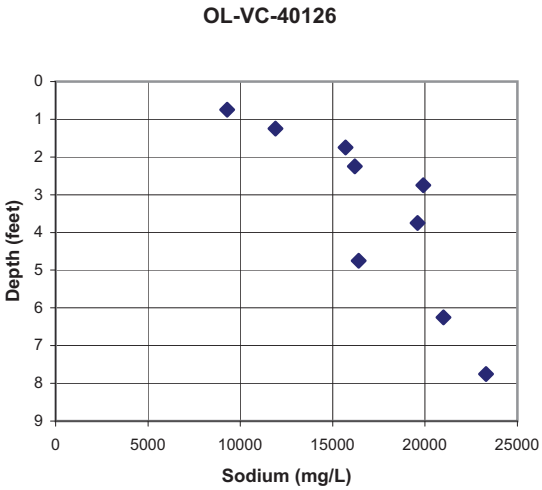

OL-VC-40093
Depth (feet)
Sodium (mg/L)
0
1
2
3
4
5
6
7
8
9
0
5000
10000
15000
20000
25000

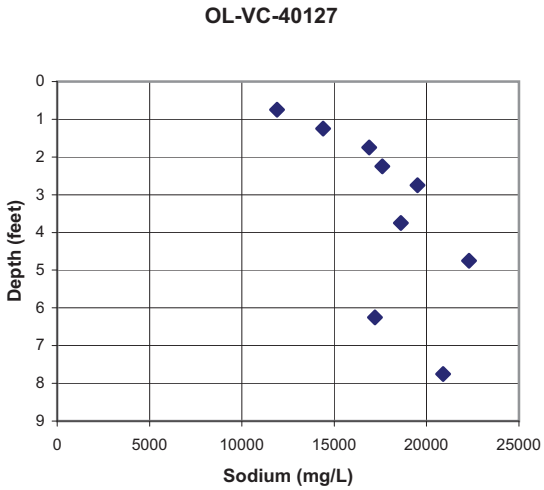

OL-VC-40092
Depth (feet)
Na/Ca
0
1
2
3
4
5
6
7
8
9
1.6
1.7
1.8
1.9
2.0
2.1

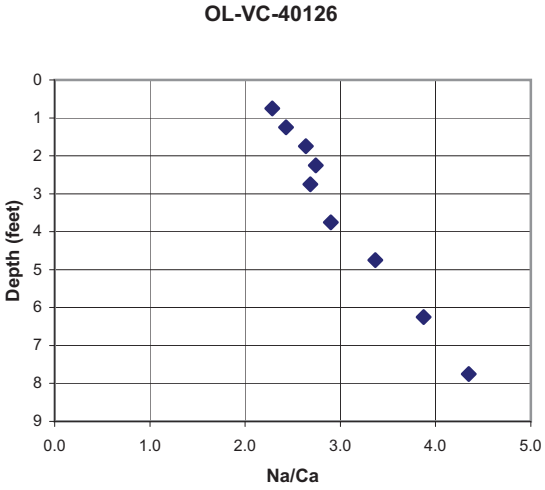

OL-VC-40093
Depth (feet)
Na/Ca
0
1
2
3
4
5
6
7
8
9
0.0
0.5
1.0
1.5
2.0
2.5
3.0

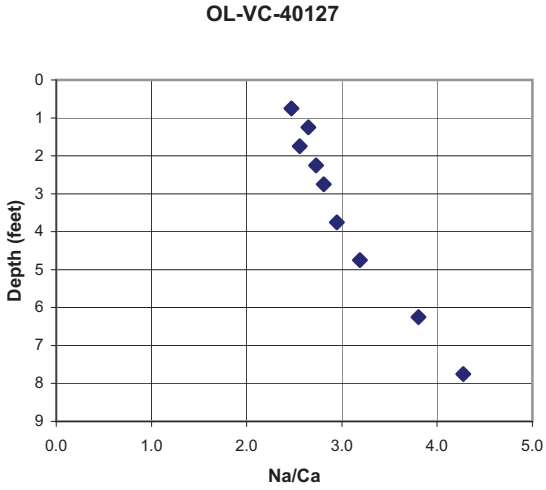

OL-VC-40126
Depth (feet)
0
1
2
3
4
5
6
7
8
9
0
10000
20000
30000
40000
50000
60000
70000
Chloride (mg/L)

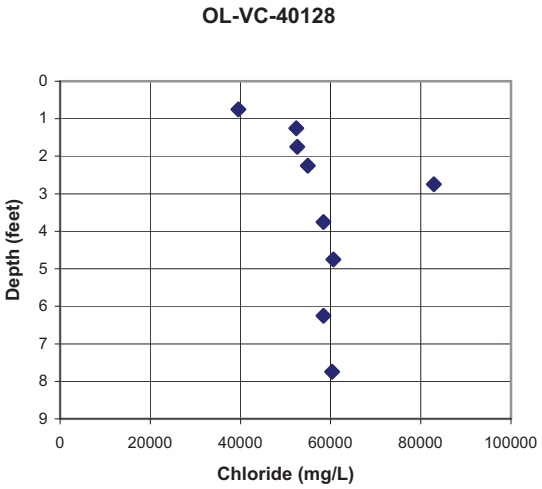

OL-VC-40127
Depth (feet)
0
1
2
3
4
5
6
7
8
9
0
10000
20000
30000
40000
50000
60000
70000
Chloride (mg/L)

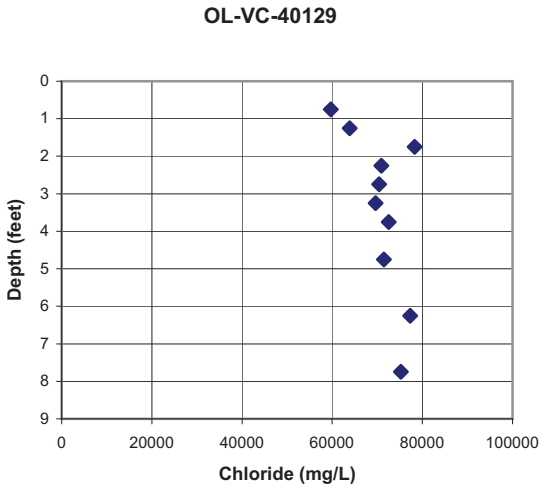

OL-VC-40126
Depth (feet)
0
1
2
3
4
5
6
7
8
9
0
5000
10000
15000
20000
25000
Sodium (mg/L)

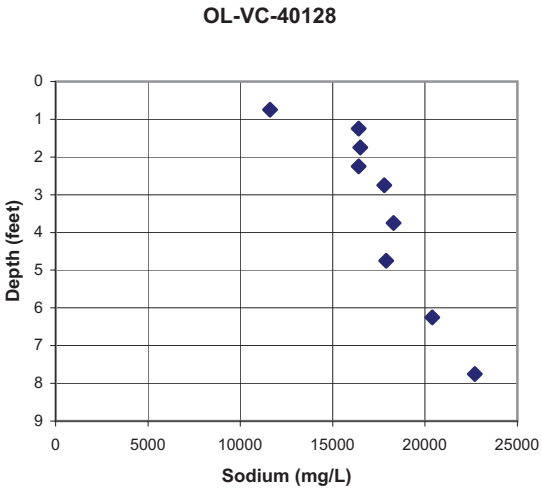

OL-VC-40127
Depth (feet)
0
1
2
3
4
5
6
7
8
9
0
5000
10000
15000
20000
25000
Sodium (mg/L)

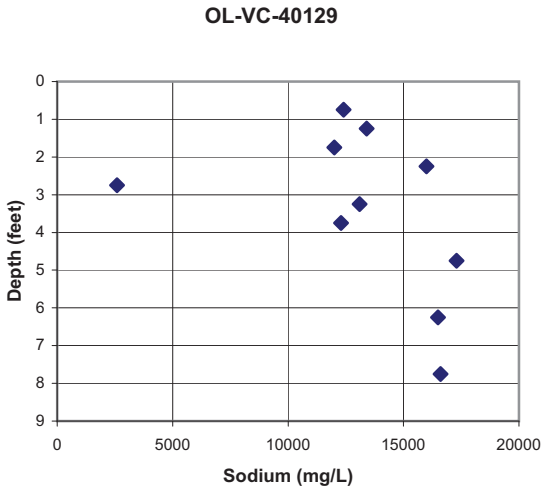

OL-VC-40126
Depth (feet)
0
1
2
3
4
5
6
7
8
9
0.0
1.0
2.0
3.0
4.0
5.0
Na/Ca

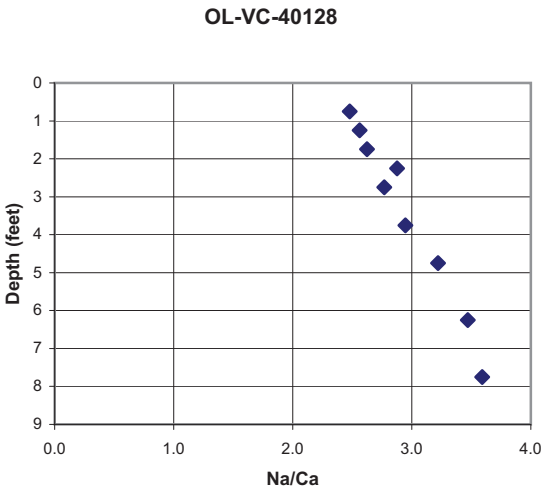

OL-VC-40127
Depth (feet)
0
1
2
3
4
5
6
7
8
9
0.0
1.0
2.0
3.0
4.0
5.0
Na/Ca

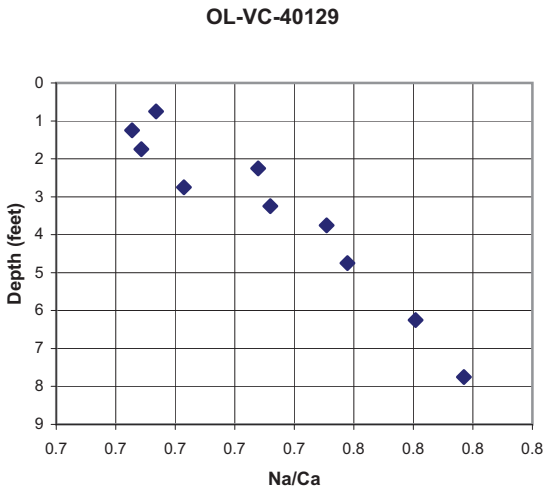

OL-VC-40128
Depth (feet)
Chloride (mg/L)
0
1
2
3
4
5
6
7
8
9
0
20000
40000
60000
80000
100000

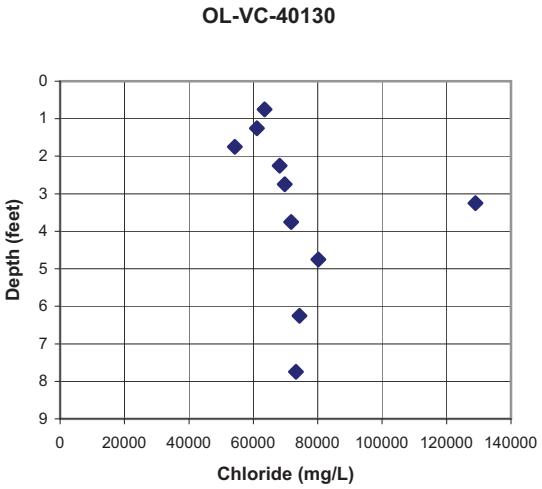

OL-VC-40129
Depth (feet)
Chloride (mg/L)
0
1
2
3
4
5
6
7
8
9
0
20000
40000
60000
80000
100000

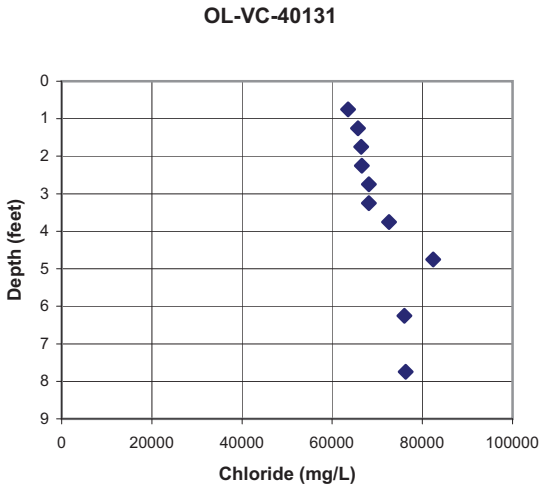

OL-VC-40128
Depth (feet)
Sodium (mg/L)
0
1
2
3
4
5
6
7
8
9
0
5000
10000
15000
20000
25000

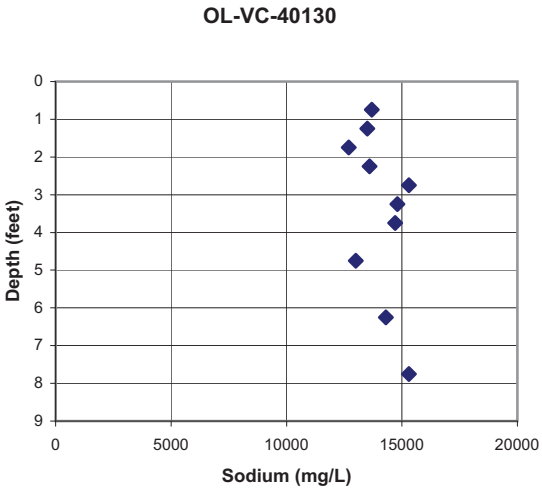

OL-VC-40129
Depth (feet)
Sodium (mg/L)
0
1
2
3
4
5
6
7
8
9
0
5000
10000
15000
20000

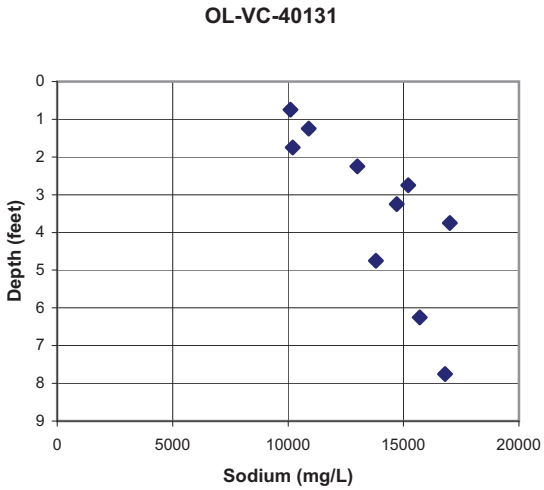

OL-VC-40128
Depth (feet)
Na/Ca
0
1
2
3
4
5
6
7
8
9
0.0
1.0
2.0
3.0
4.0

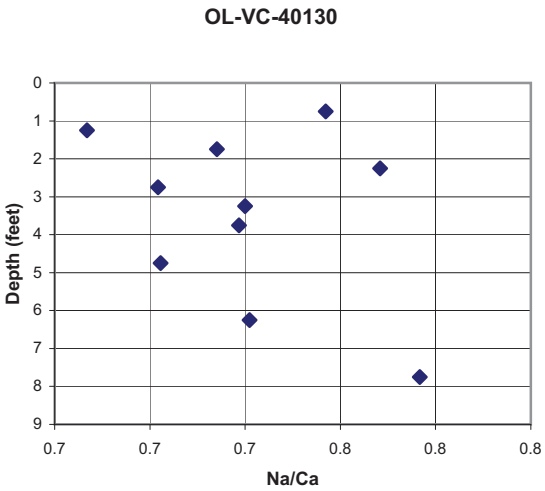

OL-VC-40129
Depth (feet)
Na/Ca
0
1
2
3
4
5
6
7
8
9
0.7
0.7
0.7
0.7
0.7
0.8
0.8
0.8
0.8

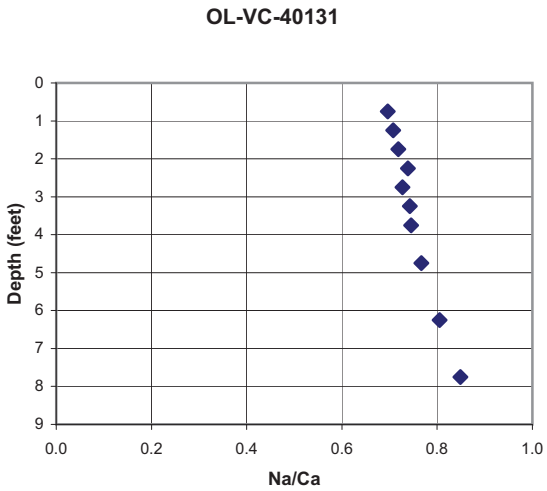

OL-VC-40130
Depth (feet)
Chloride (mg/L)
0
1
2
3
4
5
6
7
8
9
0
20000
40000
60000
80000
100000
120000
140000

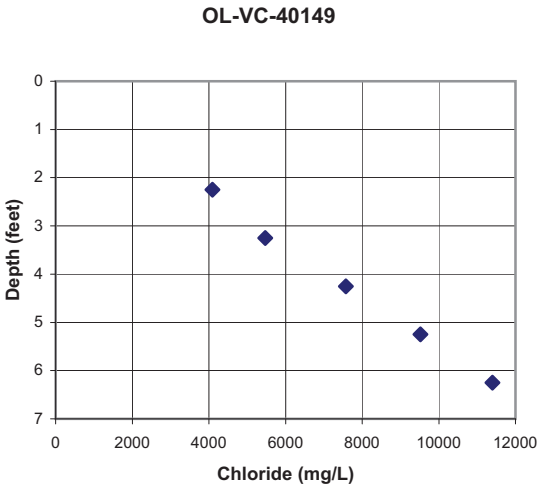

OL-VC-40131
Depth (feet)
Chloride (mg/L)
0
1
2
3
4
5
6
7
8
9
0
20000
40000
60000
80000
100000

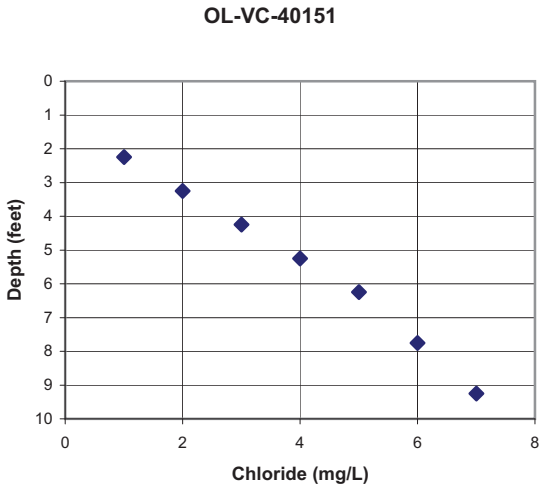

OL-VC-40130
Depth (feet)
Sodium (mg/L)
0
1
2
3
4
5
6
7
8
9
0
5000
10000
15000
20000

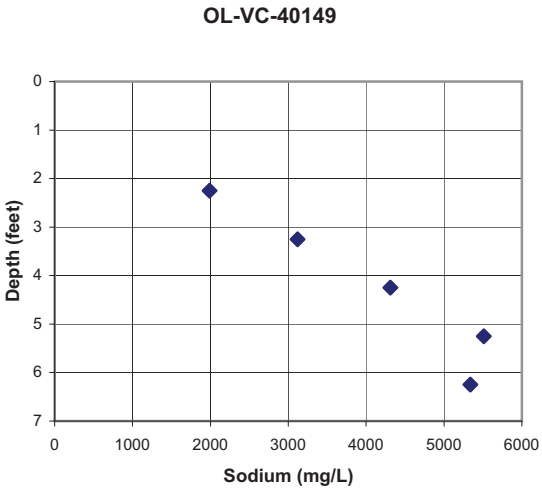

OL-VC-40131
Depth (feet)
Sodium (mg/L)
0
1
2
3
4
5
6
7
8
9
0
5000
10000
15000
20000

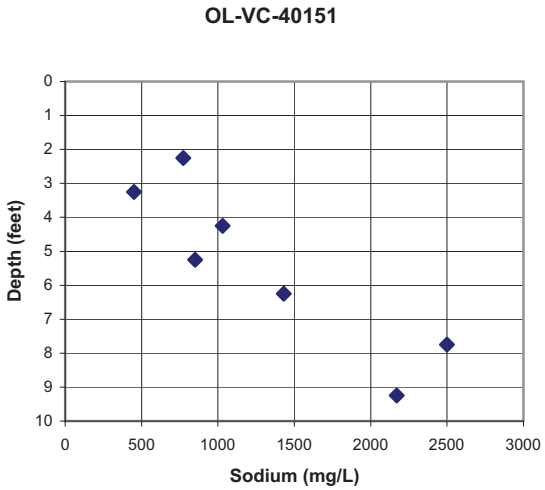

OL-VC-40130
Depth (feet)
Na/Ca
0
1
2
3
4
5
6
7
8
9
0.7
0.7
0.7
0.8
0.8
0.8

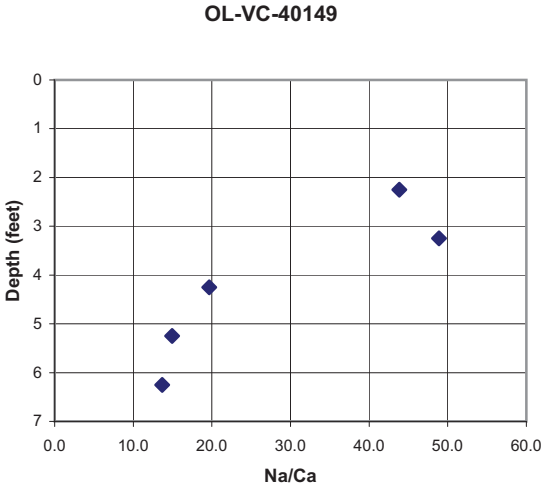

OL-VC-40131
Depth (feet)
Na/Ca
0
1
2
3
4
5
6
7
8
9
0.0
0.2
0.4
0.6
0.8
1.0

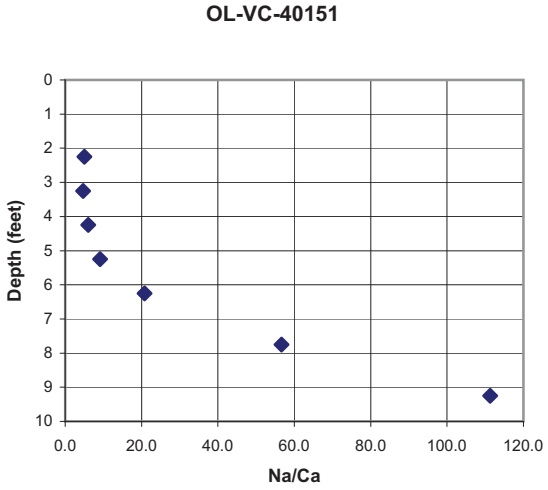

OL-VC-40149
Depth (feet)
Chloride (mg/L)

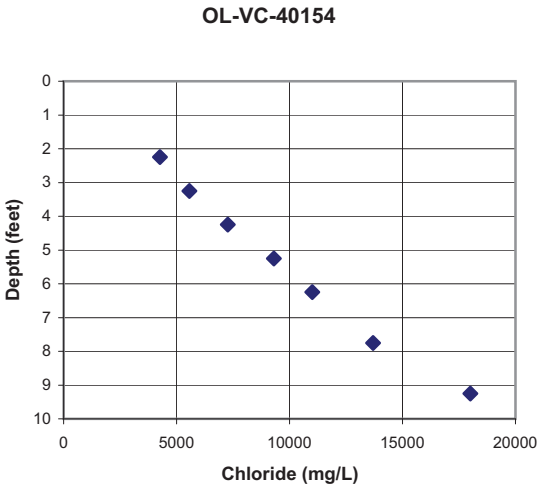

OL-VC-40151
Depth (feet)
Chloride (mg/L)

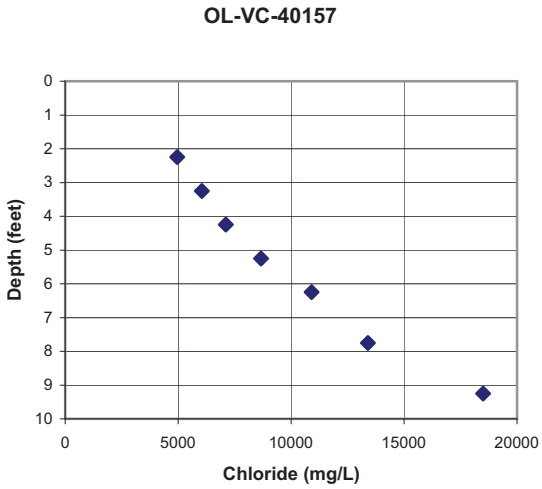

OL-VC-40149
Depth (feet)
Sodium (mg/L)

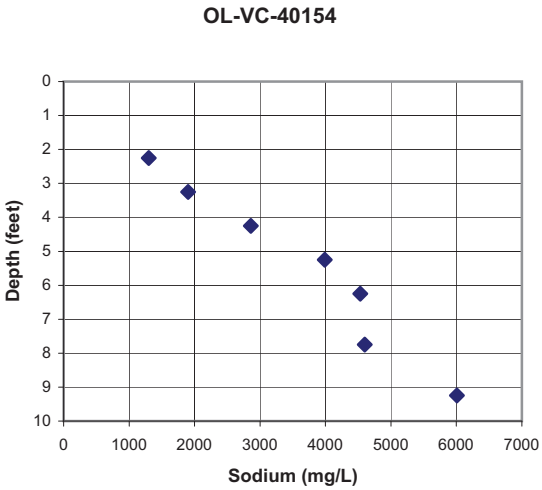

OL-VC-40151
Depth (feet)
Sodium (mg/L)

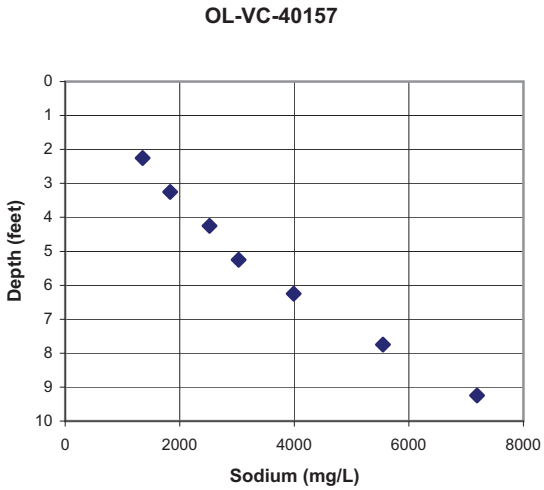

OL-VC-40149
Depth (feet)
Na/Ca

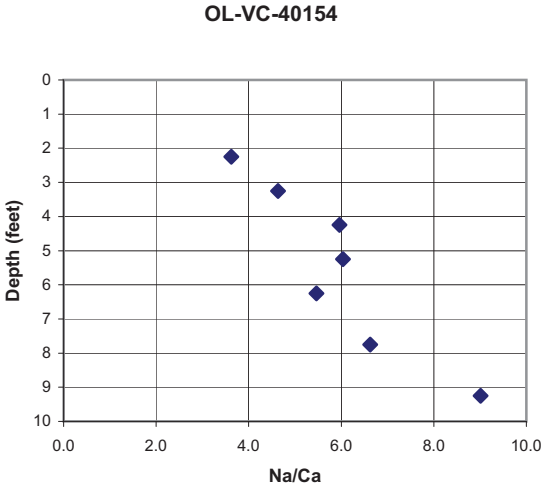

OL-VC-40151
Depth (feet)
Na/Ca

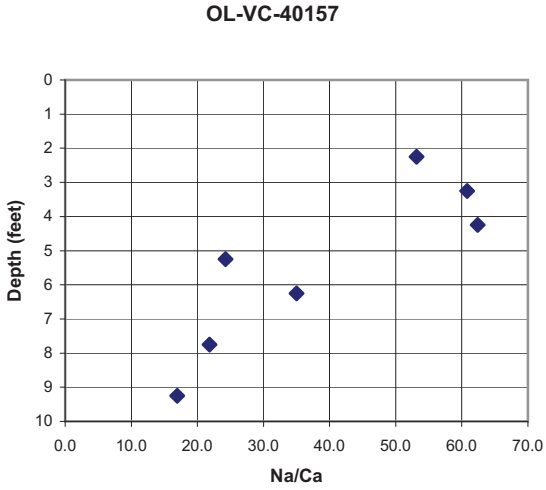

OL-VC-40154
Depth (feet)
Chloride (mg/L)
0
1
2
3
4
5
6
7
8
9
10
0
5000
10000
15000
20000

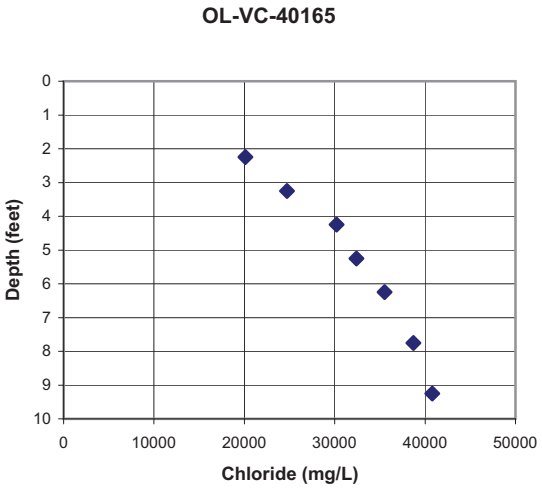

OL-VC-40157
Depth (feet)
Chloride (mg/L)
0
1
2
3
4
5
6
7
8
9
10
0
5000
10000
15000
20000

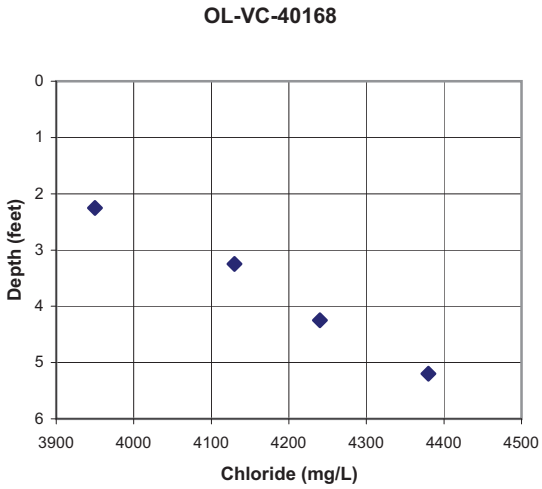

OL-VC-40154
Depth (feet)
Sodium (mg/L)
0
1
2
3
4
5
6
7
8
9
10
0
1000
2000
3000
4000
5000
6000
7000

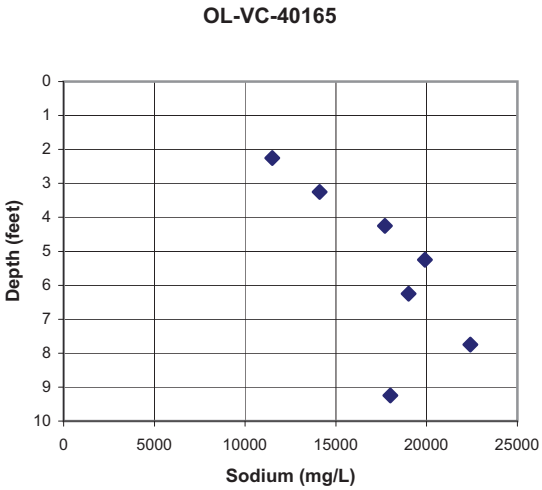

OL-VC-40157
Depth (feet)
Sodium (mg/L)
0
1
2
3
4
5
6
7
8
9
10
0
2000
4000
6000
8000

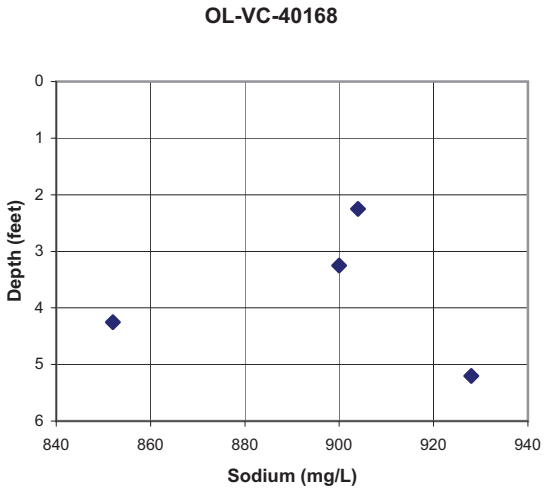

OL-VC-40154
Depth (feet)
Na/Ca
0
1
2
3
4
5
6
7
8
9
10
0.0
2.0
4.0
6.0
8.0
10.0

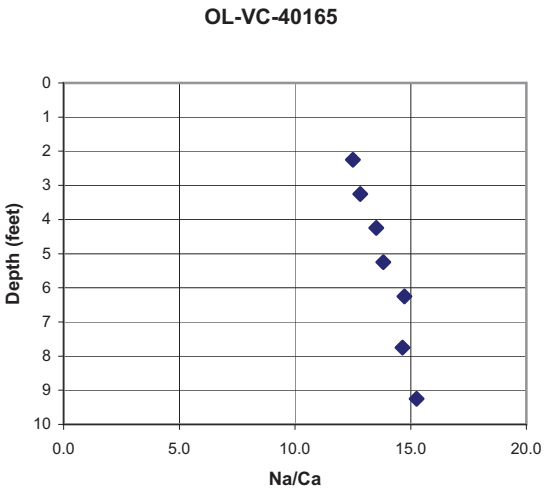

OL-VC-40157
Depth (feet)
Na/Ca
0
1
2
3
4
5
6
7
8
9
10
0.0
10.0
20.0
30.0
40.0
50.0
60.0
70.0

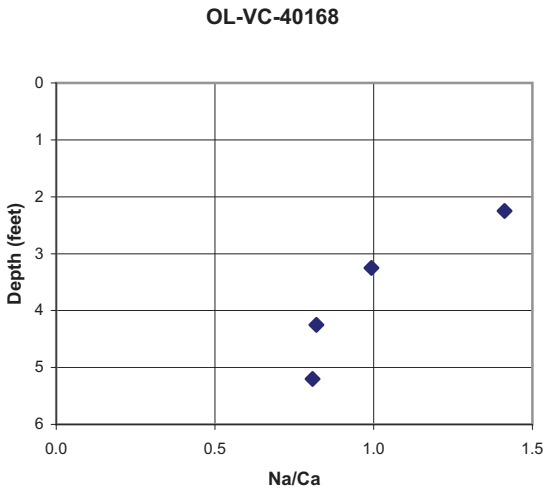

OL-VC-40165
Depth (feet)
0
1
2
3
4
5
6
7
8
9
10
0
10000
20000
30000
40000
50000
Chloride (mg/L)

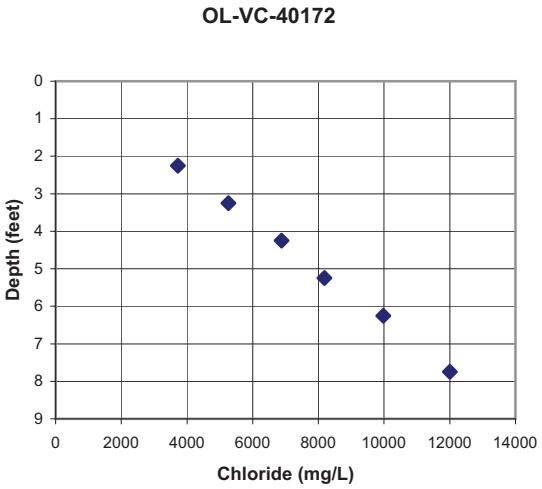

OL-VC-40168
Depth (feet)
0
1
2
3
4
5
6
3900
4000
4100
4200
4300
4400
4500
Chloride (mg/L)

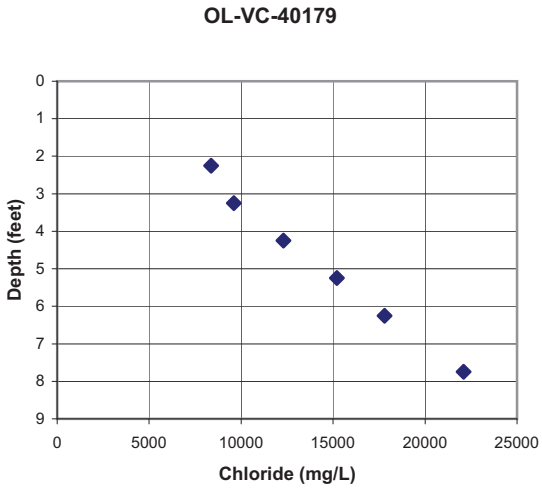

OL-VC-40165
Depth (feet)
0
1
2
3
4
5
6
7
8
9
10
0
5000
10000
15000
20000
25000
Sodium (mg/L)

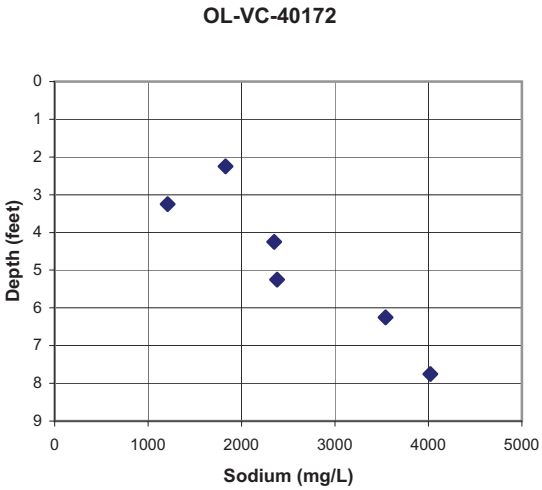

OL-VC-40168
Depth (feet)
0
1
2
3
4
5
6
840
860
880
900
920
940
Sodium (mg/L)

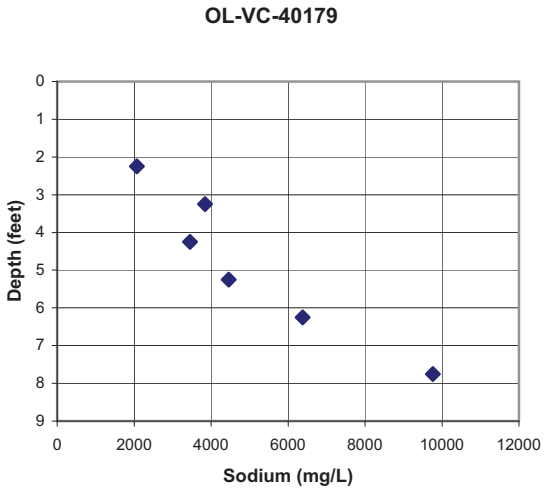

OL-VC-40165
Depth (feet)
0
1
2
3
4
5
6
7
8
9
10
0.0
5.0
10.0
15.0
20.0
Na/Ca

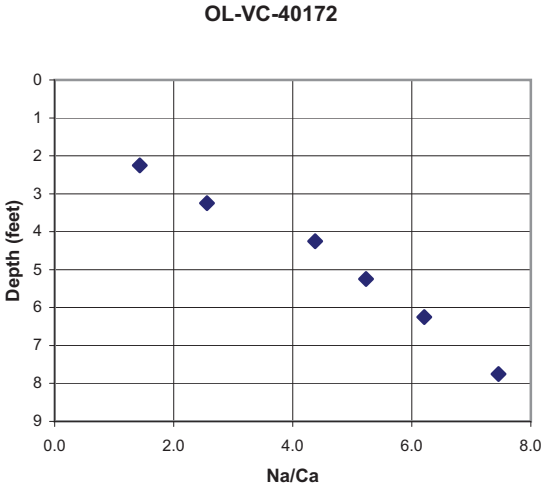

OL-VC-40168
Depth (feet)
0
1
2
3
4
5
6
0.0
0.5
1.0
1.5
Na/Ca

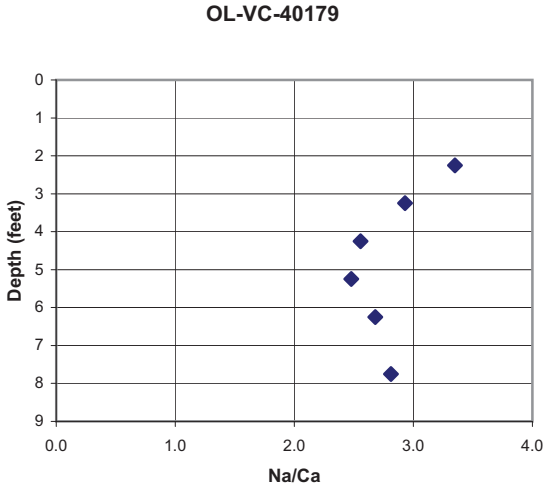

OL-VC-40172
Depth (feet)
0
1
2
3
4
5
6
7
8
9
0
2000
4000
6000
8000
10000
12000
14000
Chloride (mg/L)

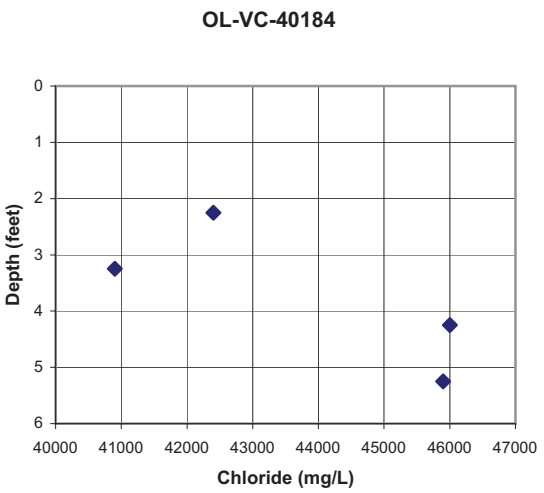

OL-VC-40179
Depth (feet)
0
1
2
3
4
5
6
7
8
9
0
5000
10000
15000
20000
25000
Chloride (mg/L)

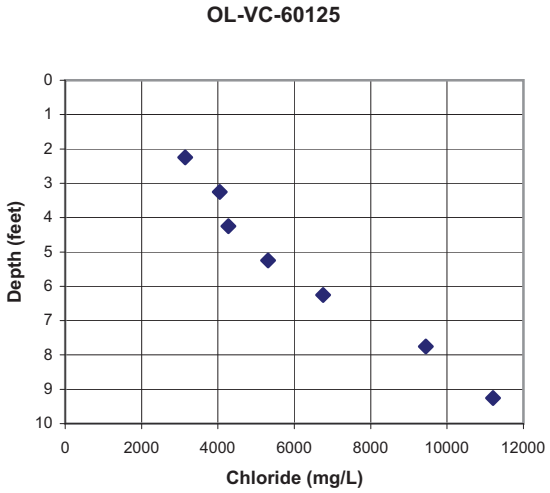

OL-VC-40172
Depth (feet)
0
1
2
3
4
5
6
7
8
9
0
1000
2000
3000
4000
5000
Sodium (mg/L)

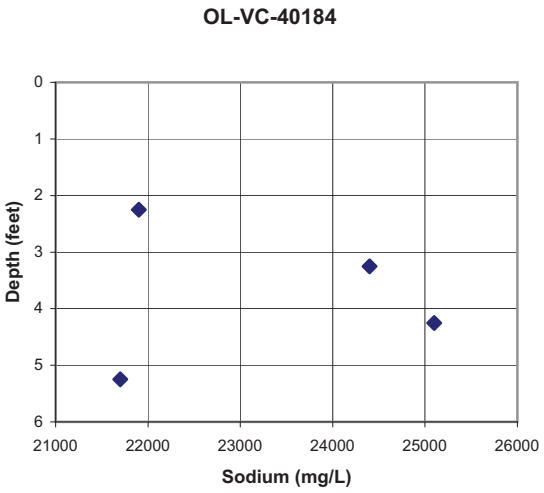

OL-VC-40179
Depth (feet)
0
1
2
3
4
5
6
7
8
9
0
2000
4000
6000
8000
10000
12000
Sodium (mg/L)

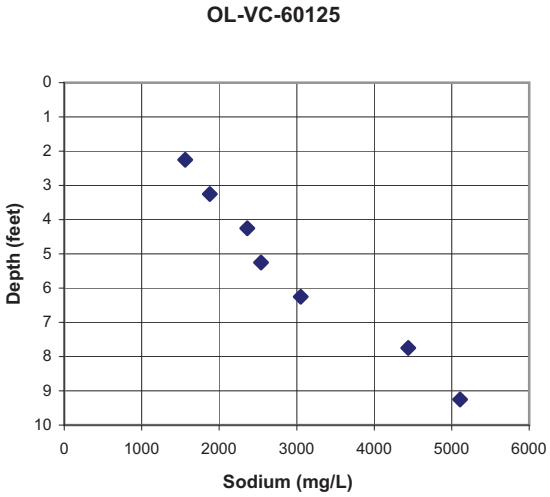

OL-VC-40172
Depth (feet)
0
1
2
3
4
5
6
7
8
9
0.0
2.0
4.0
6.0
8.0
Na/Ca

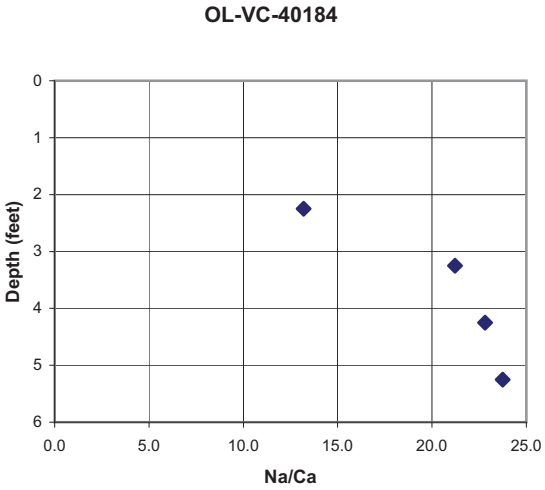

OL-VC-40179
Depth (feet)
0
1
2
3
4
5
6
7
8
9
0.0
1.0
2.0
3.0
4.0
Na/Ca

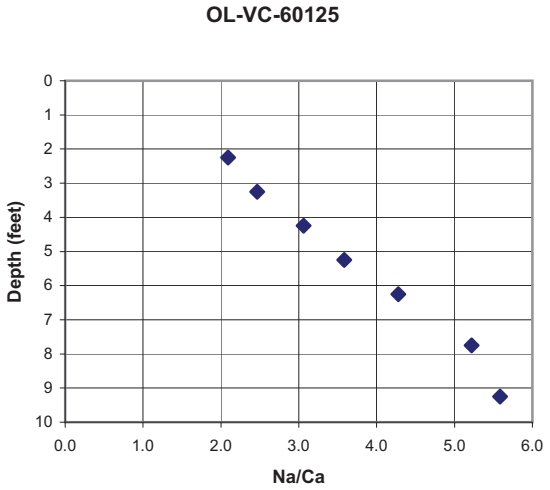

OL-VC-40184
Depth (feet)
0
1
2
3
4
5
6
40000
41000
42000
43000
44000
45000
46000
47000
Chloride (mg/L)


OL-VC-60125
Depth (feet)
0
1
2
3
4
5
6
7
8
9
10
0
2000
4000
6000
8000
10000
12000
Chloride (mg/L)

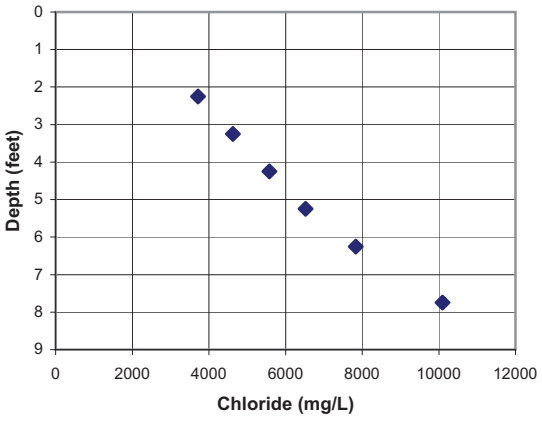

OL-VC-40184
Depth (feet)
0
1
2
3
4
5
6
21000
22000
23000
24000
25000
26000
Sodium (mg/L)


OL-VC-60125
Depth (feet)
0
1
2
3
4
5
6
7
8
9
10
0
1000
2000
3000
4000
5000
6000
Sodium (mg/L)

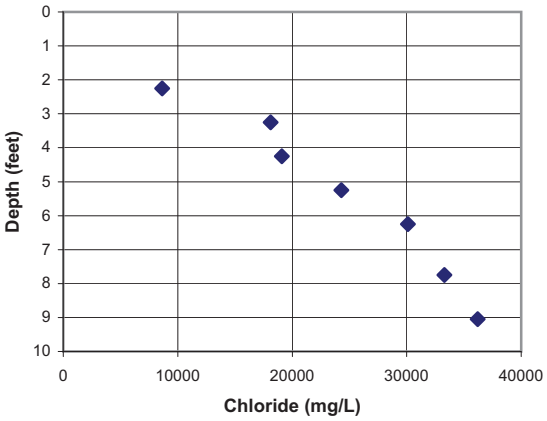

OL-VC-40184
Depth (feet)
0
1
2
3
4
5
6
0.0
5.0
10.0
15.0
20.0
25.0
Na/Ca


OL-VC-60125
Depth (feet)
0
1
2
3
4
5
6
7
8
9
10
0.0
1.0
2.0
3.0
4.0
5.0
6.0
Na/Ca

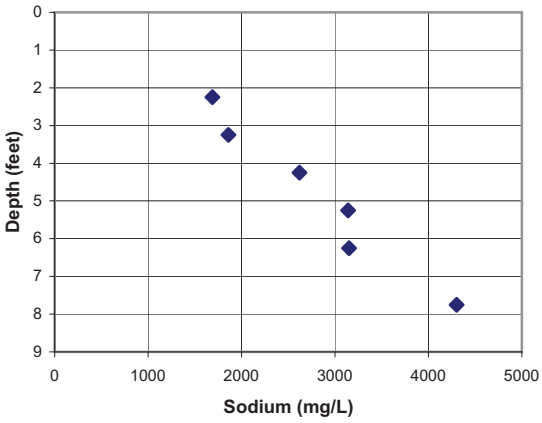
OL-VC-60127



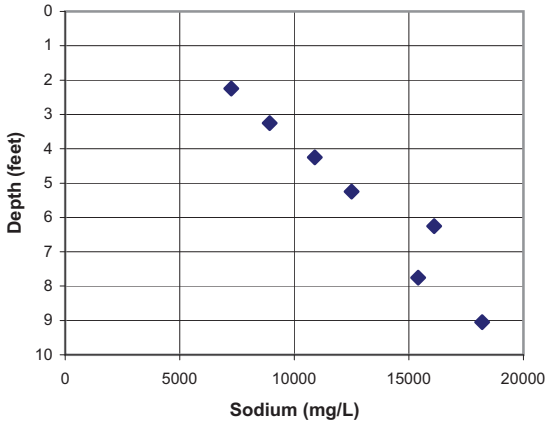
OL-VC-60129



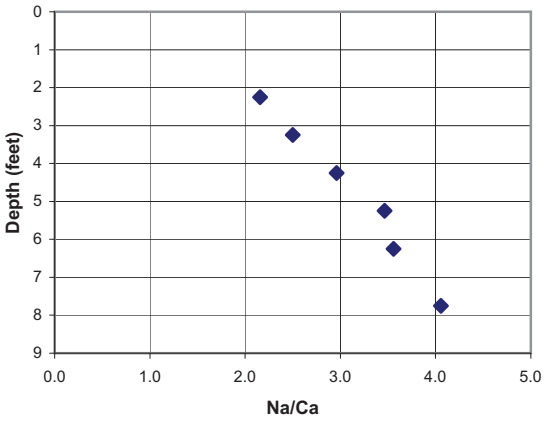
OL-VC-60127



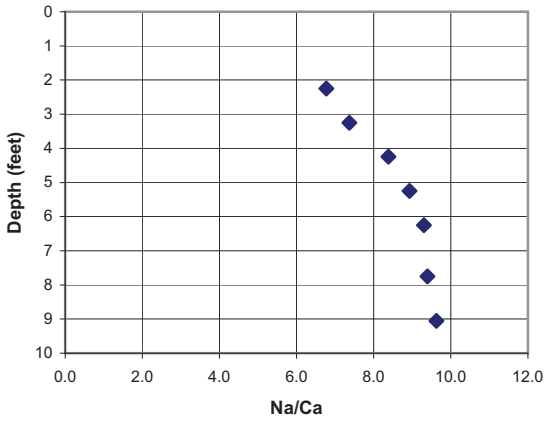
OL-VC-60129

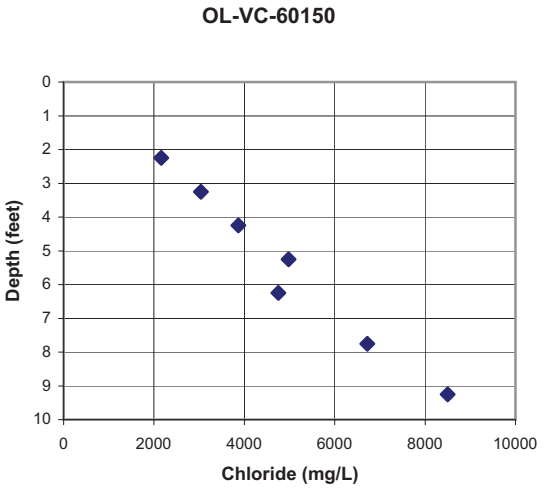


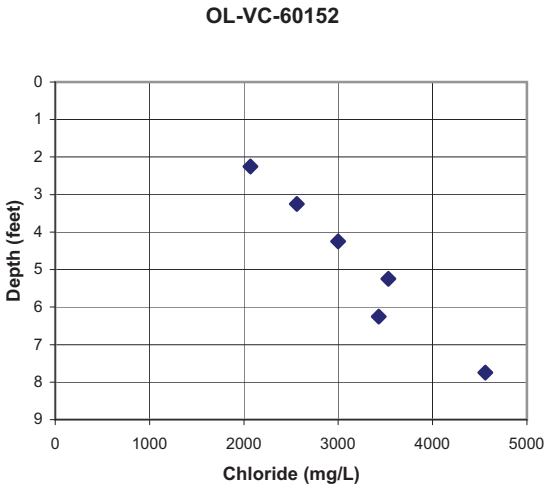
OL-VC-60127

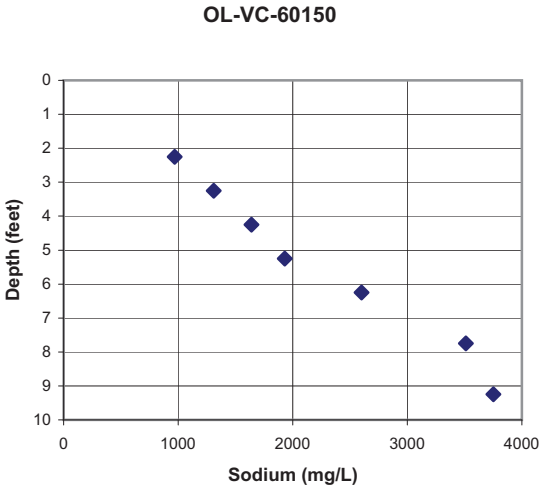


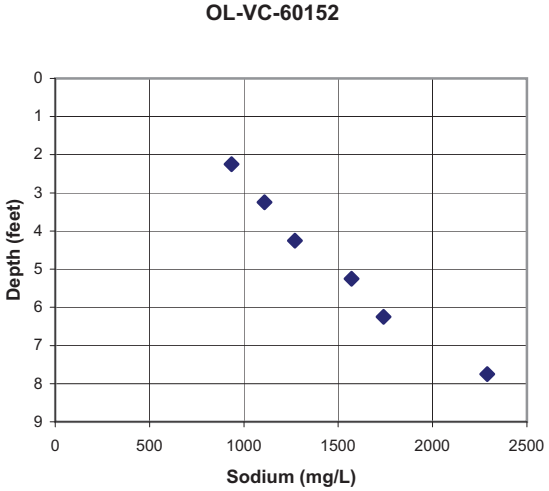
OL-VC-60129

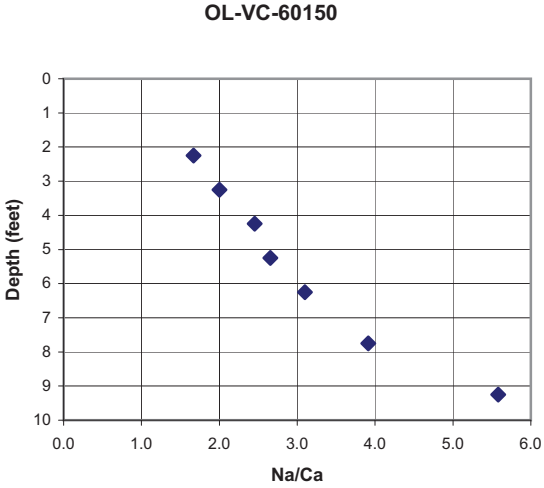


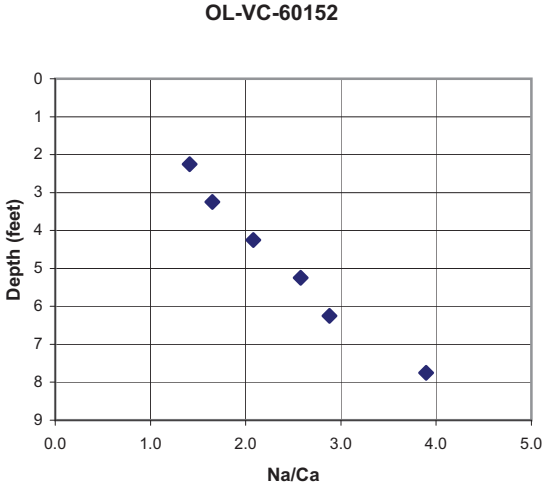

OL-VC-60150
Depth (feet)
Chloride (mg/L)

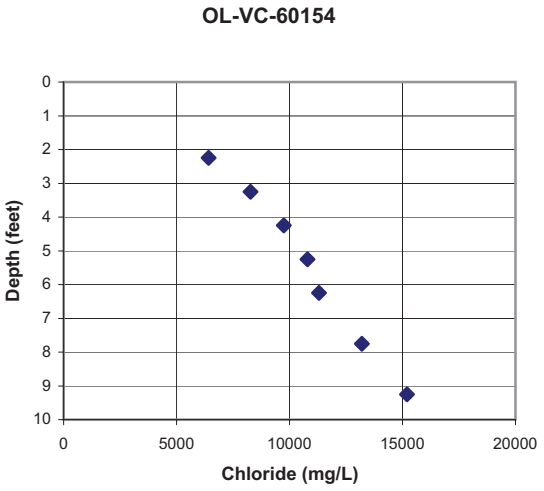

OL-VC-60152
Depth (feet)
Chloride (mg/L)

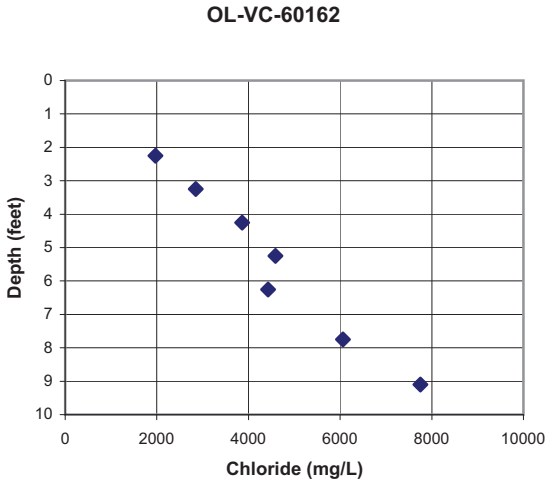

OL-VC-60150
Depth (feet)
Sodium (mg/L)

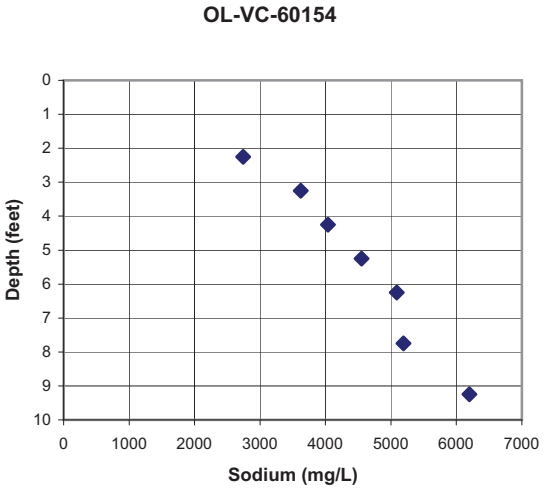

OL-VC-60152
Depth (feet)
Sodium (mg/L)

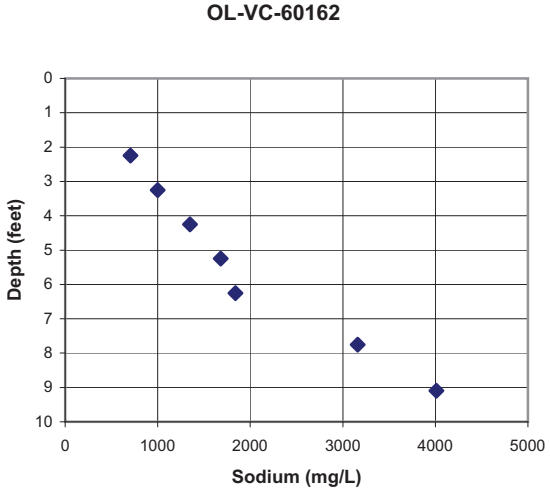

OL-VC-60150
Depth (feet)
Na/Ca

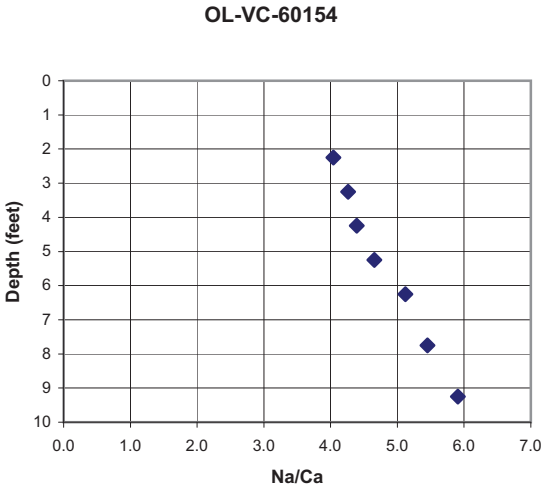

OL-VC-60152
Depth (feet)
Na/Ca

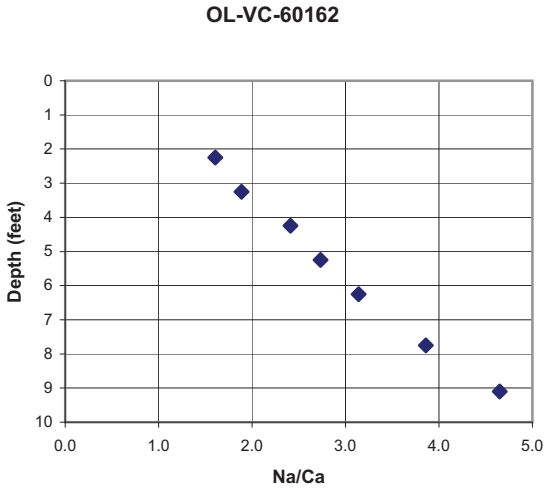

OL-VC-60154
Depth (feet)
Chloride (mg/L)
0
1
2
3
4
5
6
7
8
9
10
0
5000
10000
15000
20000

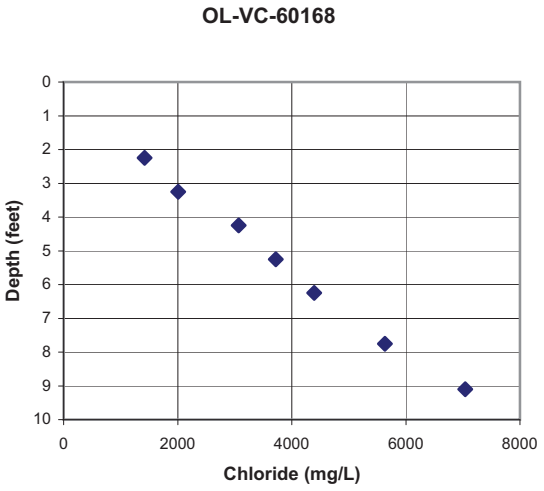

OL-VC-60162
Depth (feet)
Chloride (mg/L)
0
1
2
3
4
5
6
7
8
9
10
0
2000
4000
6000
8000
10000

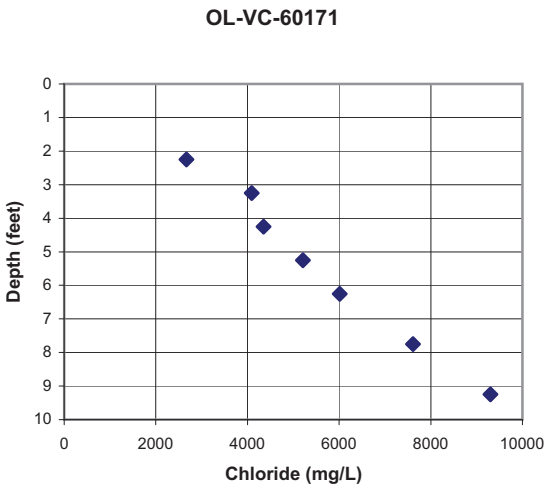

OL-VC-60154
Depth (feet)
Sodium (mg/L)
0
1
2
3
4
5
6
7
8
9
10
0
1000
2000
3000
4000
5000
6000
7000

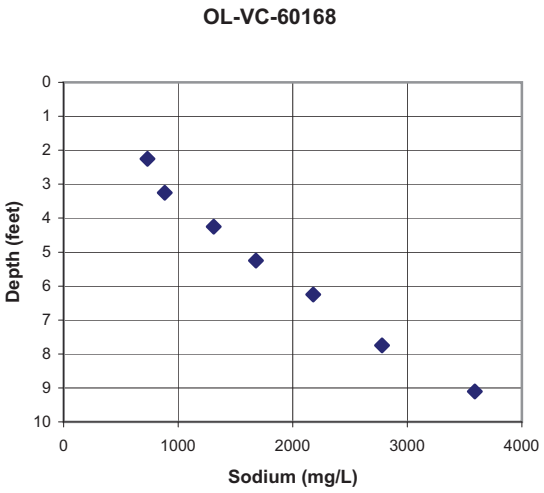

OL-VC-60162
Depth (feet)
Sodium (mg/L)
0
1
2
3
4
5
6
7
8
9
10
0
1000
2000
3000
4000
5000

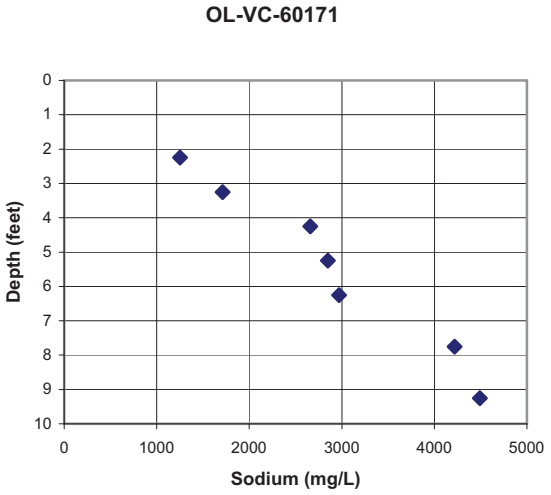

OL-VC-60154
Depth (feet)
Na/Ca
0
1
2
3
4
5
6
7
8
9
10
0.0
1.0
2.0
3.0
4.0
5.0
6.0
7.0

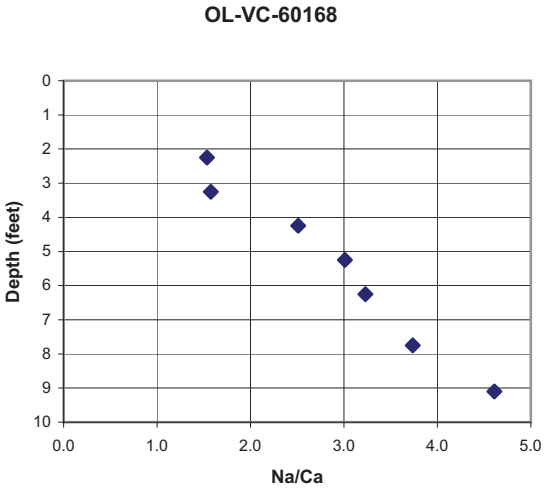

OL-VC-60162
Depth (feet)
Na/Ca
0
1
2
3
4
5
6
7
8
9
10
0.0
1.0
2.0
3.0
4.0
5.0

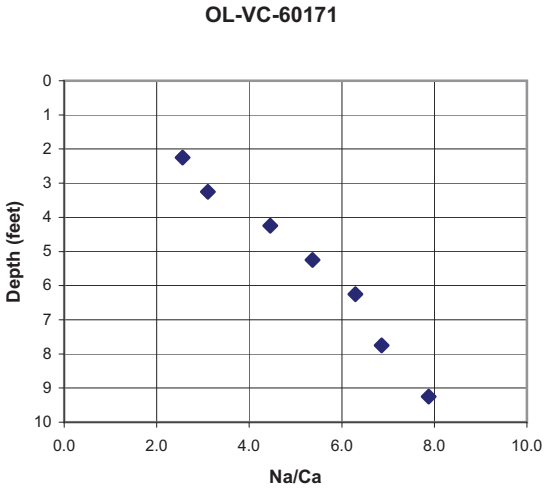

OL-VC-60168
Depth (feet)
Chloride (mg/L)


OL-VC-60171
Depth (feet)
Chloride (mg/L)

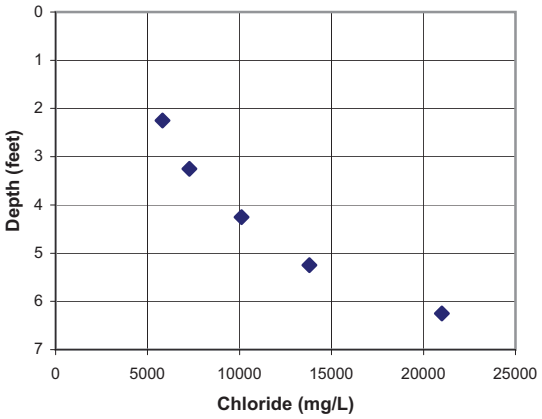

OL-VC-60168
Depth (feet)
Sodium (mg/L)


OL-VC-60171
Depth (feet)
Sodium (mg/L)

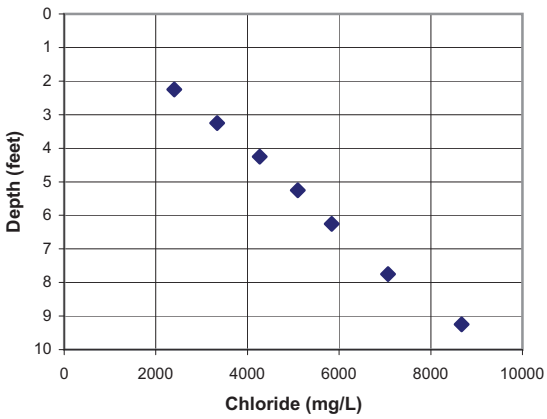

OL-VC-60168
Depth (feet)
Na/Ca


OL-VC-60171
Depth (feet)
Na/Ca

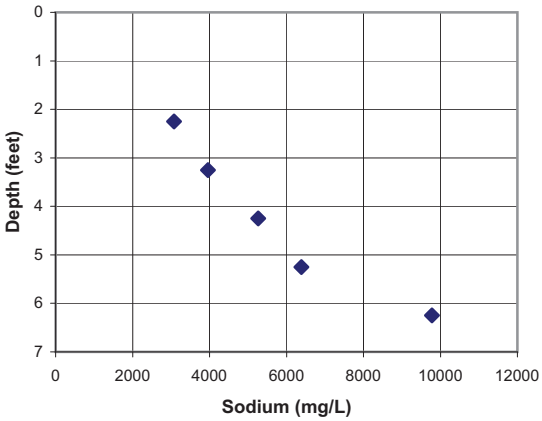
OL-VC-60179



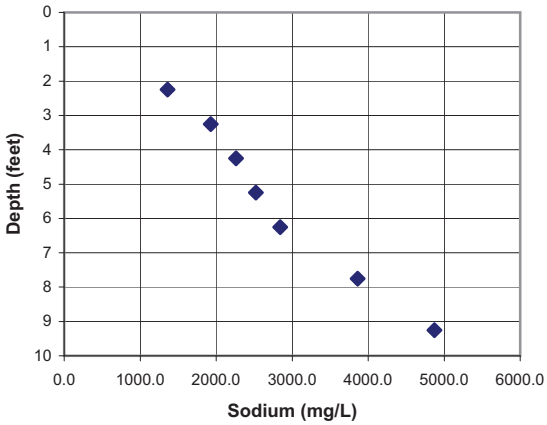
OL-VC-60181



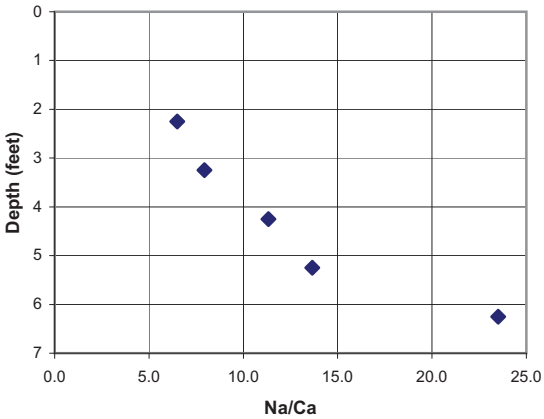
OL-VC-60179



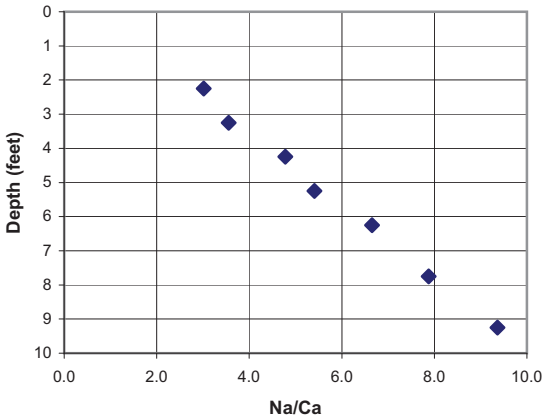
OL-VC-60181

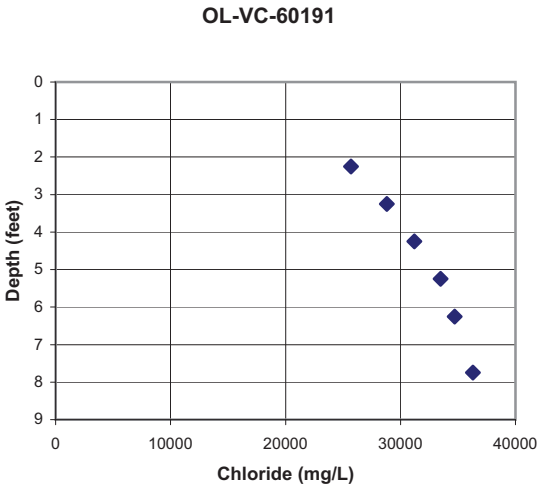


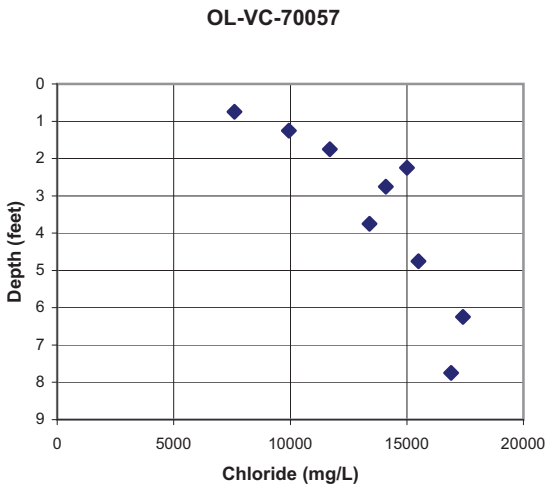
OL-VC-60179

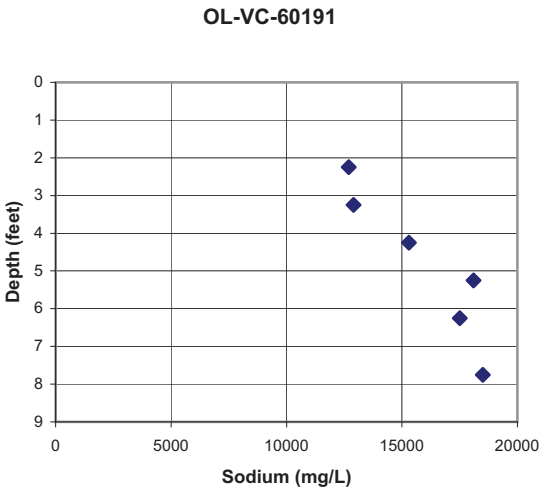


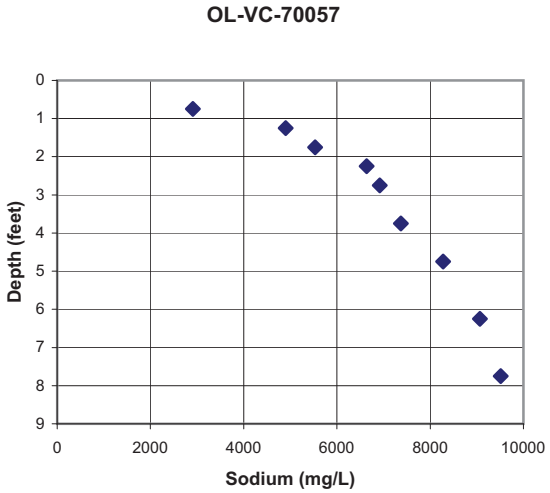
OL-VC-60181

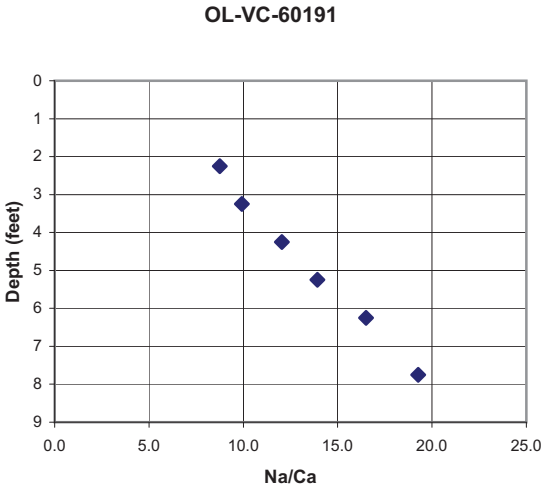


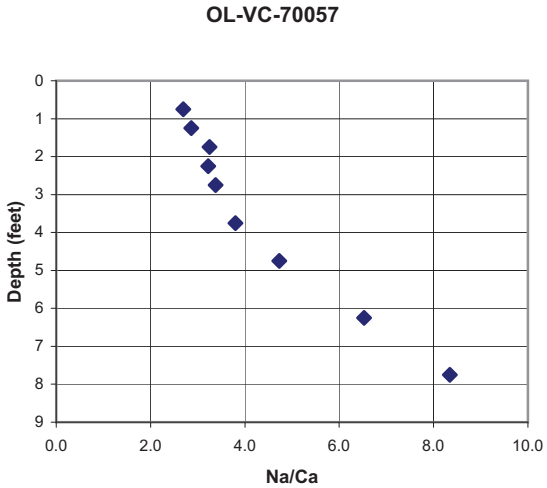

OL-VC-60191
Depth (feet)
Chloride (mg/L)
0
1
2
3
4
5
6
7
8
9
0
10000
20000
30000
40000

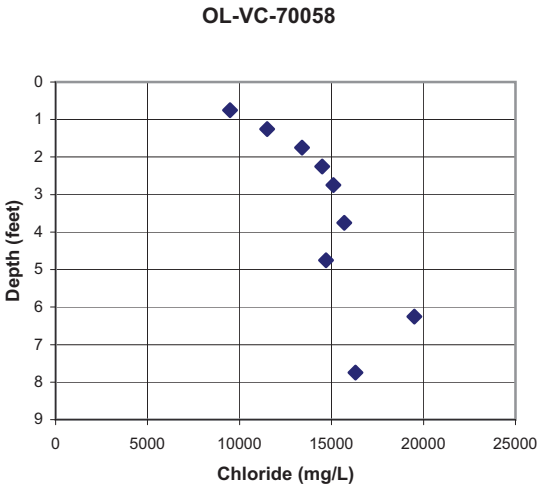

OL-VC-70057
Depth (feet)
Chloride (mg/L)
0
1
2
3
4
5
6
7
8
9
0
5000
10000
15000
20000

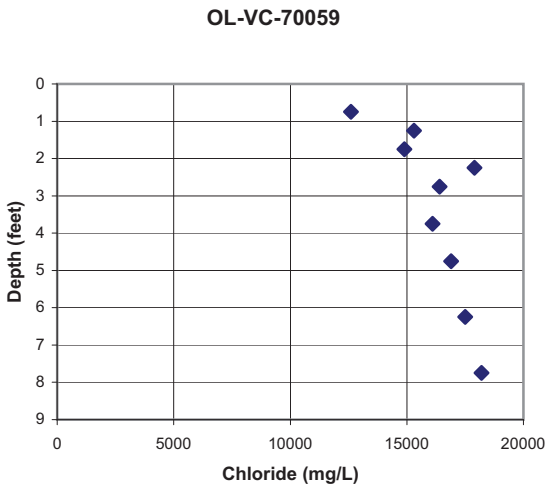

OL-VC-60191
Depth (feet)
Sodium (mg/L)
0
1
2
3
4
5
6
7
8
9
0
5000
10000
15000
20000

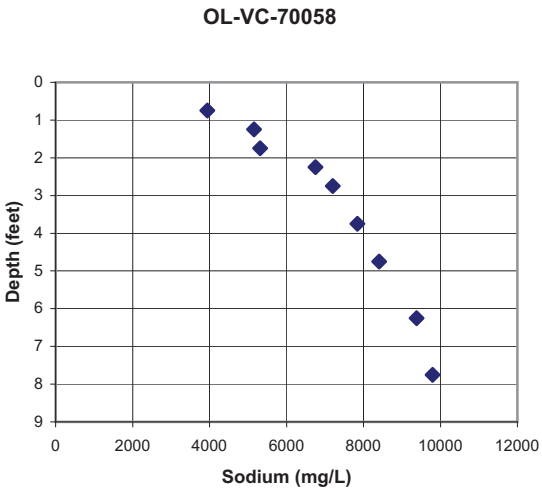

OL-VC-70057
Depth (feet)
Sodium (mg/L)
0
1
2
3
4
5
6
7
8
9
0
2000
4000
6000
8000
10000

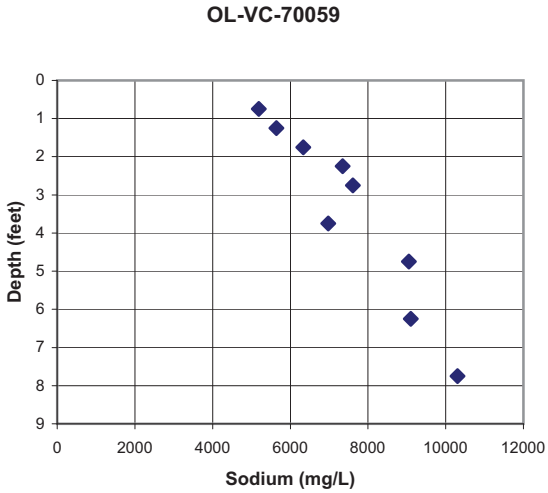

OL-VC-60191
Depth (feet)
Na/Ca
0
1
2
3
4
5
6
7
8
9
0.0
5.0
10.0
15.0
20.0
25.0

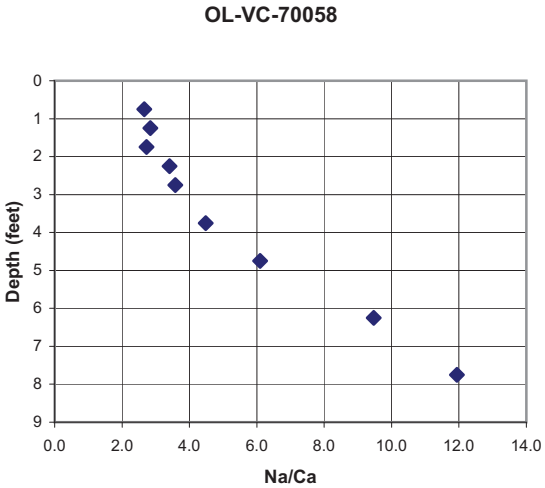

OL-VC-70057
Depth (feet)
Na/Ca
0
1
2
3
4
5
6
7
8
9
0.0
2.0
4.0
6.0
8.0
10.0

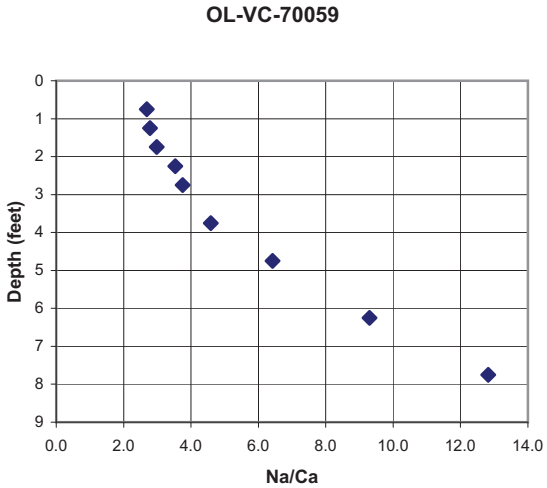

OL-VC-70058
Depth (feet)
Chloride (mg/L)
0
1
2
3
4
5
6
7
8
9
0
5000
10000
15000
20000
25000

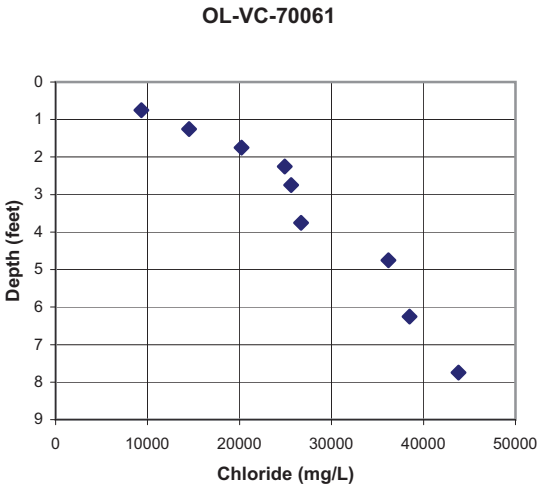

OL-VC-70059
Depth (feet)
Chloride (mg/L)
0
1
2
3
4
5
6
7
8
9
0
5000
10000
15000
20000

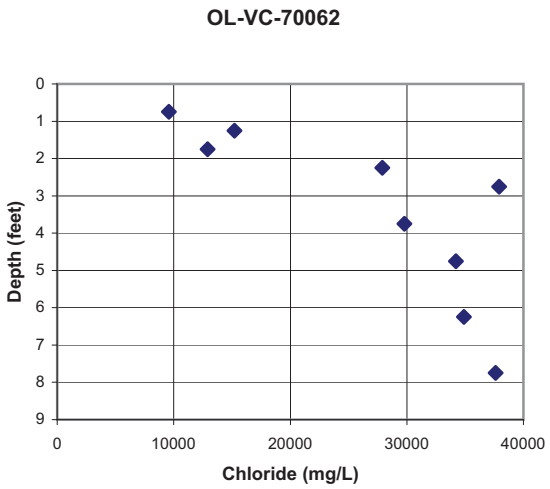

OL-VC-70058
Depth (feet)
Sodium (mg/L)
0
1
2
3
4
5
6
7
8
9
0
2000
4000
6000
8000
10000
12000

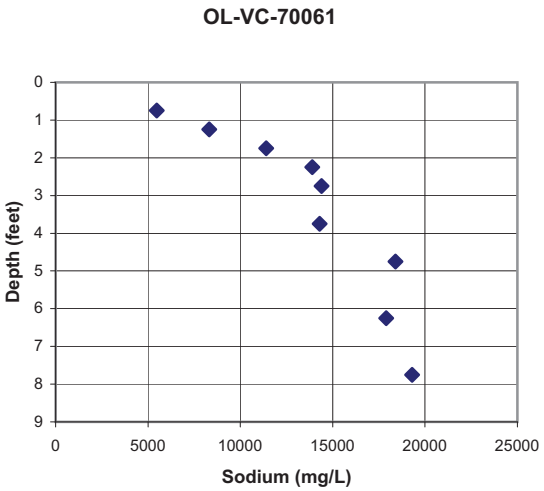

OL-VC-70059
Depth (feet)
Sodium (mg/L)
0
1
2
3
4
5
6
7
8
9
0
2000
4000
6000
8000
10000
12000

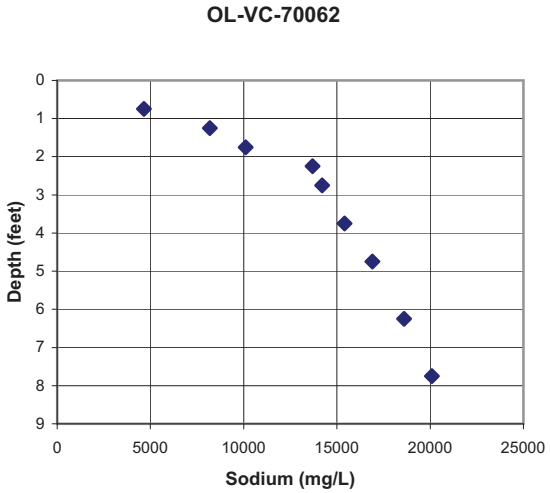

OL-VC-70058
Depth (feet)
Na/Ca
0
1
2
3
4
5
6
7
8
9
0.0
2.0
4.0
6.0
8.0
10.0
12.0
14.0

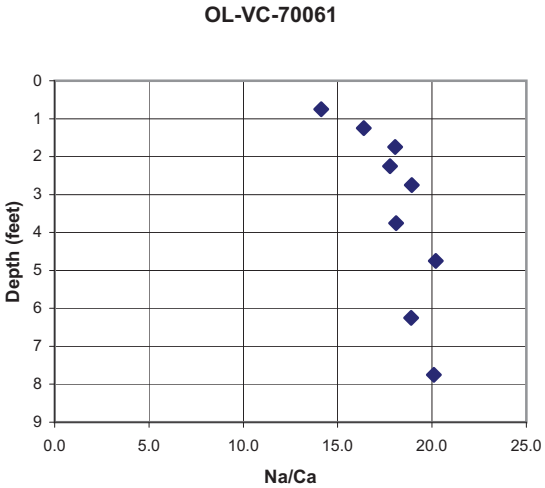

OL-VC-70059
Depth (feet)
Na/Ca
0
1
2
3
4
5
6
7
8
9
0.0
2.0
4.0
6.0
8.0
10.0
12.0
14.0

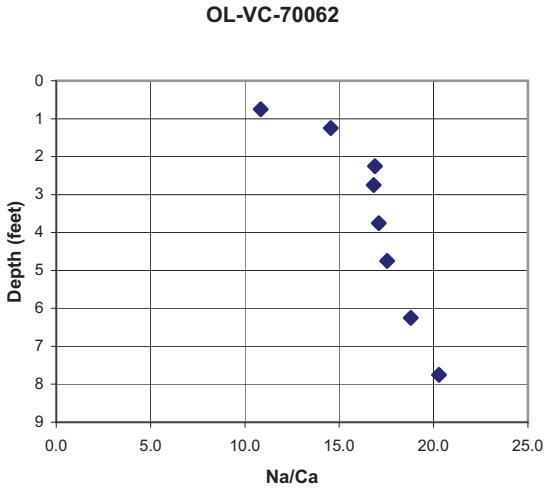

OL-VC-70061
Depth (feet)
Chloride (mg/L)
0
1
2
3
4
5
6
7
8
9
0
10000
20000
30000
40000
50000

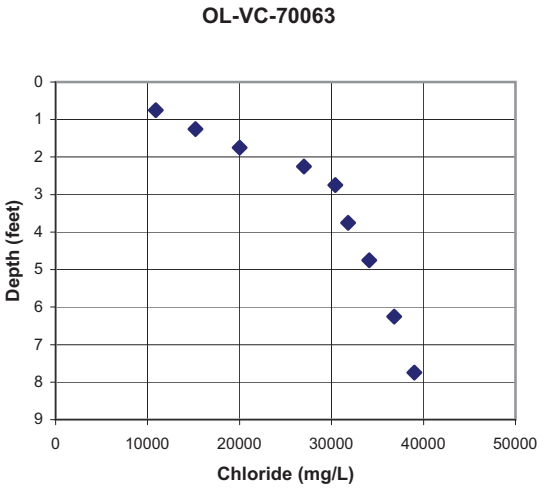

OL-VC-70062
Depth (feet)
Chloride (mg/L)
0
1
2
3
4
5
6
7
8
9
0
10000
20000
30000
40000

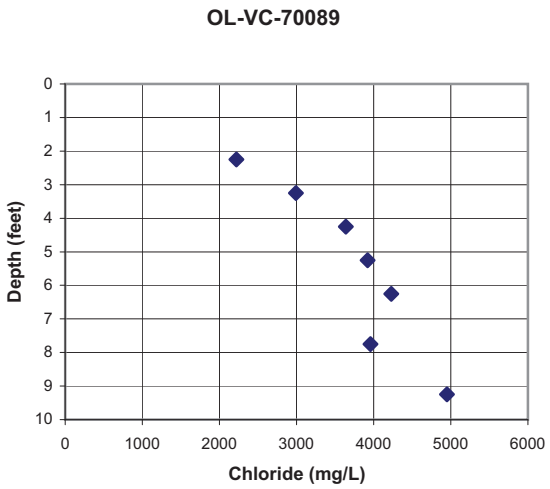

OL-VC-70061
Depth (feet)
Sodium (mg/L)
0
1
2
3
4
5
6
7
8
9
0
5000
10000
15000
20000
25000

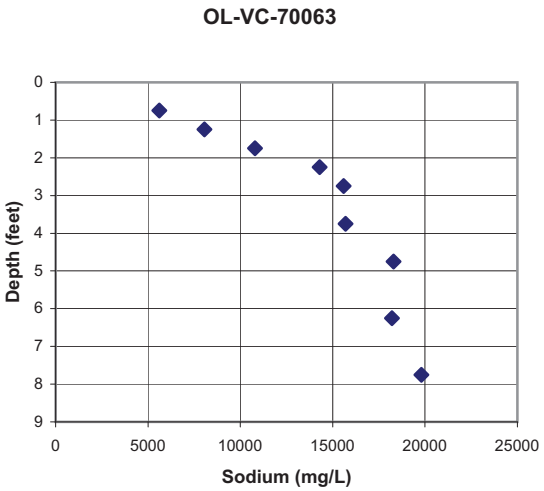

OL-VC-70062
Depth (feet)
Sodium (mg/L)
0
1
2
3
4
5
6
7
8
9
0
5000
10000
15000
20000
25000

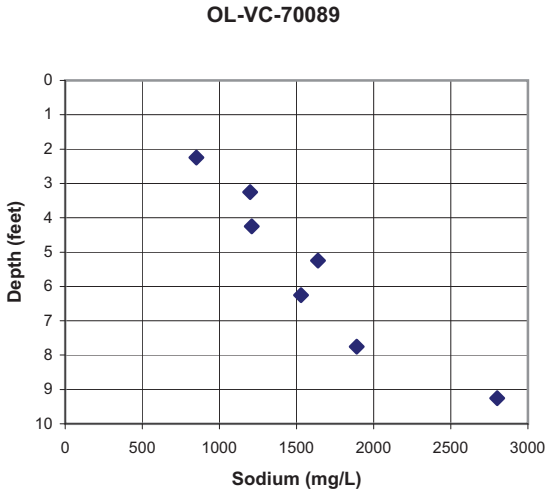

OL-VC-70061
Depth (feet)
Na/Ca
0
1
2
3
4
5
6
7
8
9
0.0
5.0
10.0
15.0
20.0
25.0

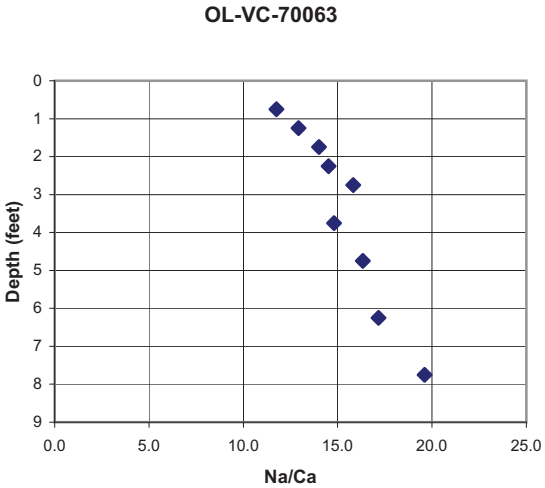

OL-VC-70062
Depth (feet)
Na/Ca
0
1
2
3
4
5
6
7
8
9
0.0
5.0
10.0
15.0
20.0
25.0

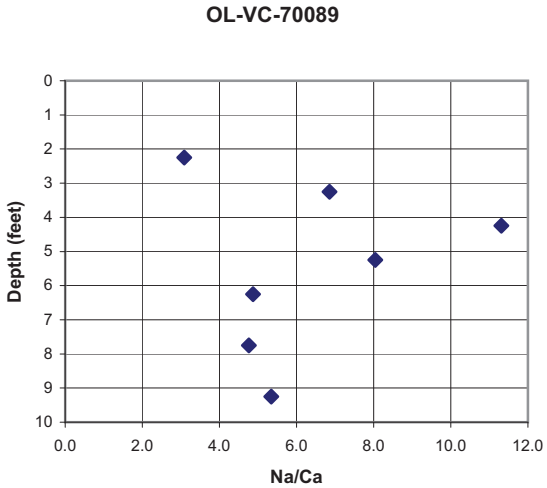

OL-VC-70063
Depth (feet)
0
1
2
3
4
5
6
7
8
9
0
10000
20000
30000
40000
50000
Chloride (mg/L)

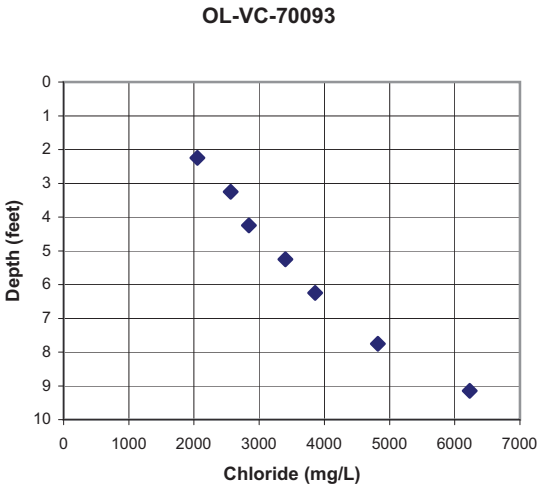

OL-VC-70089
Depth (feet)
0
1
2
3
4
5
6
7
8
9
10
0
1000
2000
3000
4000
5000
6000
Chloride (mg/L)

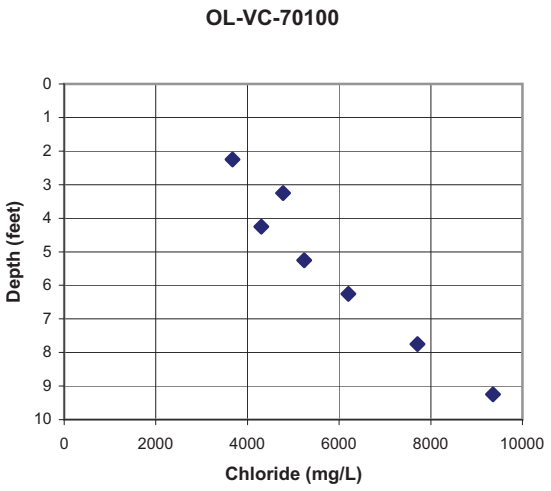

OL-VC-70063
Depth (feet)
0
1
2
3
4
5
6
7
8
9
0
5000
10000
15000
20000
25000
Sodium (mg/L)

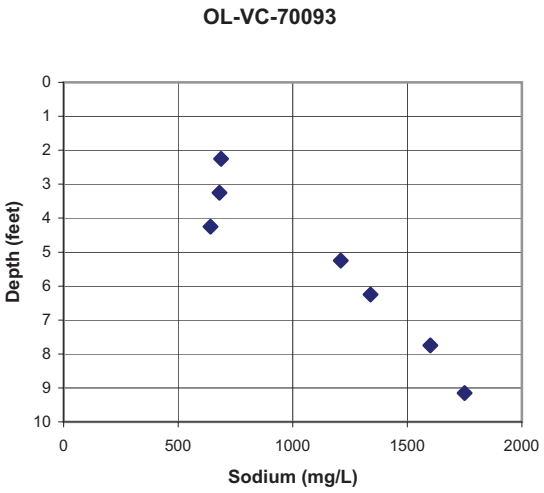

OL-VC-70089
Depth (feet)
0
1
2
3
4
5
6
7
8
9
10
0
500
1000
1500
2000
2500
3000
Sodium (mg/L)

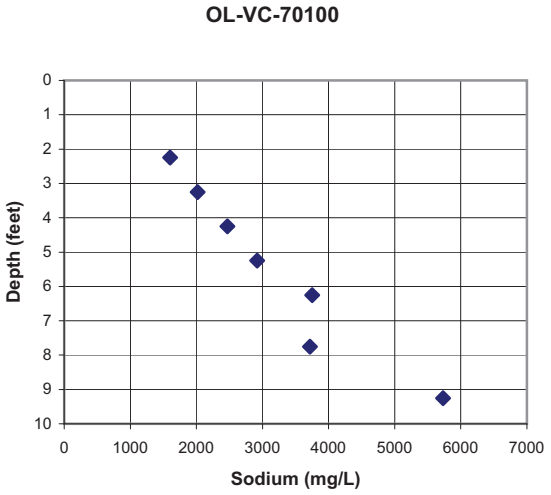

OL-VC-70063
Depth (feet)
0
1
2
3
4
5
6
7
8
9
0.0
5.0
10.0
15.0
20.0
25.0
Na/Ca

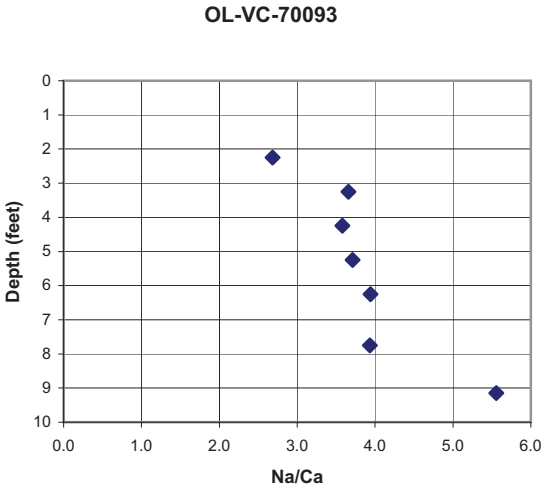

OL-VC-70089
Depth (feet)
0
1
2
3
4
5
6
7
8
9
10
0.0
2.0
4.0
6.0
8.0
10.0
12.0
Na/Ca

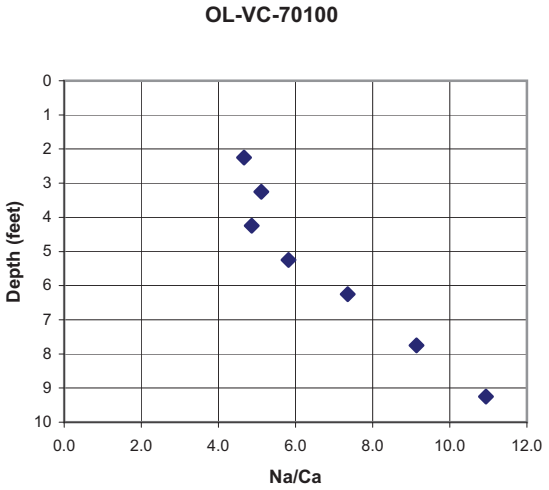

OL-VC-70093
Depth (feet)
Chloride (mg/L)

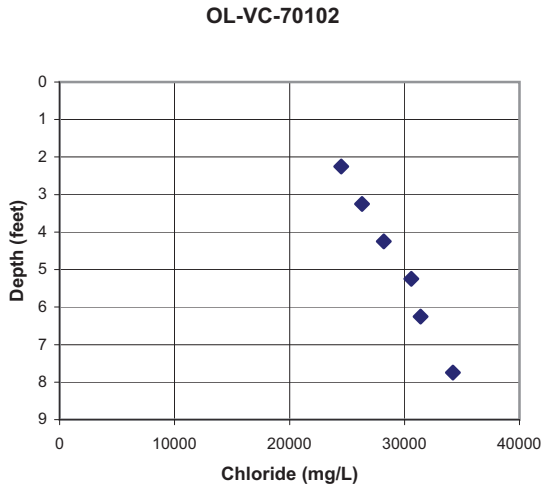

OL-VC-70100
Depth (feet)
Chloride (mg/L)

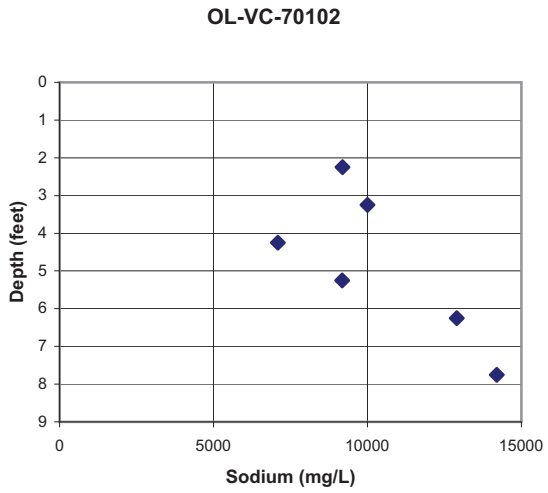

OL-VC-70093
Depth (feet)
Sodium (mg/L)

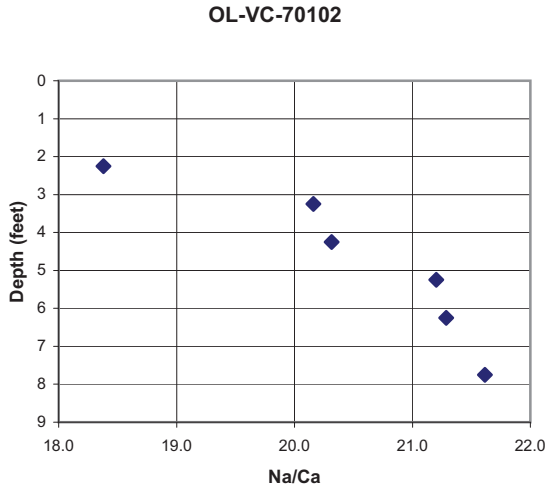

OL-VC-70100
Depth (feet)
Sodium (mg/L)


OL-VC-70093
Depth (feet)
Na/Ca

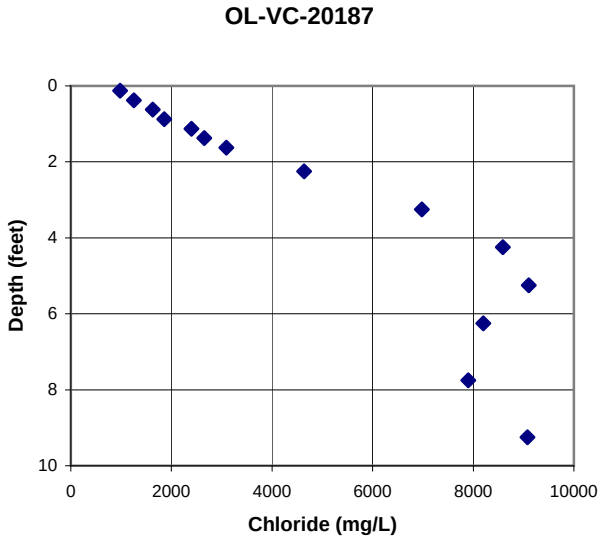

OL-VC-70100
Depth (feet)
Na/Ca

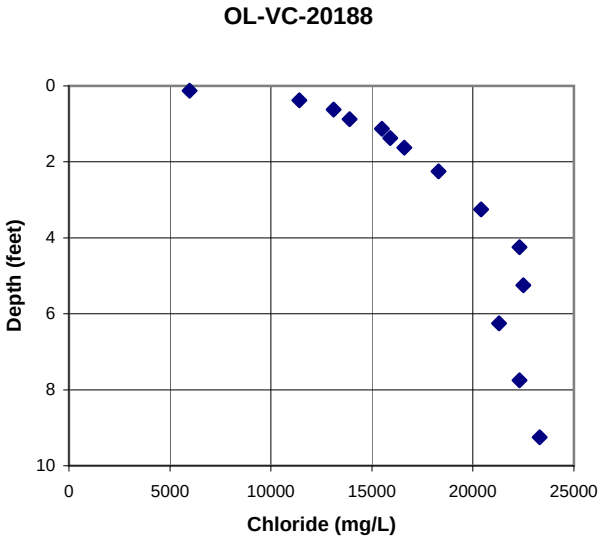

OL-VC-70102
Depth (feet)
0
1
2
3
4
5
6
7
8
9
0
10000
20000
30000
40000
Chloride (mg/L)

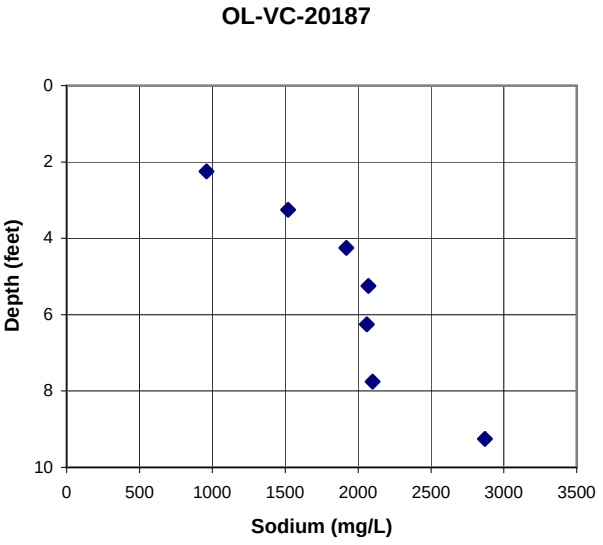

OL-VC-70102
Depth (feet)
0
1
2
3
4
5
6
7
8
9
0
5000
10000
15000
Sodium (mg/L)

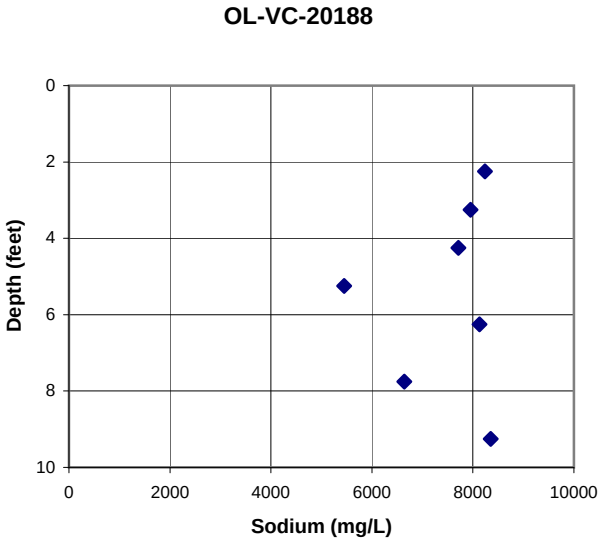

OL-VC-70102
Depth (feet)
0
1
2
3
4
5
6
7
8
9
18.0
19.0
20.0
21.0
22.0
Na/Ca

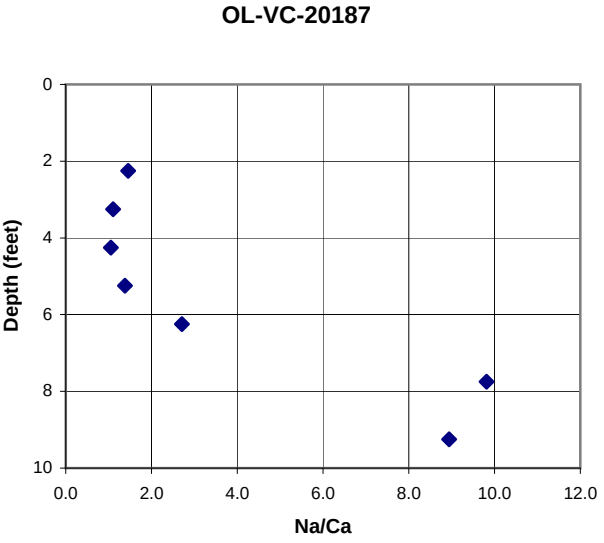
Phase V Data

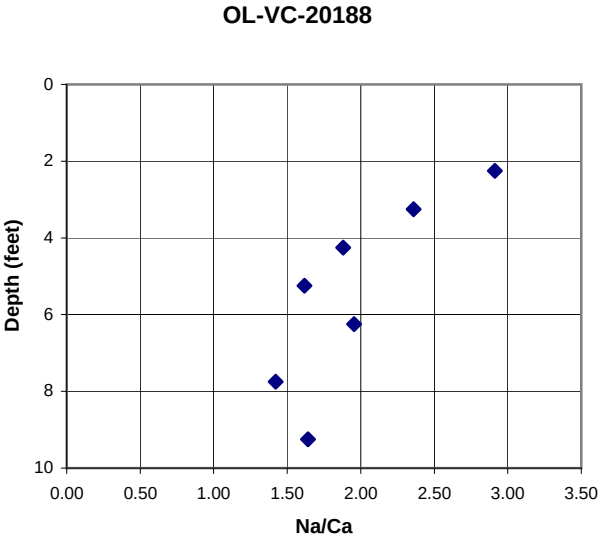

OL-VC-20187
Depth (feet)
Chloride (mg/L)
0
2
4
6
8
10
0
2000
4000
6000
8000
10000

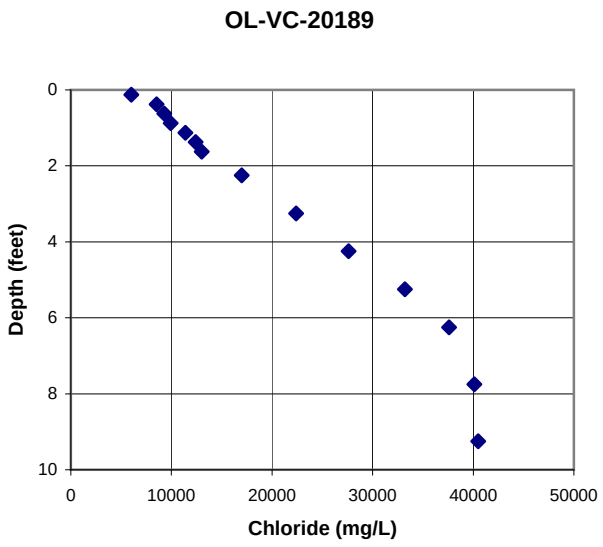

OL-VC-20188
Depth (feet)
Chloride (mg/L)
0
2
4
6
8
10
0
5000
10000
15000
20000
25000

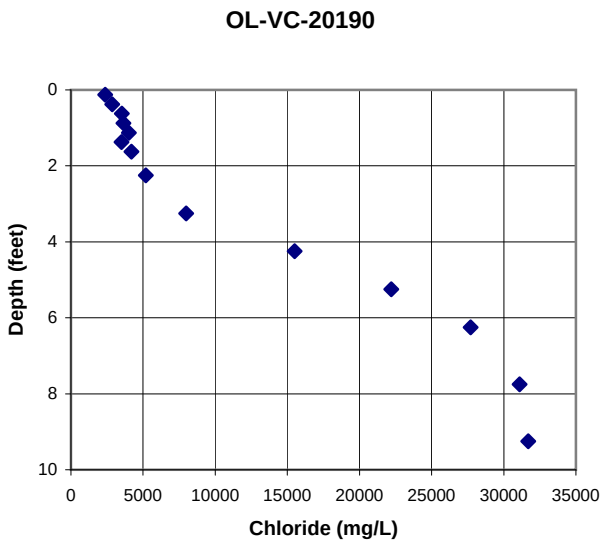

OL-VC-20187
Depth (feet)
Sodium (mg/L)
0
2
4
6
8
10
0
500
1000
1500
2000
2500
3000
3500

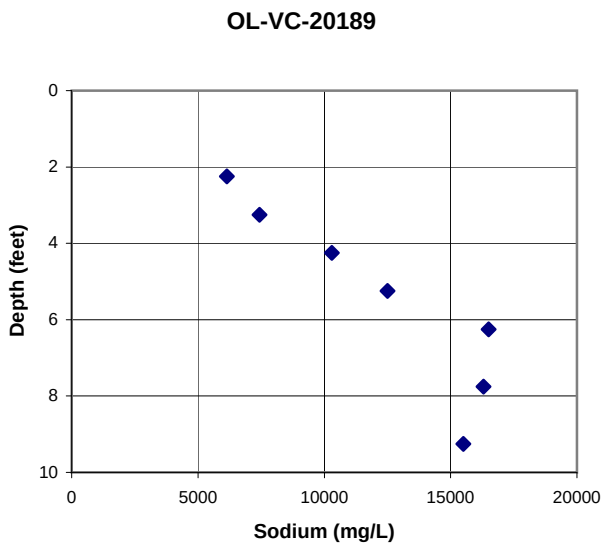

OL-VC-20188
Depth (feet)
Sodium (mg/L)
0
2
4
6
8
10
0
2000
4000
6000
8000
10000

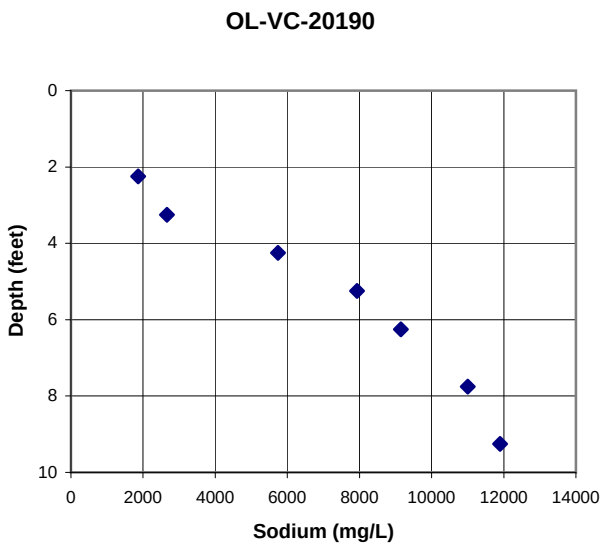

OL-VC-20187
Depth (feet)
Na/Ca
0
2
4
6
8
10
0.0
2.0
4.0
6.0
8.0
10.0
12.0

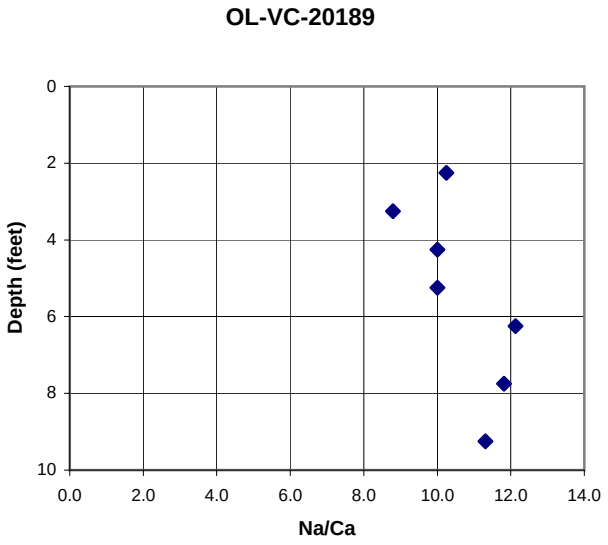

OL-VC-20188
Depth (feet)
Na/Ca
0
2
4
6
8
10
0.00
0.50
1.00
1.50
2.00
2.50
3.00
3.50

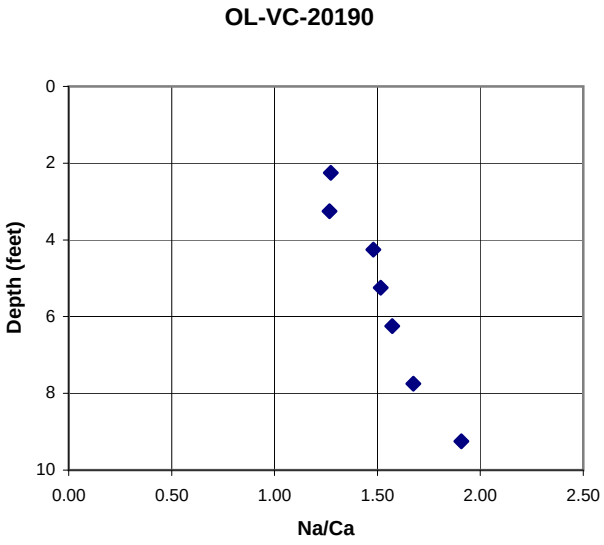

OL-VC-20189
Depth (feet)
Chloride (mg/L)
0
2
4
6
8
10
0
10000
20000
30000
40000
50000

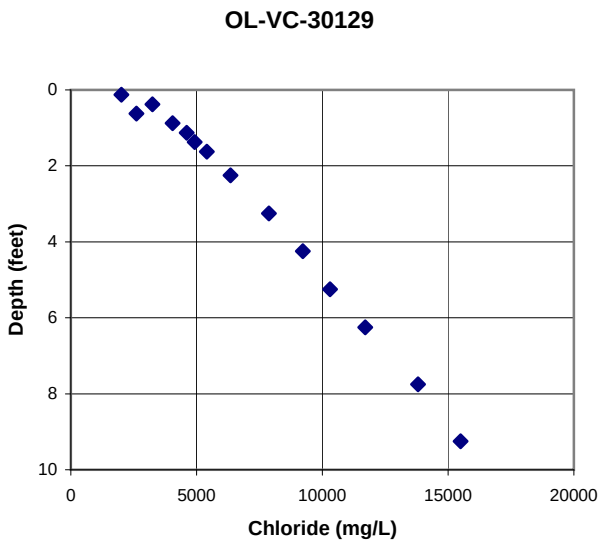

OL-VC-20190
Depth (feet)
Chloride (mg/L)
0
2
4
6
8
10
0
5000
10000
15000
20000
25000
30000
35000

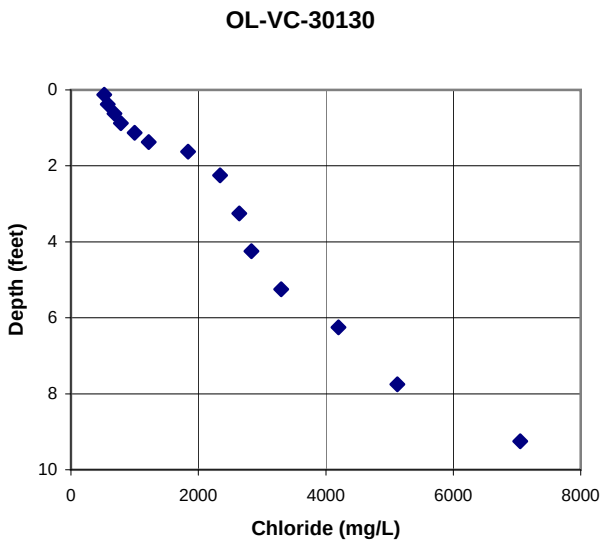

OL-VC-20189
Depth (feet)
Sodium (mg/L)
0
2
4
6
8
10
0
5000
10000
15000
20000

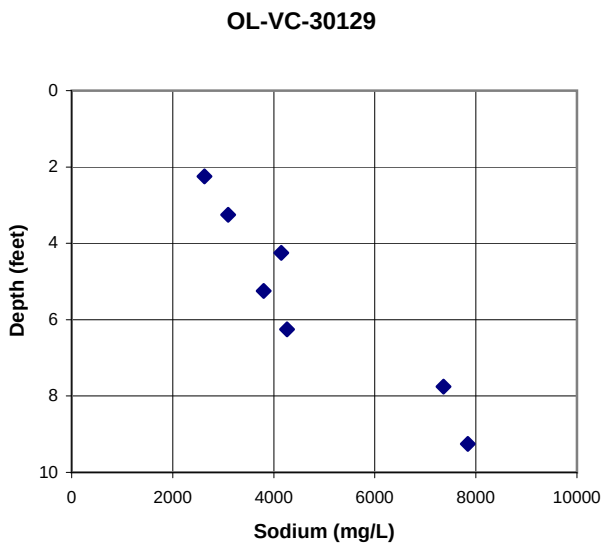

OL-VC-20190
Depth (feet)
Sodium (mg/L)
0
2
4
6
8
10
0
2000
4000
6000
8000
10000
12000
14000

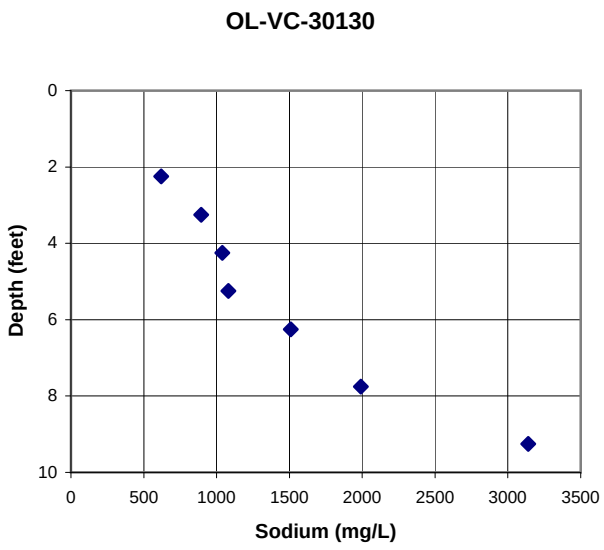

OL-VC-20189
Depth (feet)
Na/Ca
0
2
4
6
8
10
0.0
2.0
4.0
6.0
8.0
10.0
12.0
14.0

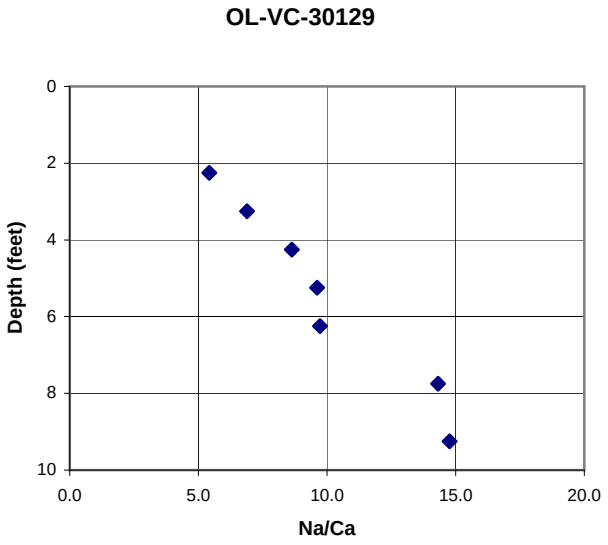

OL-VC-20190
Depth (feet)
Na/Ca
0
2
4
6
8
10
0.00
0.50
1.00
1.50
2.00
2.50

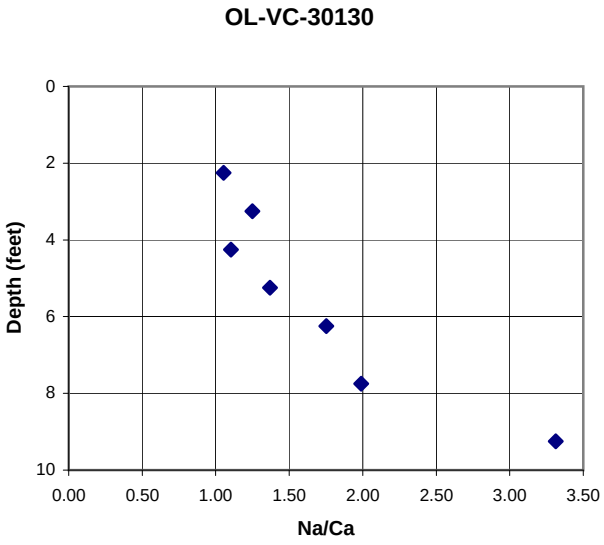

OL-VC-30129
Depth (feet)
Chloride (mg/L)
0
2
4
6
8
10
0
5000
10000
15000
20000

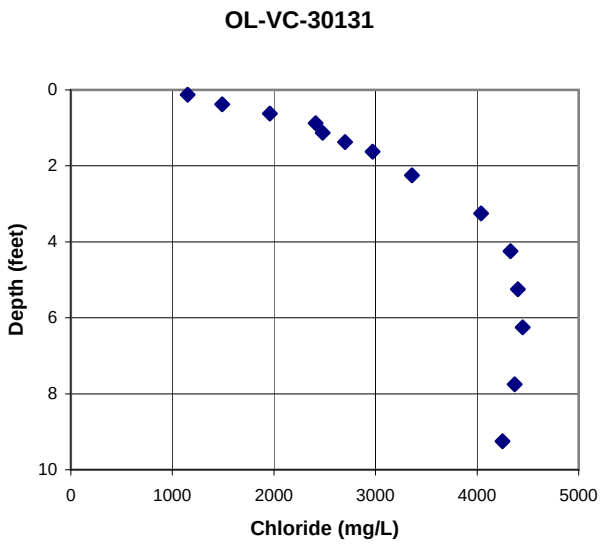

OL-VC-30130
Depth (feet)
Chloride (mg/L)
0
2
4
6
8
10
0
2000
4000
6000
8000

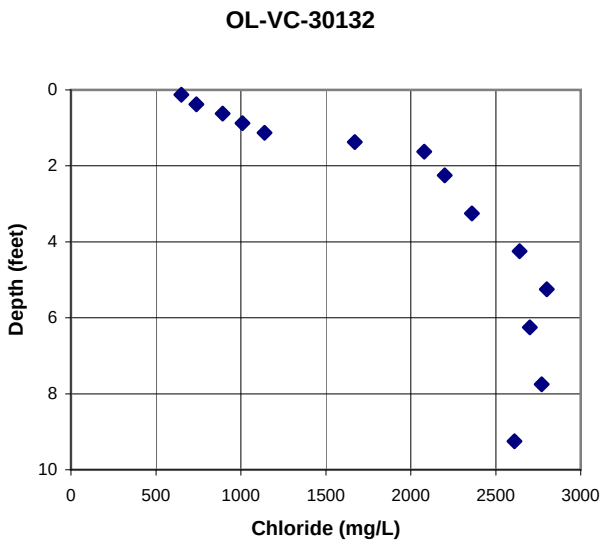

OL-VC-30129
Depth (feet)
Sodium (mg/L)
0
2
4
6
8
10
0
2000
4000
6000
8000
10000

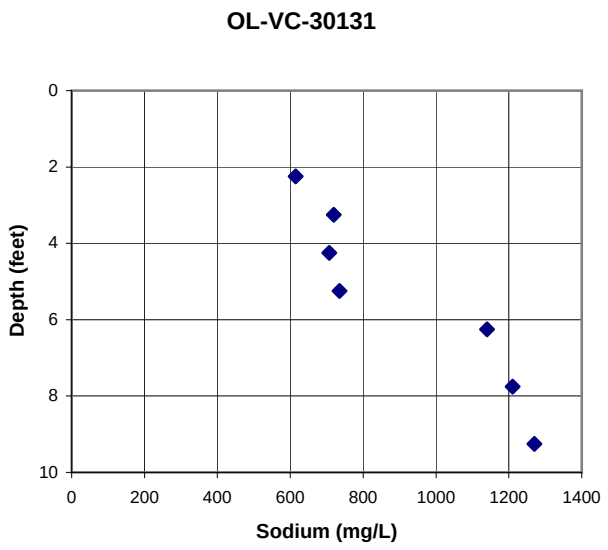

OL-VC-30130
Depth (feet)
Sodium (mg/L)
0
2
4
6
8
10
0
500
1000
1500
2000
2500
3000
3500

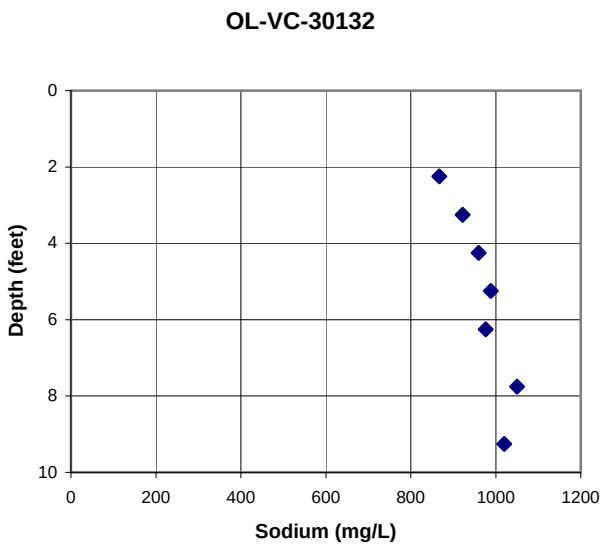

OL-VC-30129
Depth (feet)
Na/Ca
0
2
4
6
8
10
0.0
5.0
10.0
15.0
20.0

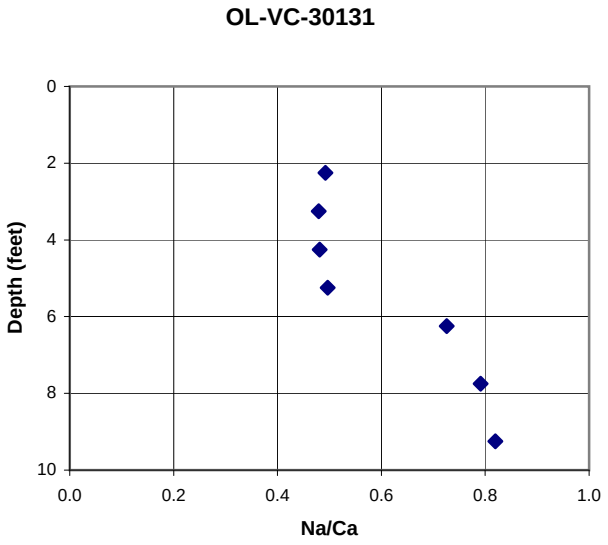

OL-VC-30130
Depth (feet)
Na/Ca
0
2
4
6
8
10
0.00
0.50
1.00
1.50
2.00
2.50
3.00
3.50

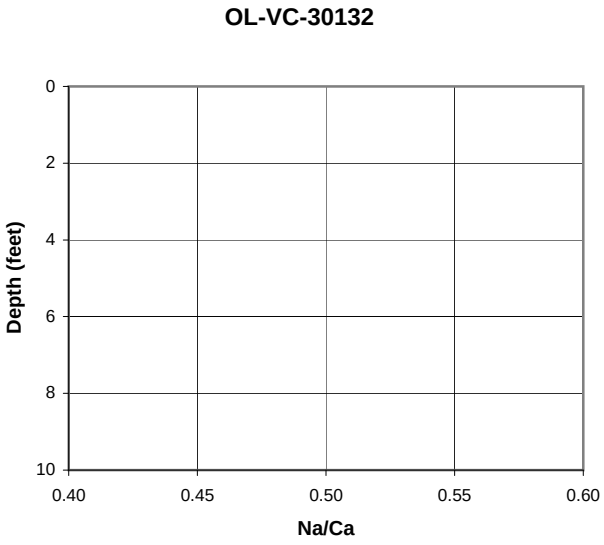

OL-VC-30131
Depth (feet)
Chloride (mg/L)
0
2
4
6
8
10
0
1000
2000
3000
4000
5000

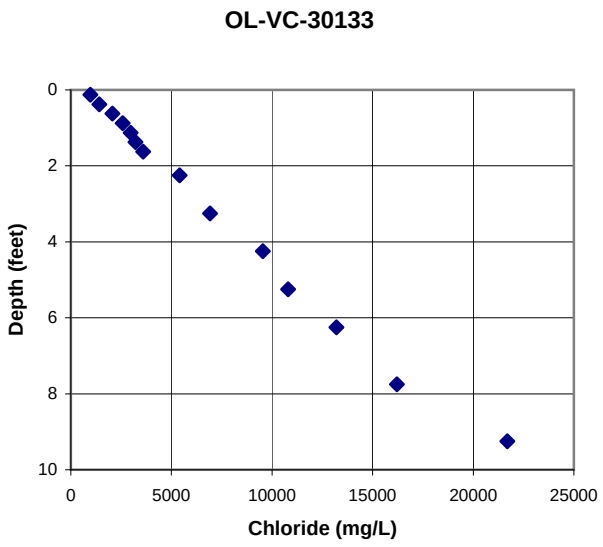

OL-VC-30132
Depth (feet)
Chloride (mg/L)
0
2
4
6
8
10
0
500
1000
1500
2000
2500
3000

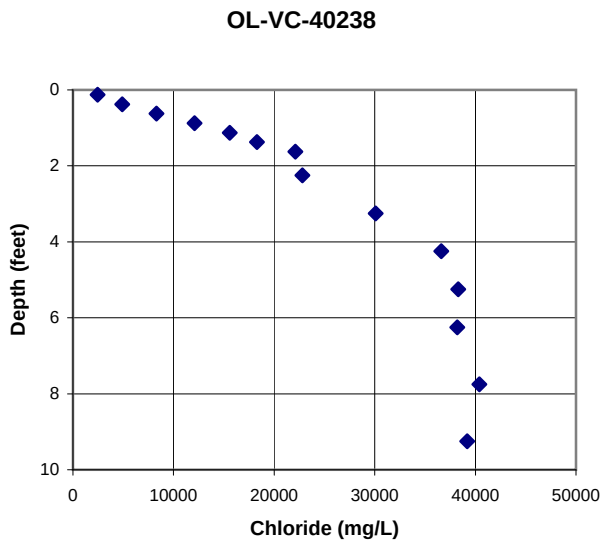

OL-VC-30131
Depth (feet)
Sodium (mg/L)
0
2
4
6
8
10
0
200
400
600
800
1000
1200
1400

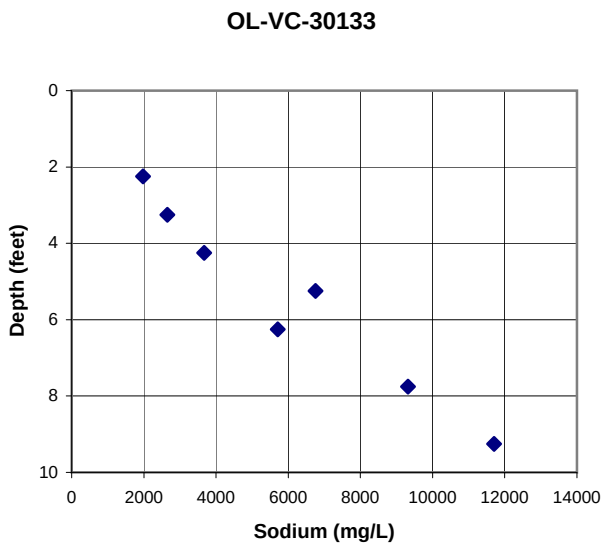

OL-VC-30132
Depth (feet)
Sodium (mg/L)
0
2
4
6
8
10
0
200
400
600
800
1000
1200

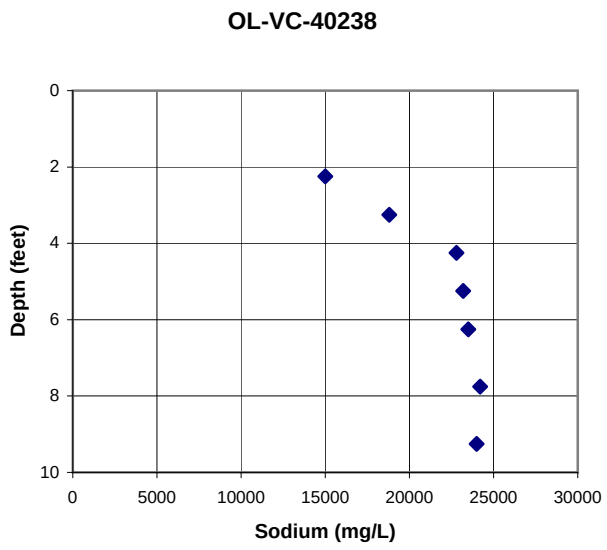

OL-VC-30131
Depth (feet)
Na/Ca
0
2
4
6
8
10
0.0
0.2
0.4
0.6
0.8
1.0

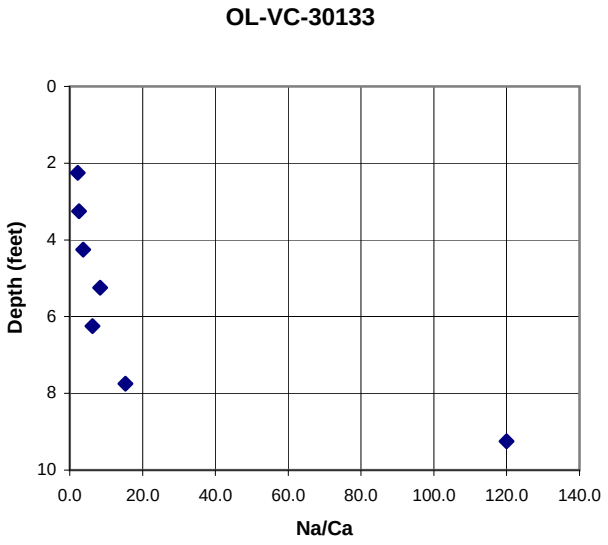

OL-VC-30132
Depth (feet)
Na/Ca
0
2
4
6
8
10
0.40
0.45
0.50
0.55
0.60

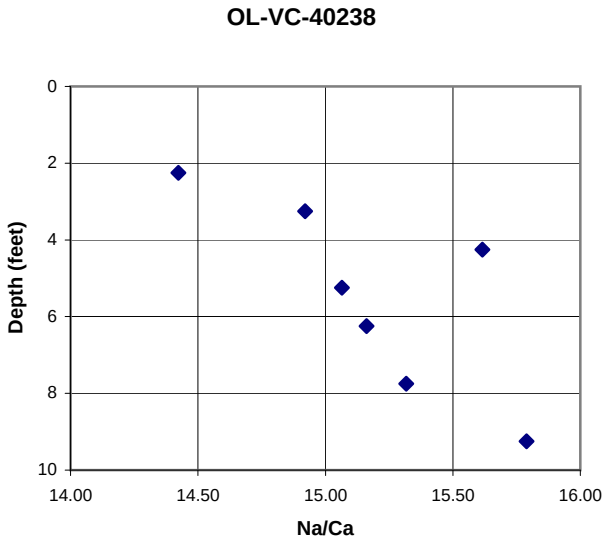

OL-VC-30133
Depth (feet)
Chloride (mg/L)
0
2
4
6
8
10
0
5000
10000
15000
20000
25000

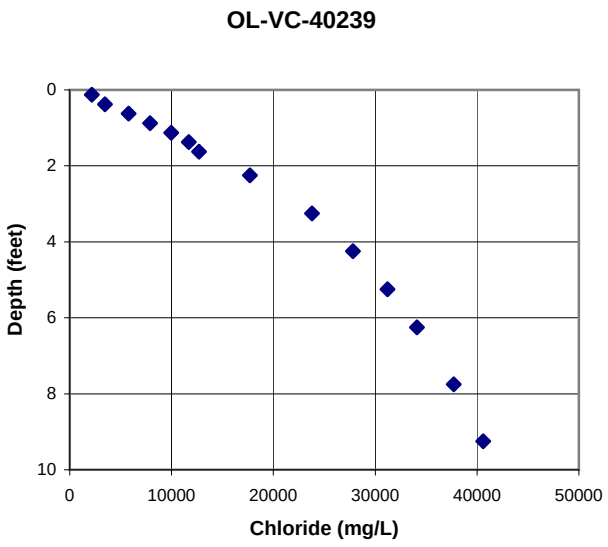

OL-VC-40238
Depth (feet)
Chloride (mg/L)
0
2
4
6
8
10
0
10000
20000
30000
40000
50000

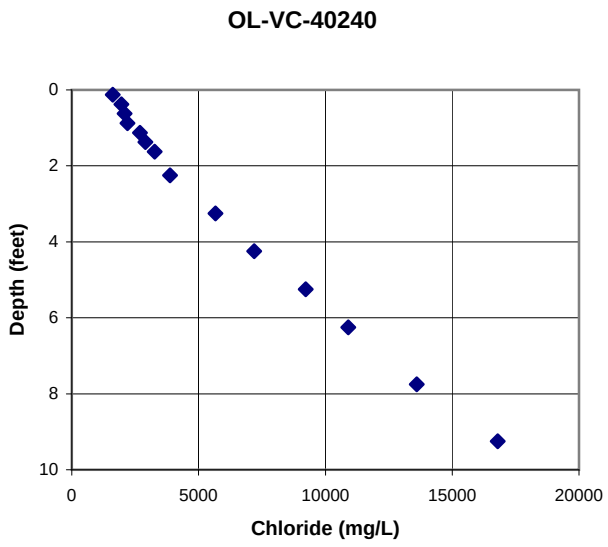

OL-VC-30133
Depth (feet)
Sodium (mg/L)
0
2
4
6
8
10
0
2000
4000
6000
8000
10000
12000
14000

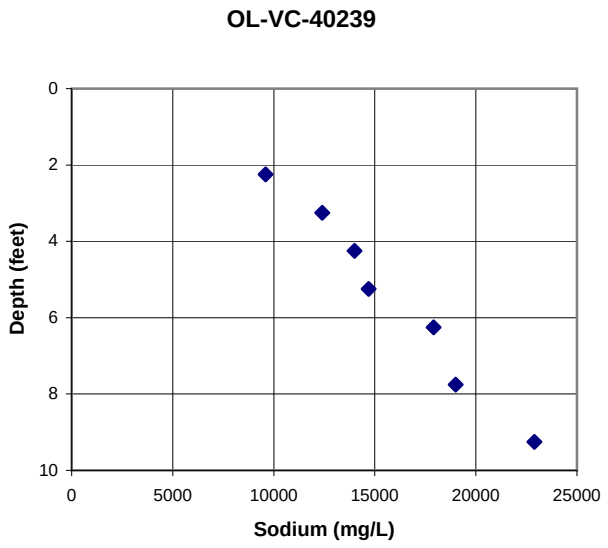

OL-VC-40238
Depth (feet)
Sodium (mg/L)
0
2
4
6
8
10
0
5000
10000
15000
20000
25000
30000

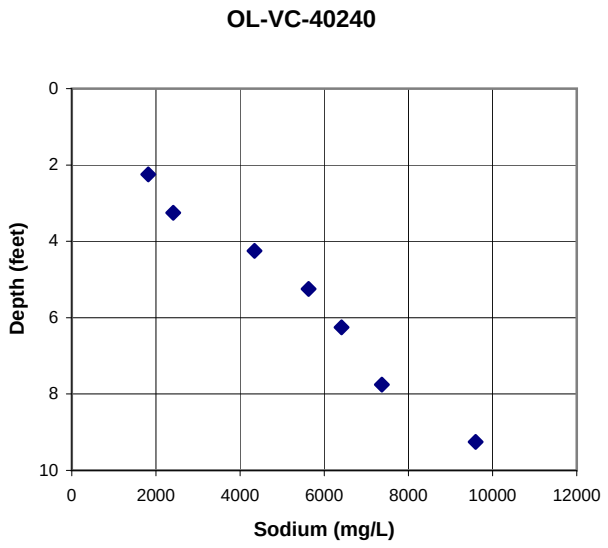

OL-VC-30133
Depth (feet)
Na/Ca
0
2
4
6
8
10
0.0
20.0
40.0
60.0
80.0
100.0
120.0
140.0

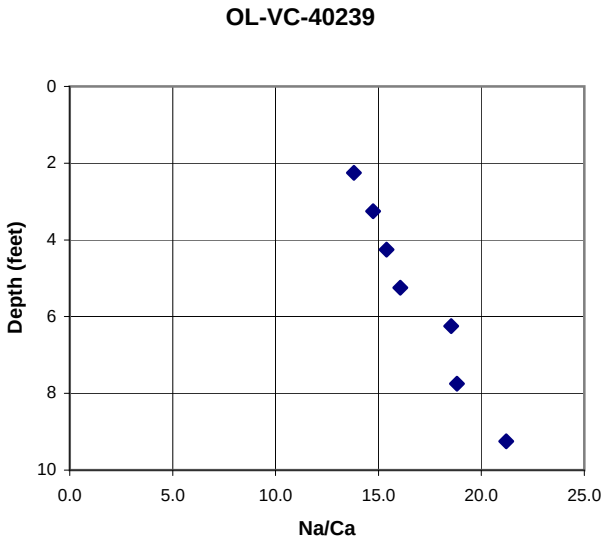

OL-VC-40238
Depth (feet)
Na/Ca
0
2
4
6
8
10
14.00
14.50
15.00
15.50
16.00

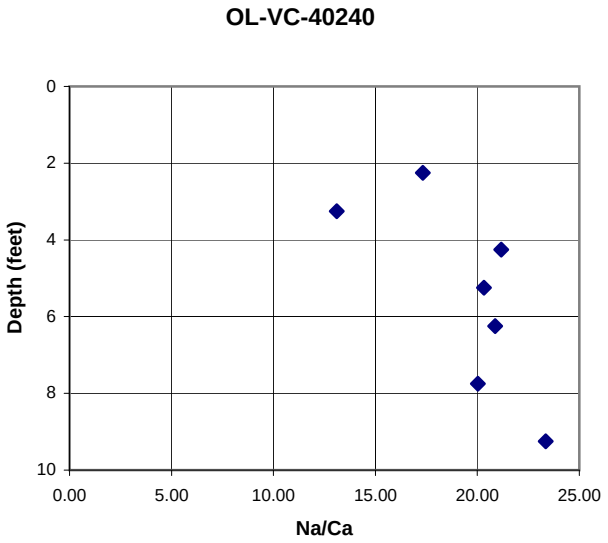

OL-VC-40239
Depth (feet)
0
2
4
6
8
10
0
10000
20000
30000
40000
50000
Chloride (mg/L)

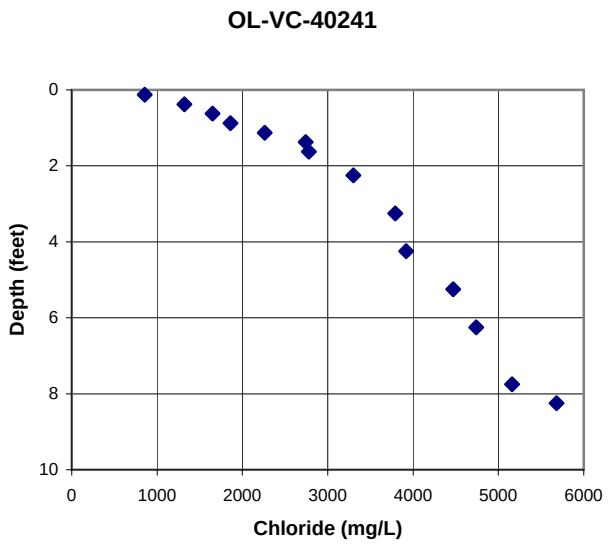

OL-VC-40240
Depth (feet)
0
2
4
6
8
10
0
5000
10000
15000
20000
Chloride (mg/L)

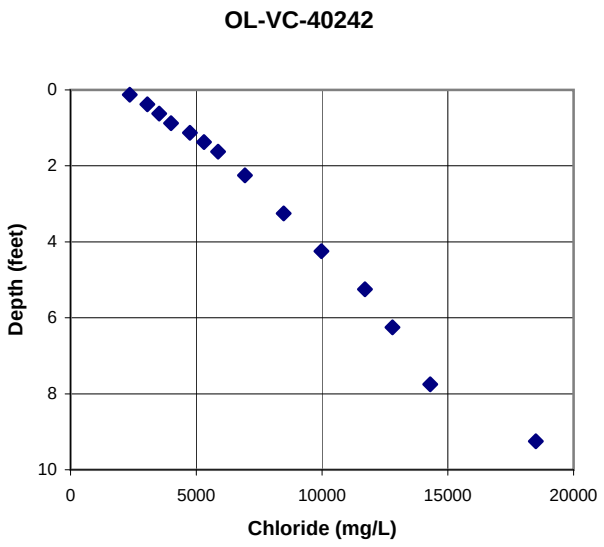

OL-VC-40239
Depth (feet)
0
2
4
6
8
10
0
5000
10000
15000
20000
25000
Sodium (mg/L)

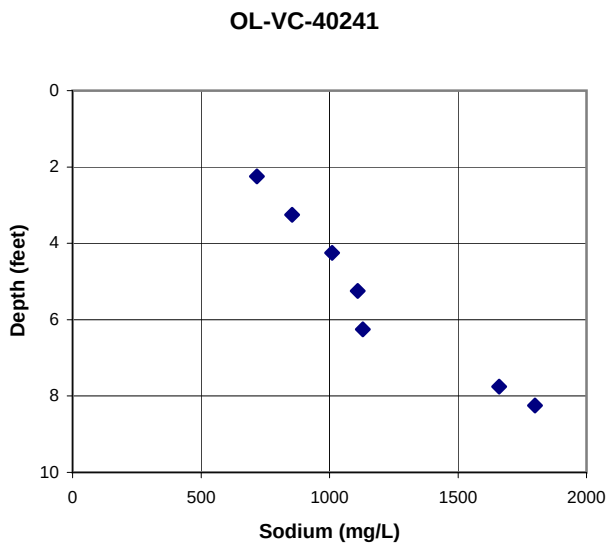

OL-VC-40240
Depth (feet)
0
2
4
6
8
10
0
2000
4000
6000
8000
10000
12000
Sodium (mg/L)

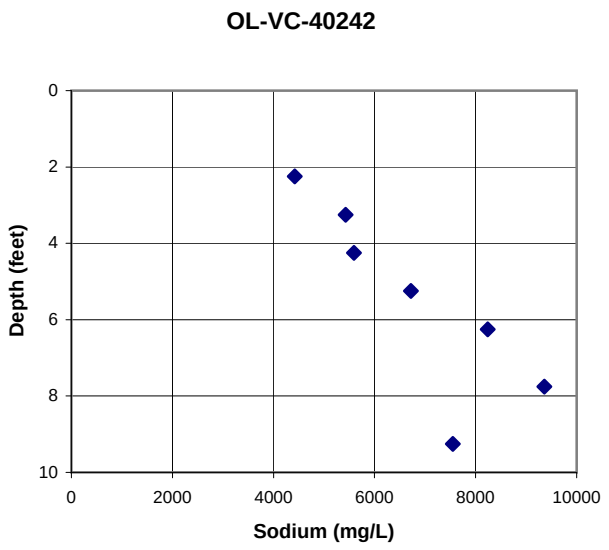

OL-VC-40239
Depth (feet)
0
2
4
6
8
10
0.0
5.0
10.0
15.0
20.0
25.0
Na/Ca

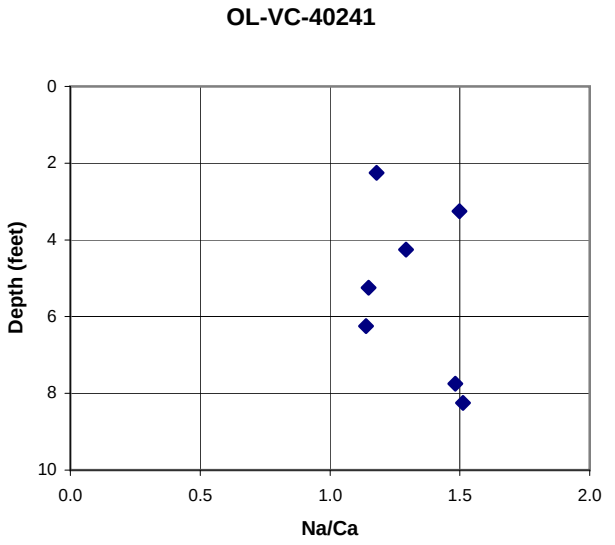

OL-VC-40240
Depth (feet)
0
2
4
6
8
10
0.00
5.00
10.00
15.00
20.00
25.00
Na/Ca

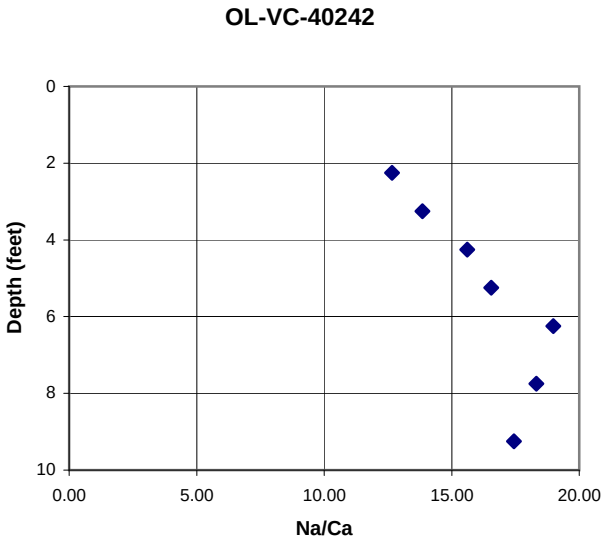

OL-VC-40241
Depth (feet)
0
2
4
6
8
10
0
1000
2000
3000
4000
5000
6000
Chloride (mg/L)

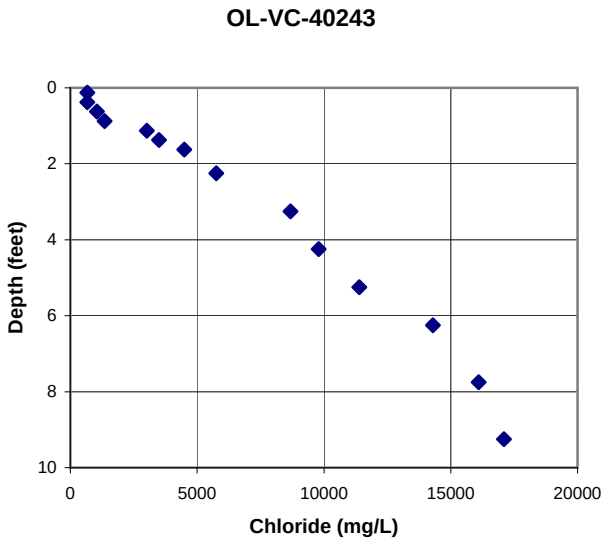

OL-VC-40242
Depth (feet)
0
2
4
6
8
10
0
5000
10000
15000
20000
Chloride (mg/L)

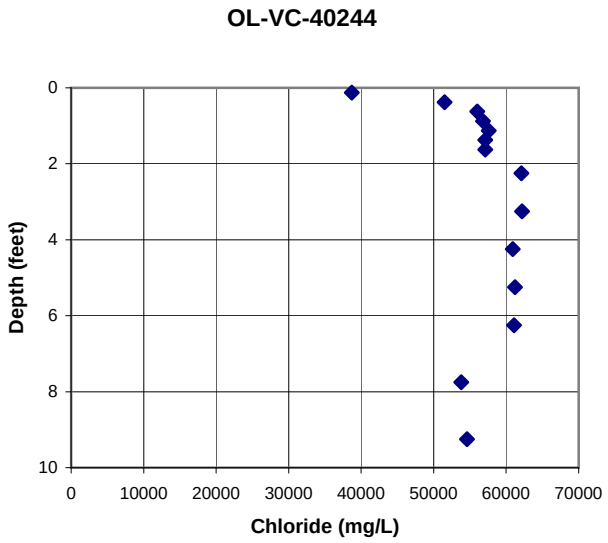

OL-VC-40241
Depth (feet)
0
2
4
6
8
10
0
500
1000
1500
2000
Sodium (mg/L)

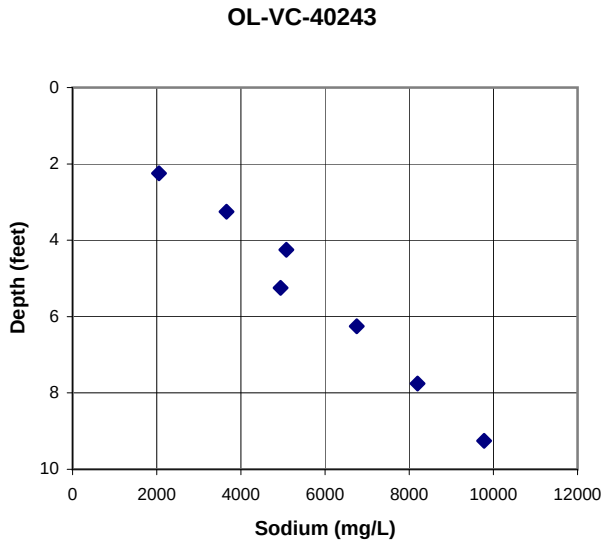

OL-VC-40242
Depth (feet)
0
2
4
6
8
10
0
2000
4000
6000
8000
10000
Sodium (mg/L)

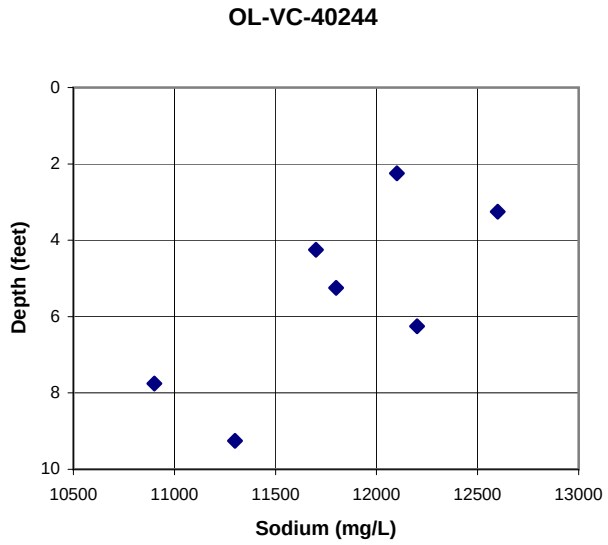

OL-VC-40241
Depth (feet)
0
2
4
6
8
10
0.0
0.5
1.0
1.5
2.0
Na/Ca

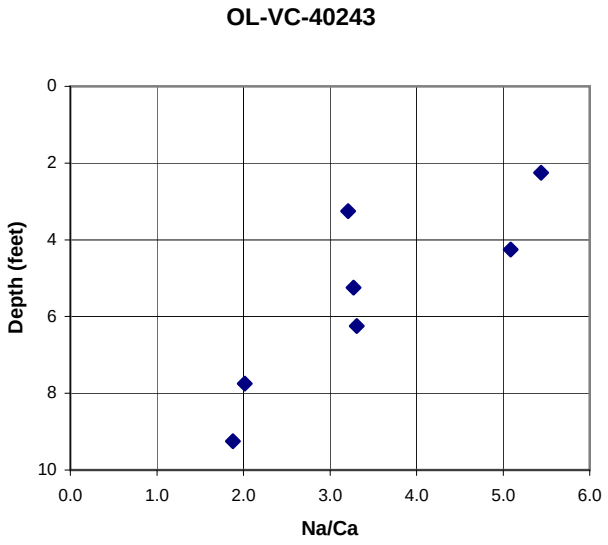

OL-VC-40242
Depth (feet)
0
2
4
6
8
10
0.00
5.00
10.00
15.00
20.00
Na/Ca

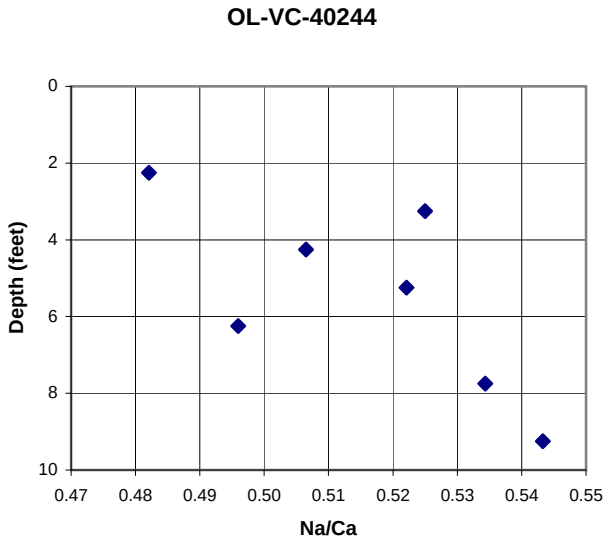

OL-VC-40243
Depth (feet)
Chloride (mg/L)
0
2
4
6
8
10
0
5000
10000
15000
20000

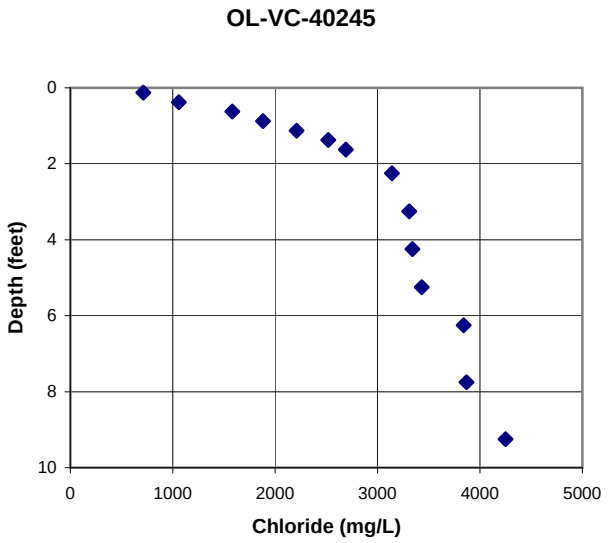

OL-VC-40244
Depth (feet)
Chloride (mg/L)
0
2
4
6
8
10
0
10000
20000
30000
40000
50000
60000
70000

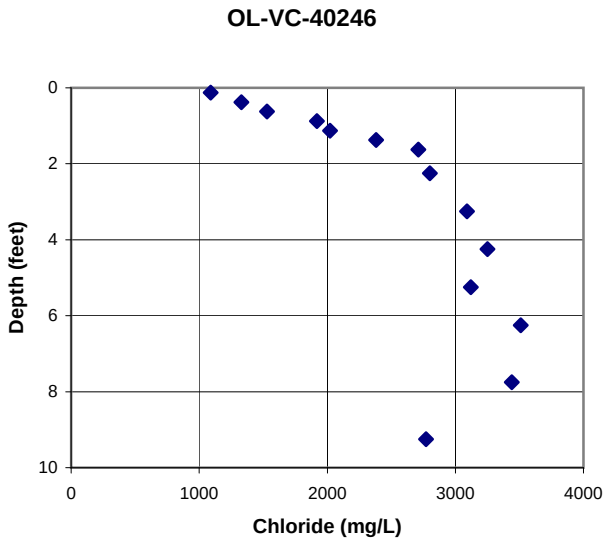

OL-VC-40243
Depth (feet)
Sodium (mg/L)
0
2
4
6
8
10
0
2000
4000
6000
8000
10000
12000

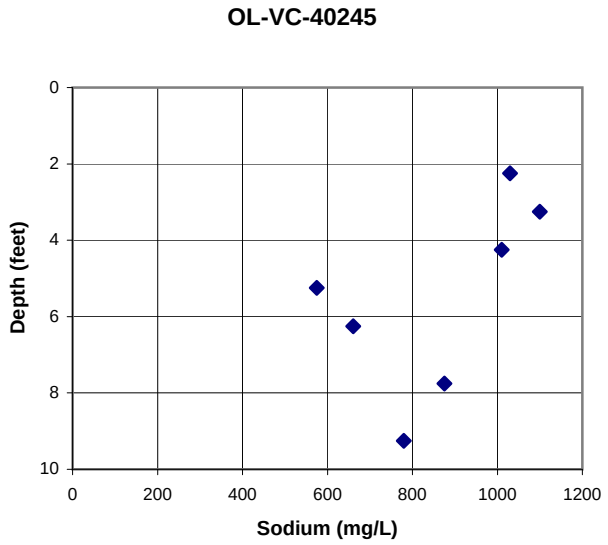

OL-VC-40244
Depth (feet)
Sodium (mg/L)
0
2
4
6
8
10
10500
11000
11500
12000
12500
13000

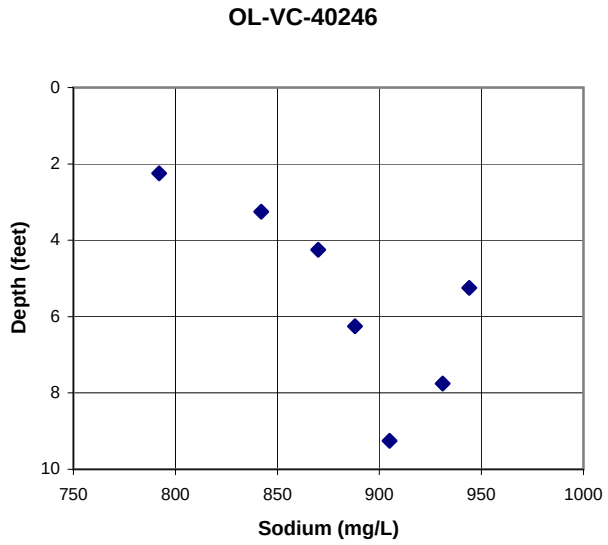

OL-VC-40243
Depth (feet)
Na/Ca
0
2
4
6
8
10
0.0
1.0
2.0
3.0
4.0
5.0
6.0

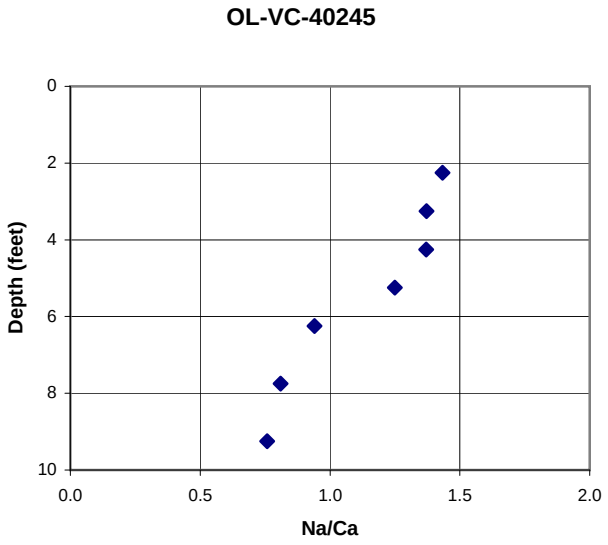

OL-VC-40244
Depth (feet)
Na/Ca
0
2
4
6
8
10
0.47
0.48
0.49
0.50
0.51
0.52
0.53
0.54
0.55

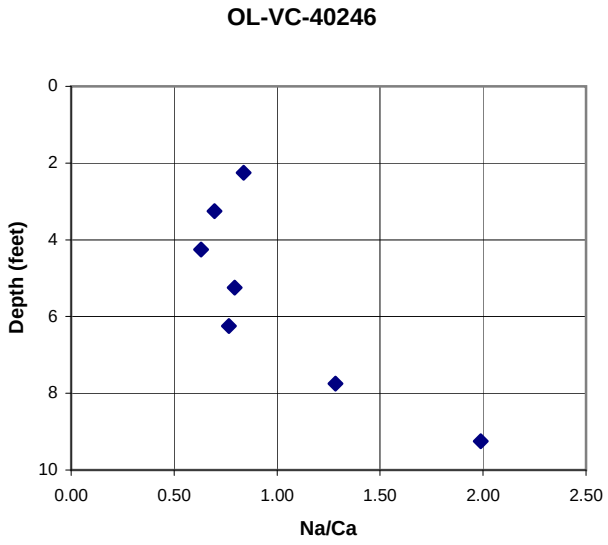

OL-VC-40245
Depth (feet)
0
2
4
6
8
10
0
1000
2000
3000
4000
5000
Chloride (mg/L)

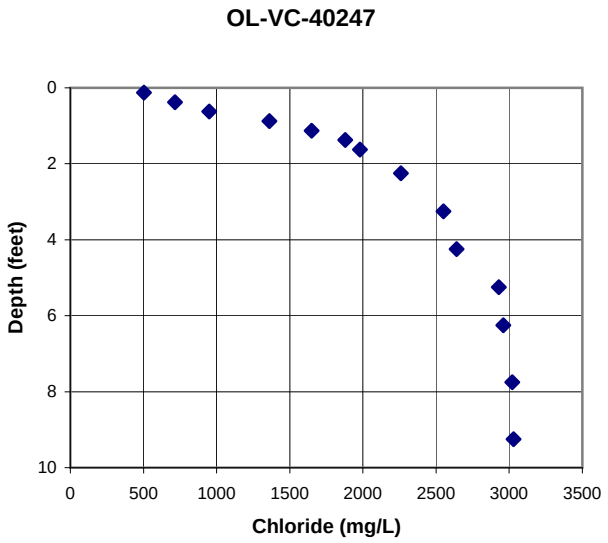

OL-VC-40246
Depth (feet)
0
2
4
6
8
10
0
1000
2000
3000
4000
Chloride (mg/L)

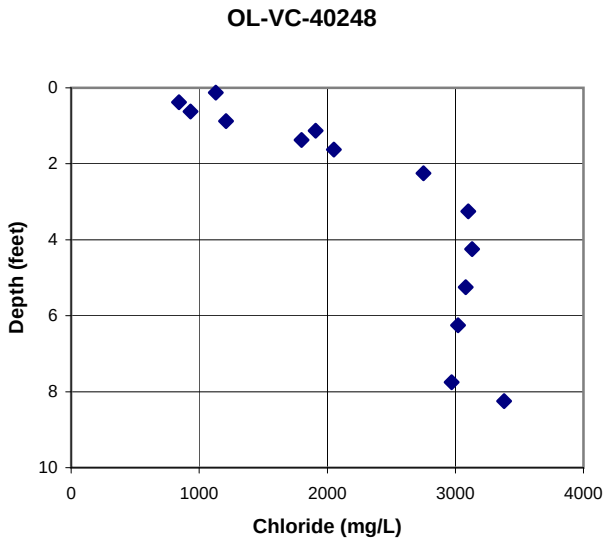

OL-VC-40245
Depth (feet)
0
2
4
6
8
10
0
200
400
600
800
1000
1200
Sodium (mg/L)

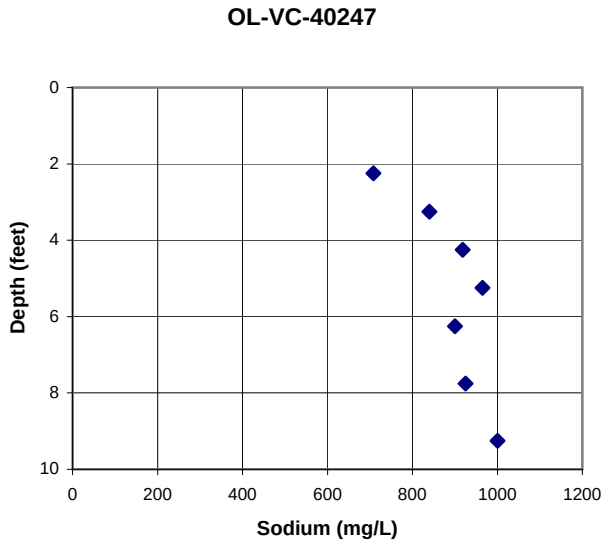

OL-VC-40246
Depth (feet)
0
2
4
6
8
10
750
800
850
900
950
1000
Sodium (mg/L)

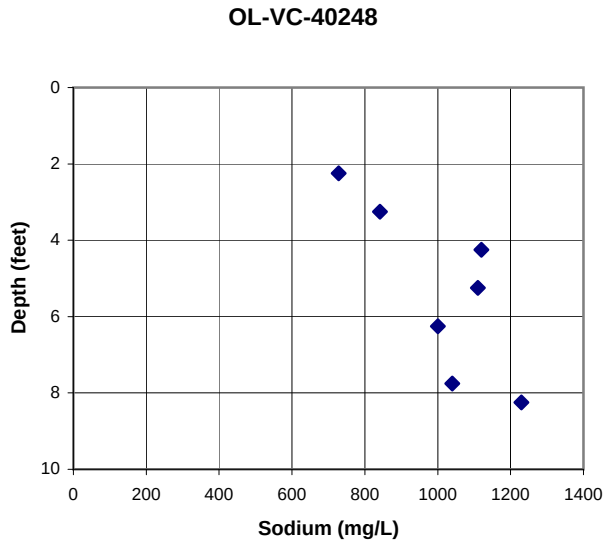

OL-VC-40245
Depth (feet)
0
2
4
6
8
10
0.0
0.5
1.0
1.5
2.0
Na/Ca

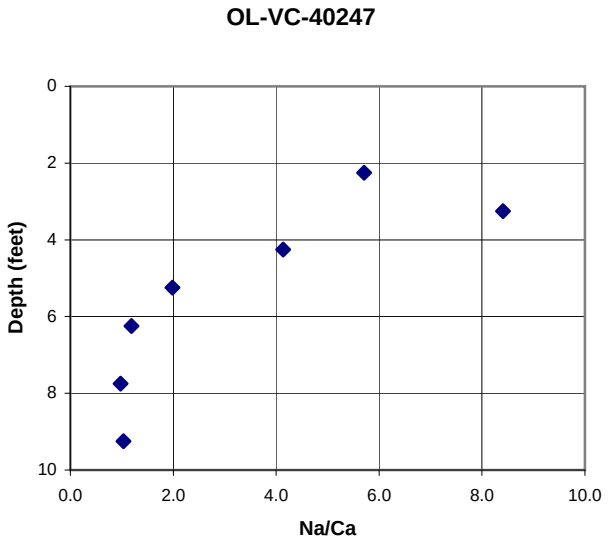

OL-VC-40246
Depth (feet)
0
2
4
6
8
10
0.00
0.50
1.00
1.50
2.00
2.50
Na/Ca

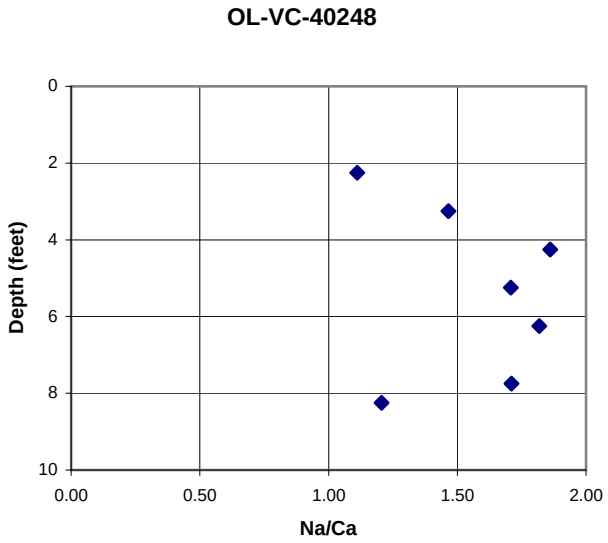

OL-VC-40247
Depth (feet)
0
2
4
6
8
10
0
500
1000
1500
2000
2500
3000
3500
Chloride (mg/L)

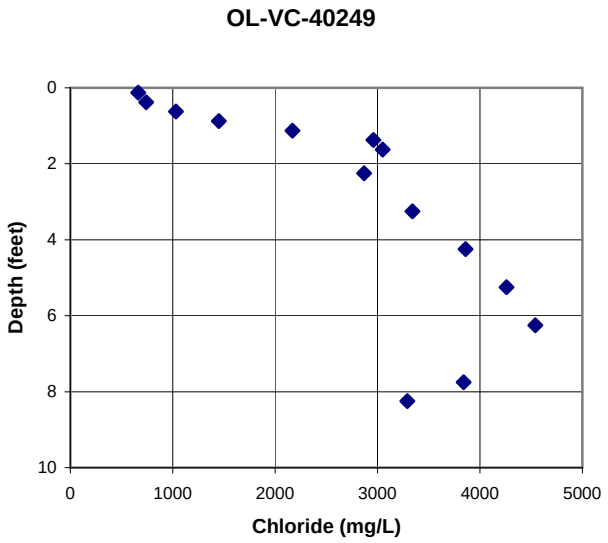

OL-VC-40248
Depth (feet)
0
2
4
6
8
10
0
1000
2000
3000
4000
Chloride (mg/L)

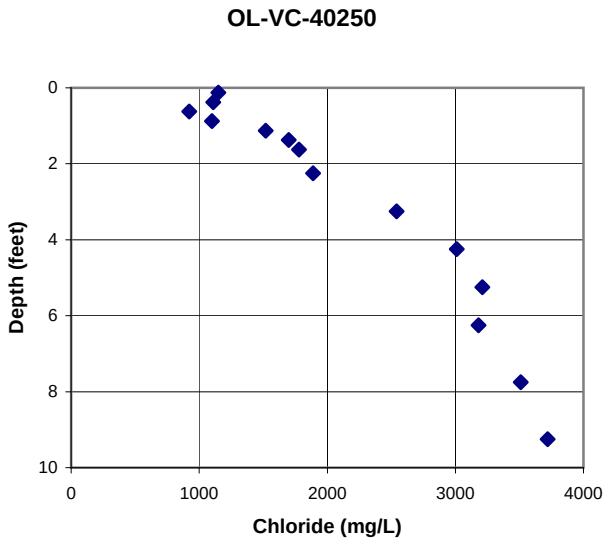

OL-VC-40247
Depth (feet)
0
2
4
6
8
10
0
200
400
600
800
1000
1200
Sodium (mg/L)

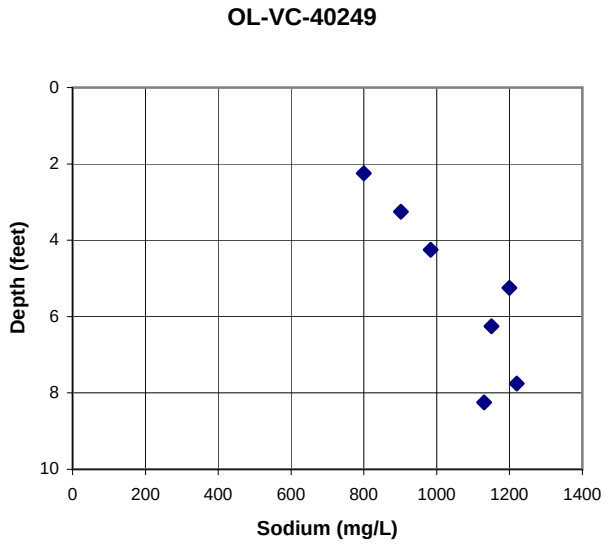

OL-VC-40248
Depth (feet)
0
2
4
6
8
10
0
200
400
600
800
1000
1200
1400
Sodium (mg/L)

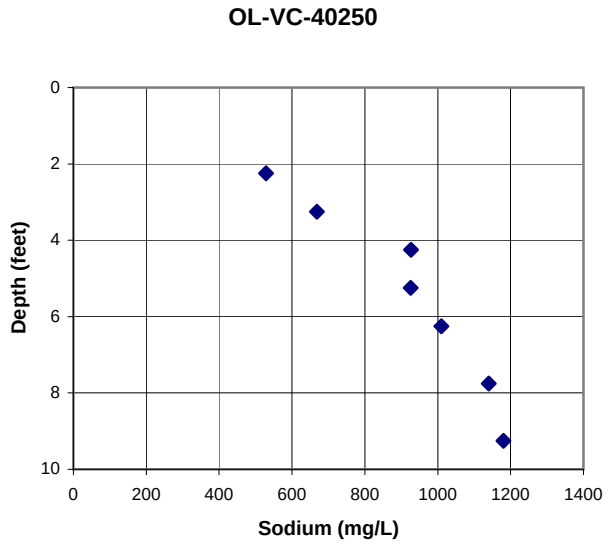

OL-VC-40247
Depth (feet)
0
2
4
6
8
10
0.0
2.0
4.0
6.0
8.0
10.0
Na/Ca

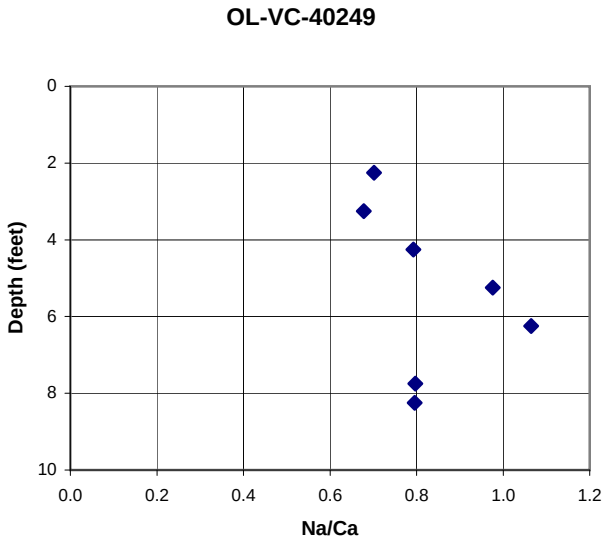

OL-VC-40248
Depth (feet)
0
2
4
6
8
10
0.00
0.50
1.00
1.50
2.00
Na/Ca

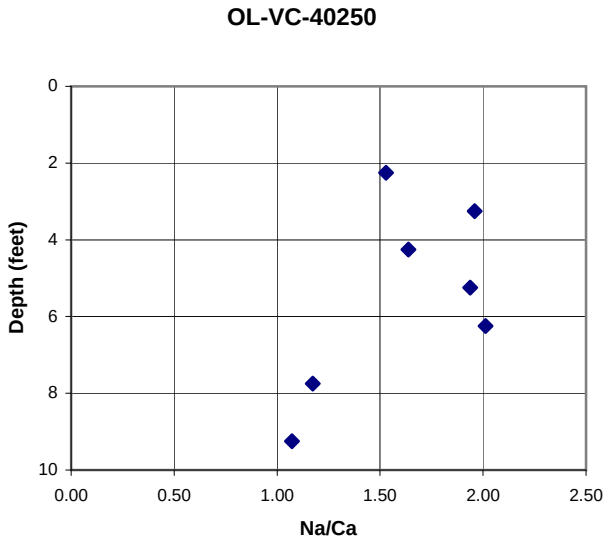

OL-VC-40249
Depth (feet)
Chloride (mg/L)
0
2
4
6
8
10
0
1000
2000
3000
4000
5000

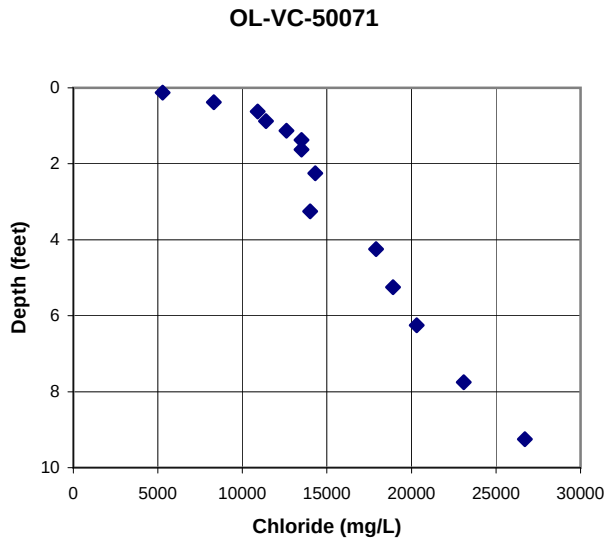

OL-VC-40250
Depth (feet)
Chloride (mg/L)
0
2
4
6
8
10
0
1000
2000
3000
4000

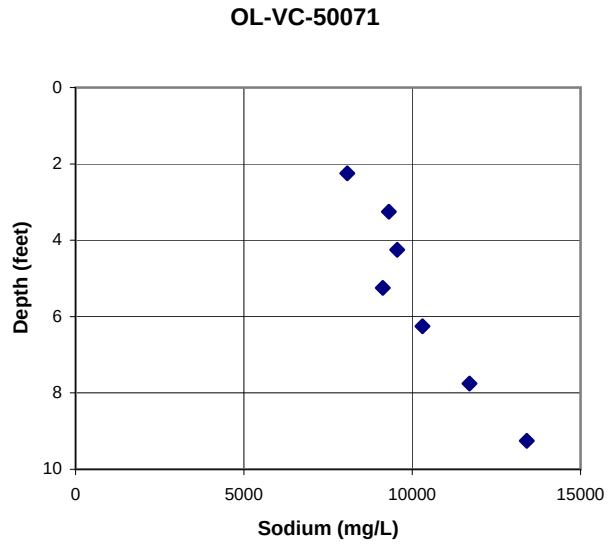

OL-VC-40249
Depth (feet)
Sodium (mg/L)
0
2
4
6
8
10
0
200
400
600
800
1000
1200
1400

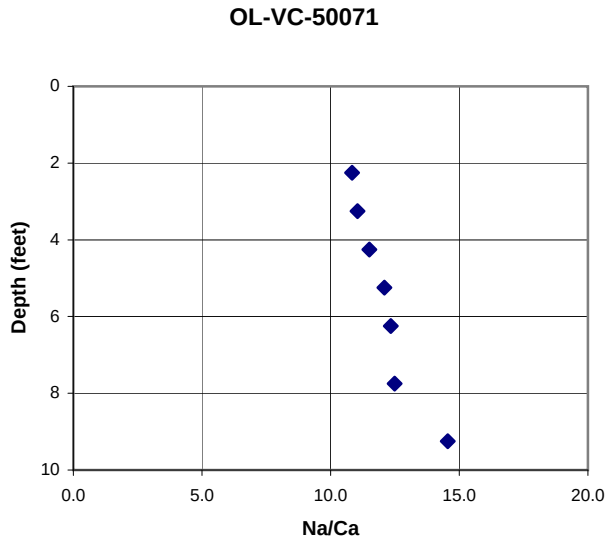

OL-VC-40250
Depth (feet)
Sodium (mg/L)
0
2
4
6
8
10
0
200
400
600
800
1000
1200
1400


OL-VC-40249
Depth (feet)
Na/Ca
0
2
4
6
8
10
0.0
0.2
0.4
0.6
0.8
1.0
1.2


OL-VC-40250
Depth (feet)
Na/Ca
0
2
4
6
8
10
0.00
0.50
1.00
1.50
2.00
2.50


OL-VC-50071
Depth (feet)
0
2
4
6
8
10
0
5000
10000
15000
20000
25000
30000
Chloride (mg/L)


OL-VC-50071
Depth (feet)
0
2
4
6
8
10
0
5000
10000
15000
Sodium (mg/L)


OL-VC-50071
Depth (feet)
0
2
4
6
8
10
0.0
5.0
10.0
15.0
20.0
Na/Ca

Attachment VI

Sediment Conductivity and Pore Water Correlations

Attachment VI
Sediment Conductivity and Pore Water Correlations

This attachment contains plots of chloride versus depth and sediment conductivity versus depth for the 31 locations where Vibracores were co-located with sediment conductivity borings as part of the Phase III Appendix 5 and the Phase IV PDI investigations in 2007 and 2008. For each location with a co-located data, a plot is shown with chloride concentrations from pore water versus depth, sediment conductivity versus depth, and adjusted chloride concentration versus depth from sediment conductivity data. The adjusted chloride concentration was calculating the sediment conductivity data by a factor that minimizes the difference between the adjusted chloride concentrations and the pore water chloride concentrations. The calculated adjustment factor, which was calculated with the Excel solver routine, is listed on each of the plots.

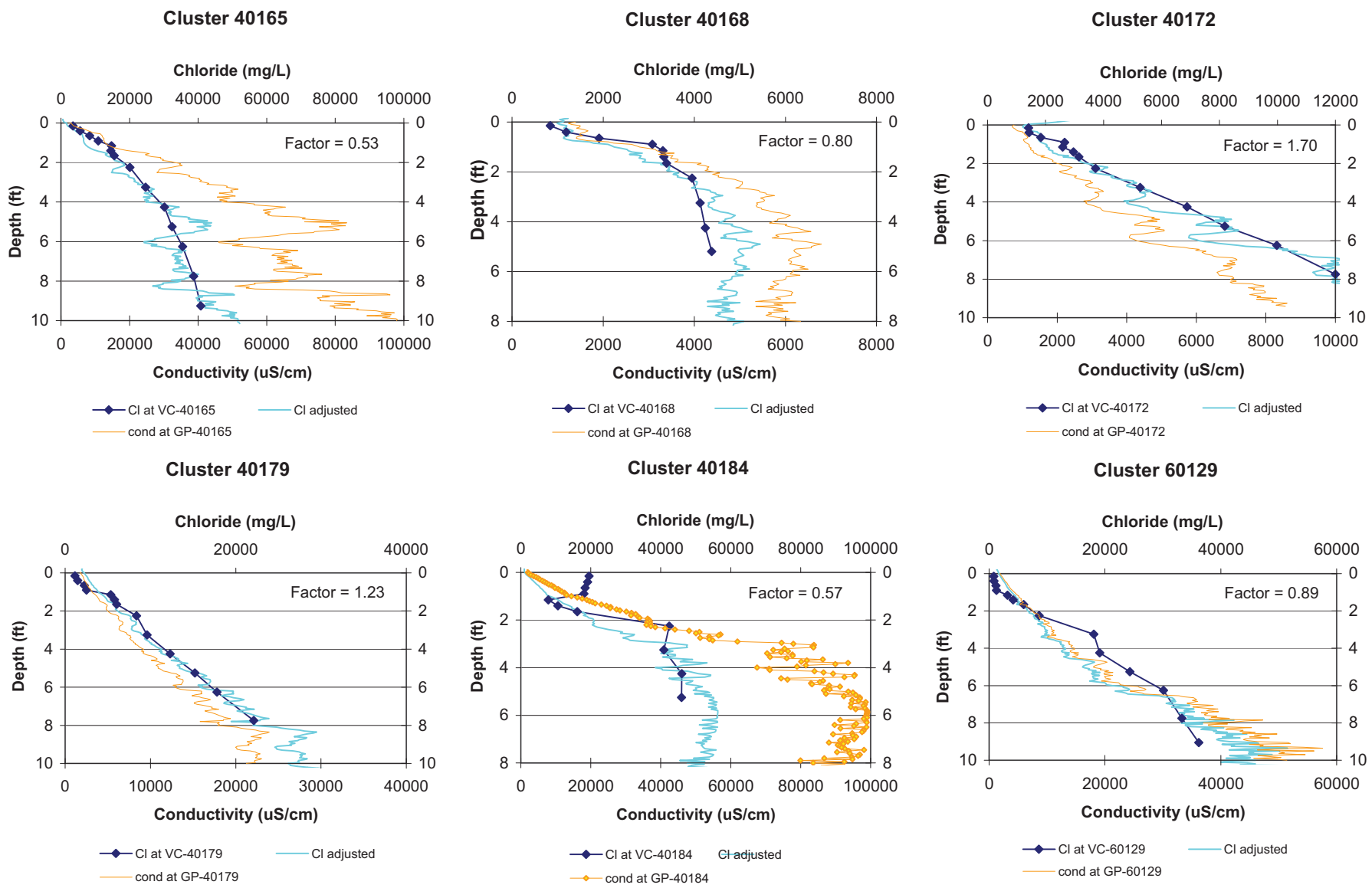


Figure 1 Pore Water Chloride and Sediment Conductivity Relationship -- 2007 Sediment Data

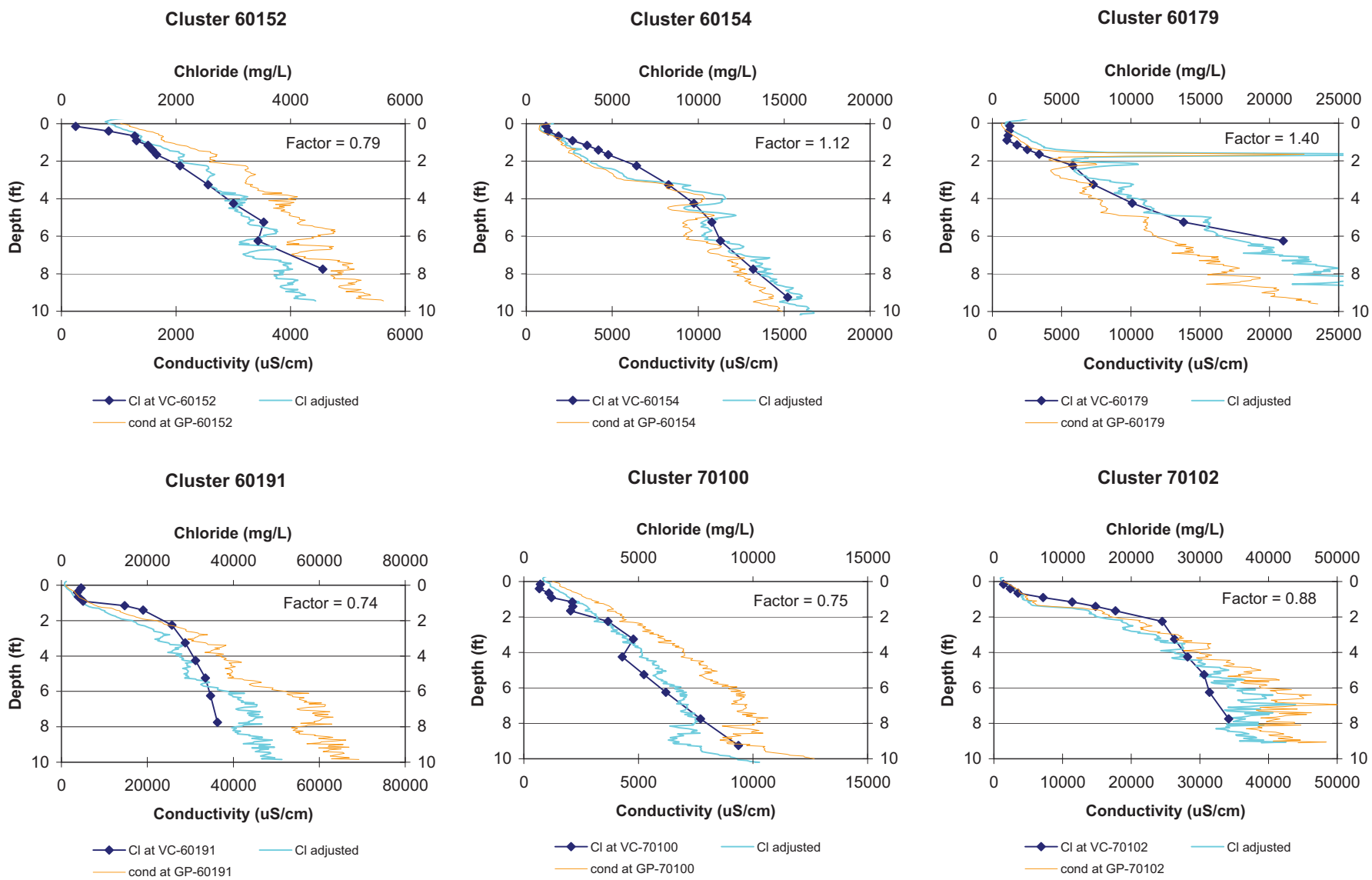


Figure 1 Pore Water Chloride and Sediment Conductivity Relationship -- 2007 Sediment Data

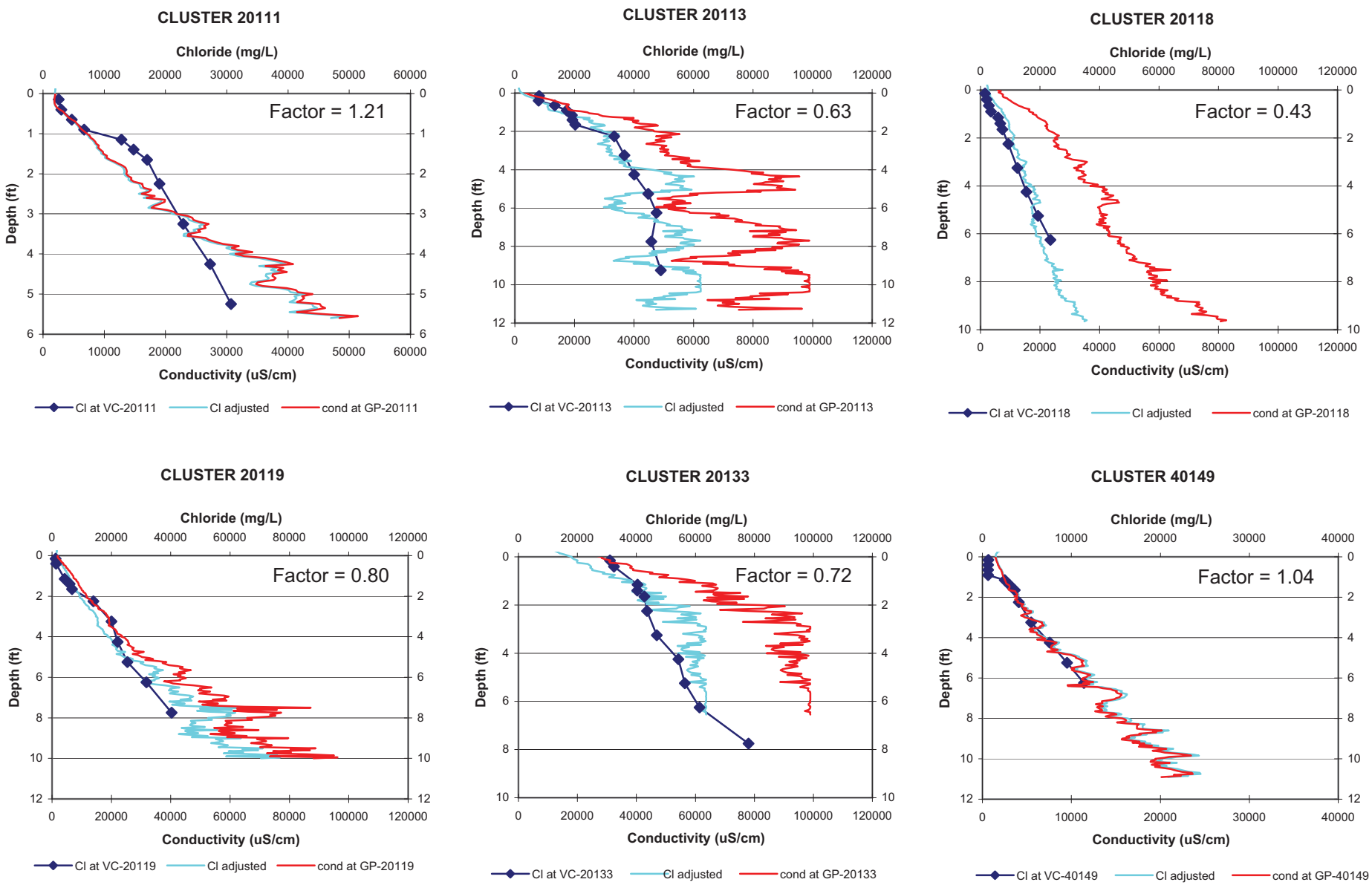


Figure 2 Pore Water Chloride and Sediment Conductivity Relationship - 2008 Sediment Data

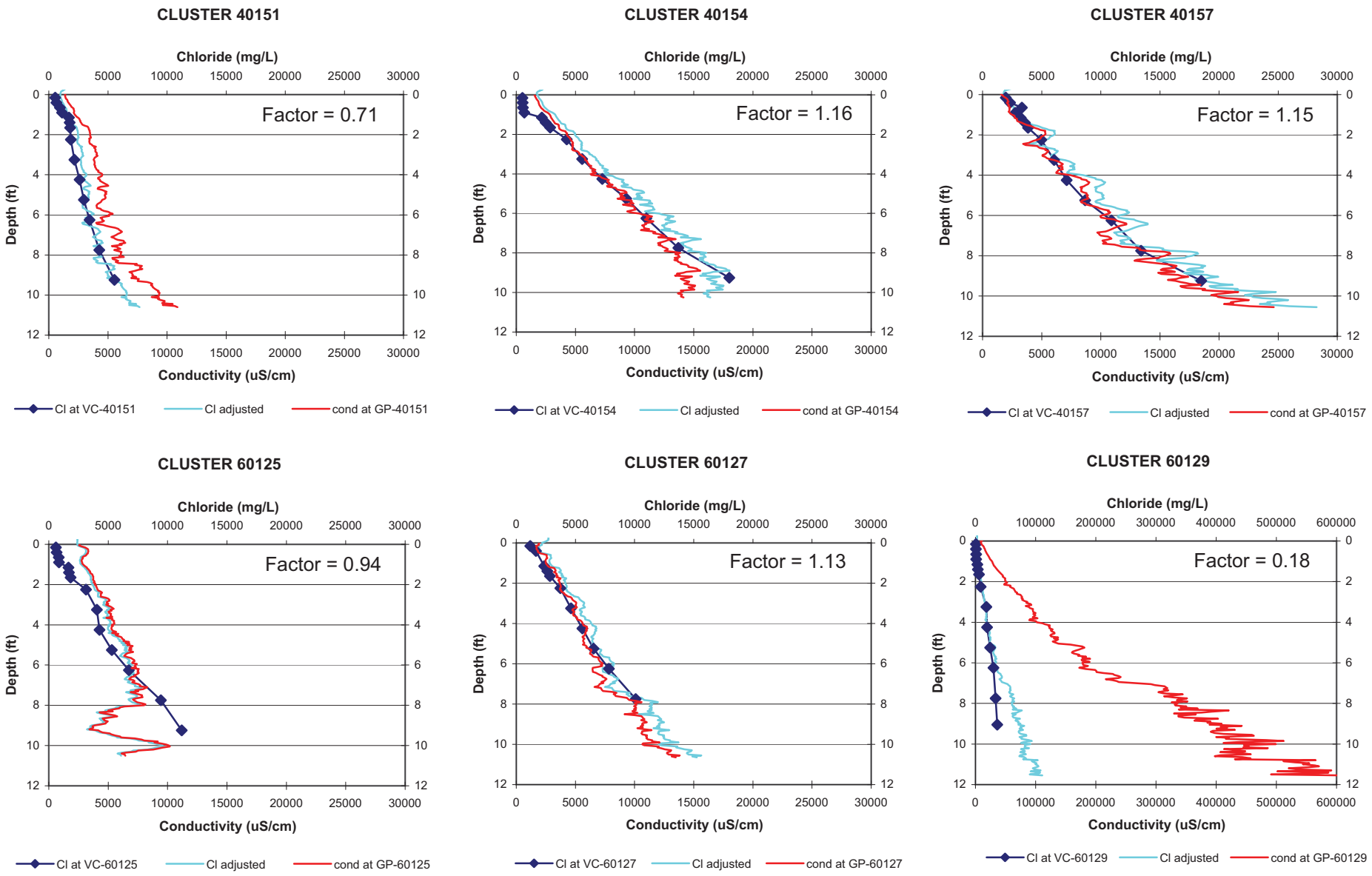


Figure 2 Pore Water Chloride and Sediment Conductivity Relationship - 2008 Sediment Data

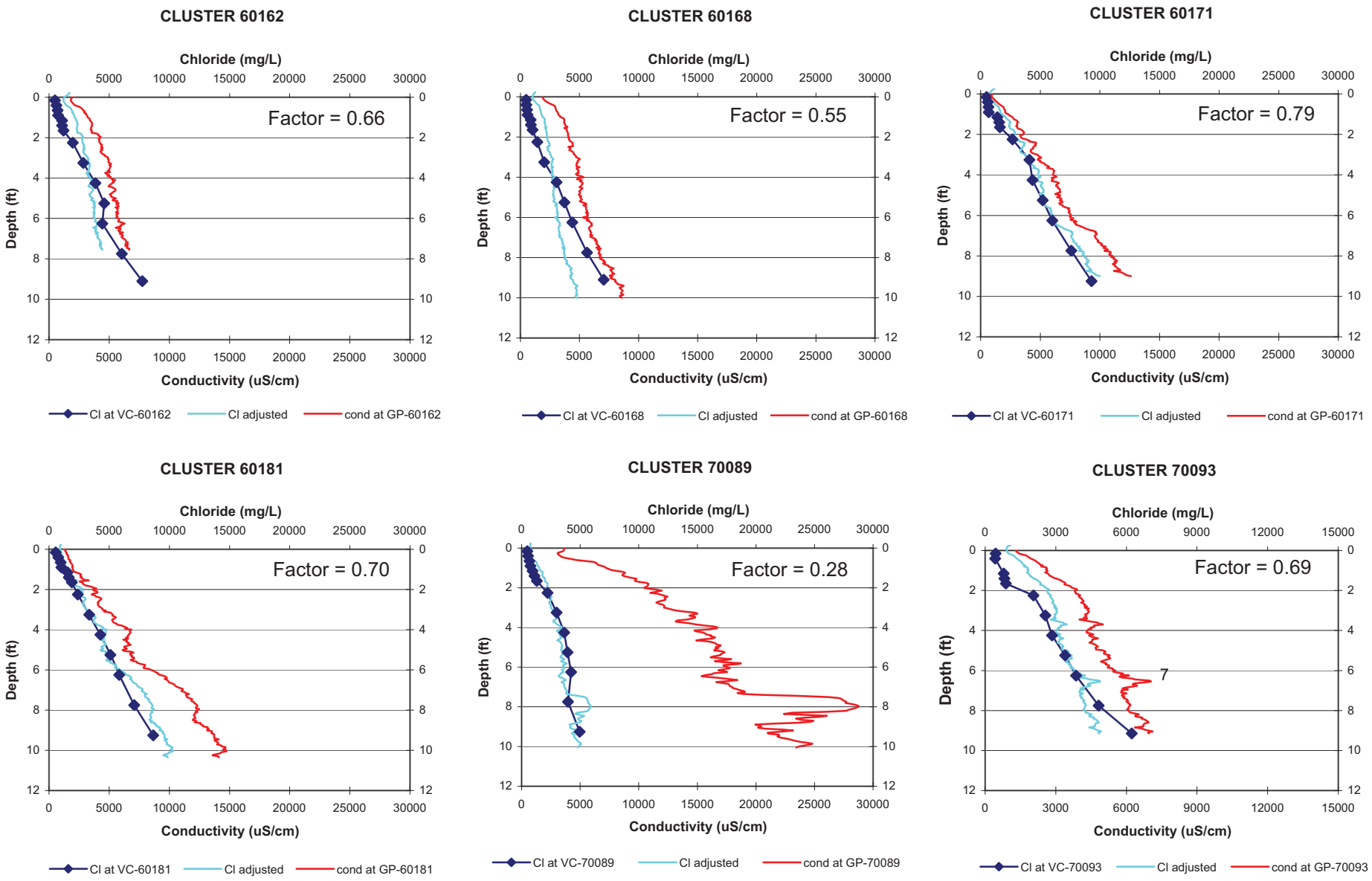


Figure 2 Pore Water Chloride and Sediment Conductivity Relationship - 2008 Sediment Data

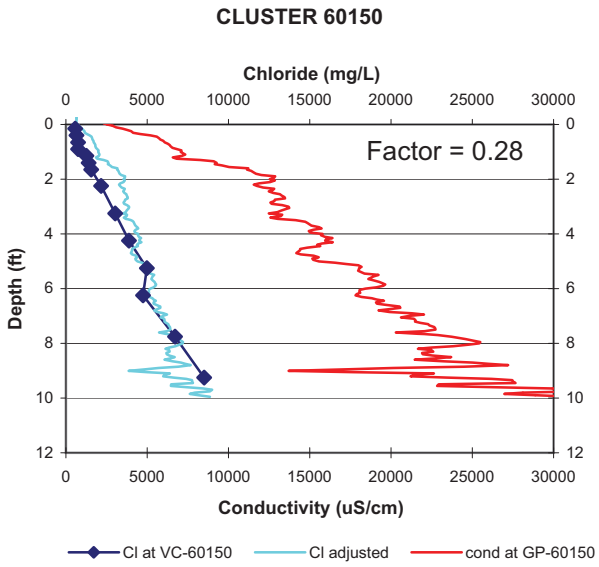


Figure 2 Pore Water Chloride and Sediment Conductivity Relationship - 2008 Sediment Data

Attachment VII

Chloride-Depth Profile Analysis

Attachment VII
Chloride-Depth Profile Analyses

This Attachment contains the results of evaluating upwelling velocities from chloride-depth profiles developed from pore water data collected at 87 locations and sediment conductivity data collected at 229 locations in the littoral zone in and around the vicinity of the Remediation Areas using the procedures described in Section 3. In total, as a result of duplicate and triplicate data collected at some locations, 376 chloride-depth profiles were developed. The analysis consisted of iteratively solving Equation 1, described in Section 3, using various values of the upwelling velocity, and in some cases the lower boundary concentration, until a "best fit" between the calculated and the measured chloride depth profile was obtained.

In the general case, a "best-fit" solution was obtained to the data in the upper five feet of sediment and a "best-fit" solution was obtained to the data in the upper ten feet of sediment. On the attached plots the "best-fit" solutions to the upper five feet and upper ten feet of data are shown for each of the 376 chloride-depth profiles that were evaluated and the calculated upwelling velocities are tabulated on Table VII-1. Because the dispersion length used in these evaluations is a function of the length of the domain, the length of the domains were specified as 5 feet and 10 feet even in those cases where the measured data did not span the entire domain. For the chloride-depth profiles where the measured data did not extend to the boundary used in the analysis, the chloride concentration at the lower boundary was estimated iteratively to provide a "best-fit" solution.

Also in the general case, the "best-fit" solution was defined as the solution that minimized the sum of squared differences between observed and calculated concentrations. In practice, though, the solution that minimized the squared differences was not always the "best fit" solution as in some cases this solution was biased by scatter in the data. When the solution obtained by minimizing the squared differences did not, in the professional judgment of the analyst, provide an acceptable fit to the measured data, this solution was manually adjusted to obtain a better fit to the measured data. In manually adjusting the solution, data collected near the sediment-water interface was weighted more than data from deeper depths (an attempt was made to minimize the difference between the observed and calculated data for those data collected near the sediment-water interface). In the analysis of a number of the chloride-depth profiles based on sediment conductivity data it was noted that there was often sharp declines in chloride concentrations with depths followed by sharp increases in chloride concentrations in some intervals. As declines in chloride concentrations with depth are inconsistent with Equation 1 and the expected chloride-depth profile, these abrupt declines and subsequent increases in concentrations were attributed to measurement error likely caused by poor contact between the conductivity probe and the sediments. As a result, in obtaining a "best-fit" solution data from depth intervals where chloride concentrations declined and subsequently increased were underweighted in determining the "best-fit" solution.

In most cases, similar upwelling velocities were calculated using data from the upper five feet and data from the upper ten feet below the sediment-water interface. In general for purposes of evaluating the spatial distribution of upwelling velocities the higher of the two estimates was chosen to represent the upwelling velocity at a location and this is the value listed on Table 1 and posted on Figures 13 to 15. For some chloride-depth profiles, the "best-fit" solution for the 10-foot solution fit the data much better than the "best-fit" solution for the 5-foot analysis (or vice-versa) and these cases the "best-fit" solution that better fit the data is the value listed on Table 1 and posted on Figures 13 to 15.

Table VII-1 provides a summary of all of the chloride-depth profiles that were conducted. Listed on the table are the upper and lower boundary conditions used in both the 10-foot and the 5-foot analyses, the calculated upwelling velocities for the 10-foot and 5-foot analyses, the depth below the sediment-water interface of the deepest measured data, and comments regarding the analyses. The comments include notes indicating the quality of the upwelling analysis, which is a qualitative assessment of how well the measured data matched the chloride-depth profile calculated using Equation 1. The quality of the upwelling analysis for about 80 percent of the chloride-depth profiles based on pore water data and for about 60 percent of the chloride-depth profiles based on sediment-conductivity data are judged to be "good". For these chloride-depth profiles the chloride concentrations generally increase monotonically with depth with little scatter and there is a good correspondence between the observed and calculated chloride-depth profiles. For these analyses, there is a high degree of confidence in the calculated upwelling velocities. On the other hand, the quality of the upwelling analysis for about 7 percent of the chloride-depth profiles based on pore water data and about 16 percent of the chloride-depth profiles based on sediment conductivity data are described as "poor". In general, these analyses are judged to be "poor" because the observed chloride concentrations do not increase monotonically with depth or there is significant scatter in the measured data.

The chloride-depth profiles from sediment conductivity data are presented first, followed by chloride-depth profiles from sediment pore-water chloride data, and finally, sediment pore-water chloride data from Phase V investigations.

Table VII-1

Summary of Upwelling Velocity and Associated Data

Location ID	Remediation Area	Type[1]	Boundary Concentrations (mg/L)[2]			Upwelling Velocity (cm/yr)			90% Confidence Interval(+/-) (cm/year)	Depth[3] (feet)	Reported Depth[4] (feet)	Comments
			Upper	Lower 10' Analysis	Lower 5' Analysis	10' Analysis	5' Analysis	Upwelling Velocity				
OL-STA-10111		VC	359	39000	39000	<-32.5	<-32.5	<-32	52.82	9.5	9.5	poor
OL-STA-20087		VC	359	88200	74100	-2.9	-5.5	-2.9	4.17	9.5	9.5	fair for 10-foot analysis, poor for 5-foot analysis
OL-GP-20109	C	GP	1953	27000	21500	-1.4	-1.5	-1.5	0.05	7.4	10.15	good
OL-GP-20110	C	GP	1980	11500	10584		-3.3	-3.3	0.52	4.55	5.7	fair
OL-GP-20111	C	GP	1638	38718	32313	~0	~0	~0	0.18	5.3	6.75	good
OL-GP-20111.DAT	C	GP	4339	44500	30700	-1.3	-2.6	-2.6	0.38	9.65	10.95	fair
OL-VC-20111	C	VC	359	29500	29500	-1.4	-1.6	-1.6	0.54	5.25	5.25	fair
OL-GP-20112	C	GP	2947	66000	47000	-2.6	-2.6	-2.6	0.26	11.55	11.85	fair
OL-GP-20113	C	GP	3050	79200	75000	-1.0	-1.0	-1.0	0.07	11.3	12.15	fair
OL-GP-20113.DAT	C	GP	1664	55000	40492	-5.2	-7.3	-7.3	1.88	9.5	11.5	poor
OL-VC-20113	C	VC	359	49000	42000	-2.4	-2.4	-2.4	0.56	9.25	9.25	good
OL-GP-20115	C	GP	1872	85000	73000	-1.0	~0	-1.0	0.02	11.2	11.85	good
OL-GP-20115.DAT	C	GP	2019	53000	53000	-8.5	-8.5	-8.5	2.70	10.45	12.1	poor
OL-GP-20116	C	GP	1852	45000	19100	~0	-0.8	-0.8	0.05	10.25	12.25	good
OL-GP-20116.DAT	C	GP	1580	28000	16000	~0	~0	~0	0.03	9.2	10.85	good
OL-GP-20117	C	GP	1718	37834	18100	~0	-0.1	-0.1	0.01	11.25	12.25	good
OL-GP-20117.DAT	C	GP	1565	29597	16000	~0	~0	~0	0.02	10.35	12	good
OL-GP-20118	C	GP	4635	53565	32044	-0.7	-1.6	-1.6	0.10	9.65	11.65	good
OL-GP-20118.DAT	C	GP	1185	31000	22000	-0.5	~0	-0.5	0.08	8.4	12.4	fair
OL-VC-20118	C	VC	359	30000	17208	-0.5	-0.7	-0.7	0.20	6.25	6.25	good
OL-GP-20119	C	GP	1509	60000	22500	~0	~0	~0	0.01	10	10.6	good
OL-VC-20119	C	VC	359	50000	26403	~0	~0	~0	0.32	7.75	7.75	good
OL-GP-20120	C	GP	1463	39669	13985	~0	-0.4	-0.4	0.01	11.95	12.1	good
OL-GP-20121	C	GP	1724	43000	18051	~0	~0	~0	0.02	11.05	11.85	good
OL-GP-20121.DAT	C	GP	1898	31135	14200	~0	~0	~0	0.01	10.95	12.45	good
OL-GP-20122	C	GP	1188	72000	42500	-0.4	-1.1	-1.1	0.05	11.45	12.1	good
OL-GP-20122.DAT	C	GP	1187	50000	39500	-0.9	~0	-0.9	0.01	11.5	12.35	good
OL-GP-20123	C	GP	1266	52759	22730	~0	~0	~0	0.08	10.05	12.2	poor
OL-GP-20123.DAT	C	GP	2375	37931	23290	-0.2	~0	-0.2	0.02	10.75	11.25	good
OL-GP-20124	C	GP	1404	30396	13200	~0	-0.1	-0.1	0.01	11.4	12.05	good
OL-GP-20125	C	GP	1461	29000	14100	-0.2	-0.8	-0.8	0.04	9.6	11.35	good
OL-GP-20126	C	GP	1488	8800	4700	~0	~0	~0	0.01	11.85	11.85	good
OL-GP-20127	C	GP	1640	23000	23000	-1.3	-0.2	-1.3	0.04	9.95	12.6	fair
OL-GP-20128	C	GP	1514	76000	42400	-0.1	-0.1	-0.1	0.03	10.85	11.6	good
OL-GP-20128.DAT	C	GP	4436	62425	34104	~0	-0.5	-0.5	0.03	10.6	10.9	good
OL-GP-20129	C	GP	2327	77348	43000	-0.5	-0.7	-0.7	0.09	9.95	10.65	good
OL-GP-20129-A	C	GP	2345	70632	42000	-0.3	-0.3	-0.3	0.01	11.65	12	good
OL-GP-20130	C	GP	1539	79200	35000	~0	-0.1	-0.1	0.02	10.6	11.85	good
OL-GP-20130.DAT	C	GP	2473	52219	26821	~0	~0	~0	0.01	10.5	12.05	good
OL-GP-20131	C	GP	2578	73000	53000	-0.3	~0	-0.3	0.01	10.95	11.95	good
OL-GP-20132	C	GP	1792	83000	72000	-1.1	-0.1	-1.1	0.03	10.05	12.05	good
OL-GP-20132.DAT	C	GP	9536	70000	61500	-14.2	-14.4	-14.4	4.17	7.8	10.5	poor
OL-GP-20133	C	GP	3437	120000	83000	-1.0	-0.9	-1.0	0.09	8.65	12.1	fair
OL-VC-20133	C	VC	359	64000	55000	-4.8	-8.5	-8.5	6.73	7.75	7.75	poor
OL-GP-20134	C	GP	7288	43000	42000	-3.7	-3.3	-3.3	0.35	7.75	11.95	good for 5-foot analysis, poor for 10-foot analysis
OL-VC-20187	C	VC	359	9000	10000	-1.8	-0.1	-1.8	0.07	9.25	9.25	good
OL-VC-20188	C	VC	359	22500	19726	-8.3	-9.7	-9.7	2.81	9.25	9.25	good
OL-VC-20189	C	VC	359	40000	27614	-1.4	-2.0	-2.0	0.66	9.25	9.25	good
OL-VC-20190	C	VC	359	33000	15000	-0.2	-0.1	-0.2	0.27	9.25	9.25	good
OL-GP-30059	A	GP	1302	24073	13500	-0.1	-0.2	-0.2	0.03	10.8	12.1	good
OL-GP-30060	A	GP	1435	26000	16675	-0.3	~0	-0.3	0.05	10.15	12.05	good

Table VII-1

Summary of Upwelling Velocity and Associated Data

Location ID	Remediation Area	Type[1]	Boundary Concentrations (mg/L)[2]			Upwelling Velocity (cm/yr)			90% Confidence Interval(+/-) (cm/year)	Depth[3] (feet)	Reported Depth[4] (feet)	Comments
			Upper	Lower 10' Analysis	Lower 5' Analysis	10' Analysis	5' Analysis	Upwelling Velocity				
OL-GP-30061		GP	1692	24000	24000	-4.6	-4.6	-4.6	0.50	7.8	8.95	fair but poor fit to data
OL-GP-30061-A		GP	1351	24000	24000	-4.2	-4.2	-4.2	0.43	7	7.8	fair
OL-GP-30062		GP	2083	25000	14730	-0.2	-0.1	-0.1	0.05	10.2	13.2	poor
OL-GP-30063	A	GP	1485	17880	11800	-0.4	-0.9	-0.9	0.05	10.85	12	fair
OL-GP-30064	A	GP	2687	34587	16500	~0	-1.5	-1.5	0.11	9.6	12.4	fair
OL-GP-30065	A	GP	1738	30716	18129	-0.1	~0	-0.1	0.02	10.65	13.05	fair
OL-GP-30066		GP	2443	29500	26900	-16.4	-16.1	-16.1	1.59	9.75	12.2	fair for 5-foot analysis, poor for 10-foot analysis
OL-GP-30067	A	GP	6901	35000	22190	~0	~0	~0	0.06	9.15	11.85	good
OL-GP-30068	A	GP	2196	27408	14444	~0	~0	~0	0.04	10.25	12.25	fair
OL-GP-30069		GP	3317	43000	39135	-2.3	-1.7	-2.3	0.06	10.65	12.1	good
OL-GP-30070		GP	3280	19438	11700	-0.3	-0.9	-0.9	0.04	10.65	13.05	good
OL-GP-30071-1	C	GP	3762	10000	5880	<-32.5	<-32.5	<-32	22.43	12	13.8	poor
OL-GP-30071-2	C	GP	4820	35010	20000	-0.9	-0.1	-0.9	0.09	9.75	11.95	poor
OL-GP-30072-1	C	GP	2297	24632	24500	-24.1	-12.7	-24.1	1.69	13.3	16.05	poor
OL-GP-30072-2	C	GP	7360	79200	40000	-0.6	-1.2	-1.2	0.25	10.15	12.7	poor
OL-GP-30073-1	C	GP	1832	8000	7892	-4.8	-4.8	-4.8	1.27	6.25	8.25	poor
OL-GP-30073-2	C	GP	1086	23256	9700	-0.5	-5.0	-5.0	1.02	10.7	12	poor
OL-GP-30074	C	GP	2042	60000	16000	~0	-2.0	-2.0	0.36	10.95	12.85	poor
OL-GP-30075-1	C	GP	1980	1827	1827		NA	NA	-	1.1	1.1	analysis not possible
OL-GP-30075-2	C	GP	1268	10608	10000	-18.9	-18.9	-18.9	14.04	10.5	13.75	poor
OL-GP-30075-3	C	GP	1373	11000	11000	-7.7	-5.7	-7.7	206.14	7.95	9.1	poor
OL-GP-30075-4	C	GP	5120	9400	9400		-13.0	-13.0	4.15	2.35	2.35	poor
OL-GP-30075-5	C	GP	359	6900	6900		<-32.5	<-32	26.43	3.85	3.85	poor
OL-GP-30075-6	C	GP	2609	16060	11945	NA	NA	NA	-	10	14.7	analysis not meaningful
OL-GP-30075-7	C	GP	1709	1680	1680		NA	NA	-	1.3	1.7	analysis not meaningful
OL-GP-30076-1	C	GP	1500	8200	6500		-1.3	-1.3	0.25	2.7	6.7	poor
OL-GP-30076-2	C	GP	1870	3000	3000		NA	NA	-	3.5	6.05	analysis not meaningful as lots of scatter in data
OL-GP-30076-3	C	GP	1900	2200	2200		<-32.5	<-32	14.99	1.35	1.35	poor
OL-GP-30076-4	C	GP	2343	7600	6650	-0.5	~0	-0.5	0.11	9.35	13	poor
OL-GP-30077	C	GP	2446	20000	9000	~0	-7.5	-7.5	2.28	10.85	11.85	5-foot analysis fair, 10-foot analysis poor
OL-VC-30129	B	VC	359	15500	9250	-0.9	-2.7	-2.7	0.65	9.25	9.25	good
OL-VC-30130	B	VC	359	7300	3326	-0.1	-0.8	-0.8	0.32	9.25	9.25	good
OL-VC-30131		VC	359	4430	4400	-4.7	-3.7	-4.7	0.63	9.25	9.25	good
OL-VC-30132	B	VC	359	2807	2813	-3.2	-2.3	-3.2	0.62	9.25	9.25	good
OL-VC-30133	B	VC	359	21000	11000	-0.1	-0.1	-0.1	0.07	9.25	9.25	good
OL-STA-40055		VC	359	65400	61140	-10.8	-10.6	-10.8	1.43	9.5	9.5	good
OL-STA-40056	A	VC	359	16500	9145	-0.6	-1.4	-1.4	0.18	9.5	9.5	good
OL-STA-40057	A	VC	359	2520	2124	-3.9	-6.0	-3.9	5.59	8.5	8.5	10-foot anlysis fair, 5-foot analysis poor
OL-GP-40074		GP	3124	79200	79200	<-37.5	<-37.5	<-37	11.29	11.05	11.65	fair
OL-GP-40074A		GP	6717	52000	52000	<-37.5	<-37.5	<-37	10.93	15.75	16.75	poor
OL-GP-40075		GP	3539	38000	35050	<-37.5	-29.6	-29.6	3.09	17.2	17.8	5-foot analysis fair, 10-foot analysis poor
OL-GP-40076		GP	2071	33000	29800	-33.0	-33.5	-33.5	6.11	15.75	16.75	poor
OL-GP-40076A		GP	4329	79200	79200	<-37.5	<-37.5	NA	3.21	15.2	16.75	poor
OL-GP-40077	A	GP	2400	40000	40000	<-37.5	<-37.5	<-37	16.81	10.8	10.8	high upwelling velocity
OL-GP-40078	A	GP	1700	42000	41332	<-37.5	<-37.5	<-37	16.57	10.85	11.55	high upwelling velocity
OL-GP-40079	A	GP	359	41000	40812	<-37.5	<-37.5	<-37	17.09	10.05	10.05	high upwelling velocity
OL-GP-40079A	A	GP	3633	42000	42000	<-37.5	<-37.5	<-37	13.41	10.2	11.55	high upwelling velocity
OL-GP-40080		GP	1572	50000	42800	-5.3	-6.3	-6.3	0.41	9.4	10.25	fair
OL-GP-40081		GP	2885	43000	41700	-7.6	-7.5	-7.5	0.41	14.65	15.4	good
OL-GP-40082		GP	1587	45000	40600	-6.5	-8.0	-8.0	0.36	16.05	16.75	good
OL-VC-40083		VC	359	66500	55600	-9.1	-20.2	<-20	8.89	7.75	7.75	poor, minimum estimate of velocity

Table VII-1

Summary of Upwelling Velocity and Associated Data

Location ID	Remediation Area	Type[1]	Boundary Concentrations (mg/L)[2]			Upwelling Velocity (cm/yr)			90% Confidence Interval(+/-) (cm/year)	Depth[3] (feet)	Reported Depth[4] (feet)	Comments
			Upper	Lower 10' Analysis	Lower 5' Analysis	10' Analysis	5' Analysis	Upwelling Velocity				
OL-VC-40084		VC	359	51000	44378	-30.6	<-37.5	<-37	22.73	7.75	7.75	poor
OL-VC-40085		VC	359	61500	59300	-8.1	-7.2	-8.1	1.11	7.75	7.75	good
OL-VC-40087	A	VC	359	46000	46000	<-37.5	<-37.5	<-37	13.70	7.75	7.75	fair
OL-VC-40088	A	VC	359	46000	45200	<-37.5	<-37.5	<-37	10.69	7.75	7.75	fair
OL-VC-40089	A	VC	359	47100	47100	<-37.5	<-37.5	<-37	11.98	7.75	7.75	fair
OL-VC-40091		VC	359	55000	52870	-9.5	-10.3	-10.3	2.11	7.75	7.75	good
OL-VC-40092		VC	359	57500	54200	-6.9	-6.8	-6.9	1.49	7.75	7.75	good
OL-VC-40093		VC	359	54600	51378	-16.0	-14.5	-16.0	5.26	7.75	7.75	good
OL-GP-40107	A	GP	477	3600	2750	-1.4	-1.4	-1.4	0.01	15.9	16.75	good
OL-GP-40108	A	GP	1129	6200	3343	~0	-1.4	-1.4	0.02	16.05	16.75	good
OL-GP-40109	A	GP	1155	70000	38000	-0.6	-0.6	-0.6	0.01	15.75	16.75	fair
OL-GP-40110	A	GP	10703	200000	191000	-3.5	-2.8	NA	0.74	10.55	11.8	poor
OL-GP-40110A	A	GP	2499	84000	80000	-8.6	-8.7	-8.7	0.55	15	16.75	fair to good
OL-GP-40114		GP	1108	62000	56950	-10.1	-10.6	-10.6	0.51	15.3	16.75	good
OL-GP-40115		GP	1508	67000	63000	-8.3	-7.8	-8.3	0.44	16	16.75	good
OL-GP-40116		GP	1514	70000	65000	-6.8	-6.7	-6.8	0.39	15.6	16.5	good
OL-GP-40117		GP	1102	46000	46000	-11.1	-7.5	-11.1	0.66	12.05	13.25	fair
OL-GP-40118		GP	1455	46000	45000	-5.7	-4.8	-5.7	0.43	11.5	12.2	good
OL-GP-40119		GP	1974	47500	43800	-8.3	-8.2	-8.3	0.80	10.4	11.2	good
OL-GP-40123		GP	72	74386	74386		NA	NA	-	2.1	3.2	no trend in data
OL-VC-40126		VC	359	57800	54000	-12.8	-12.0	-12.8	2.78	7.75	7.75	good
OL-VC-40127		VC	359	60000	56700	-19.6	-16.4	-19.6	5.94	7.75	7.75	poor
OL-VC-40128		VC	359	60300	60000	-17.0	-11.7	-17.0	1.65	7.75	7.75	good
OL-VC-40129		VC	359	78000	71500	-23.6	-22.2	-23.6	8.07	7.75	7.75	fair to poor
OL-VC-40130		VC	359	76000	76000	-17.9	-11.9	-17.9	6.14	7.75	7.75	poor
OL-VC-40131		VC	359	76300	72400	-27.4	-22.4	<-27	12.80	7.75	7.75	poor, minimum estimate of velocity
OL-GP-40143		GP	4583	79200	70000	<-37.5	<-37.5	<-37	7.76	15.55	16.75	fair
OL-GP-40144		GP	1000	100000	100000	<-37.5	<-37.5	<-37	21.18	14.75	16.75	poor
OL-GP-40145		GP	5020	100000	100000	<-37.5	<-37.5	NA	13.91	14.95	16.75	off scale at 0.4 feet
OL-GP-40148	A	GP	1288	15000	7500	-0.7	-1.5	-1.5	0.15	11.05	12	fair
OL-GP-40149	A	GP	1180	14000	6500	~0	~0	~0	0.03	10.9	12.3	good
OL-VC-40149	A	VC	359	11400	11400		-1.5	-1.5	1.50	5.1	6.25	fair
OL-GP-40150	A	GP	1072	11259	4674	~0	-0.3	-0.3	0.03	10.85	11.95	good
OL-GP-40151	A	GP	1107	6500	3779	~0	-2.0	-2.0	0.07	10.6	12	good
OL-VC-40151	A	VC	359	5560	2680	-0.3	-3.4	-3.4	0.70	9.25	9.25	fair
OL-GP-40152	A	GP	1108	6000	3488	~0	~0	~0	0.02	10.25	11.6	good
OL-GP-40153	A	GP	1153	10000	4893	~0	~0	~0	0.02	11.15	11.9	good
OL-GP-40154	A	GP	1239	12000	6800	-0.2	~0	-0.2	0.02	10.25	11.85	good
OL-VC-40154	A	VC	359	18000	7270	~0	~0	~0	0.16	9.25	9.25	good
OL-GP-40155	A	GP	1267	18875	10000	~0	-0.3	-0.3	0.01	10.8	12.05	good
OL-GP-40156	A	GP	2676	73000	55000	-1.8	-1.6	-1.8	0.10	10.75	11.75	good
OL-GP-40157	A	GP	1285	14000	7140	~0	~0	~0	0.03	10.55	11.75	good
OL-VC-40157	A	VC	359	16000	7000	-0.2	-1.7	-1.7	0.34	9.25	9.25	good
OL-GP-40158	A	GP	1213	7163	3800	~0	-2.2	-2.2	0.12	10.1	12	good
OL-GP-40159	A	GP	1192	4773	3500	-1.1	-3.0	-3.0	0.23	10.4	12.05	fair
OL-GP-40160	A	GP	881	3625	3474	-6.0	-5.8	-6.0	0.57	10.25	11.9	good
OL-GP-40161	A	GP	986	3900	3512	-1.7	-1.2	-1.7	0.07	10.05	12.05	good
OL-GP-40162	A	GP	1185	6000	3420	~0	-1.0	-1.0	0.06	9.9	12	good
OL-GP-40163	A	GP	1432	6113	5700	-5.4	-5.4	-5.4	0.23	10.55	11.85	fair
OL-GP-40163-A	A	GP	1449	6500	6000	-5.4	-5.4	-5.4	0.25	10.5	11.7	fair
OL-GP-40164.DAT	A	GP	957	19799	11350	-0.3	-0.9	-0.9	0.03	9.95	10.3	good

Table VII-1

Summary of Upwelling Velocity and Associated Data

Location ID	Remediation Area	Type[1]	Boundary Concentrations (mg/L)[2]			Upwelling Velocity (cm/yr)			90% Confidence Interval(+/-) (cm/year)	Depth[3] (feet)	Reported Depth[4] (feet)	Comments
			Upper	Lower 10' Analysis	Lower 5' Analysis	10' Analysis	5' Analysis	Upwelling Velocity				
OL-GP-40165.DAT		GP	1034	78194	49500	-0.4	-0.5	-0.5	0.03	10.25	11.55	fair
OL-VC-40165		VC	359	41000	31030	-2.1	-2.6	-2.6	0.30	9.25	9.25	good
OL-GP-40166	A	GP	1065	9000	4835	~0	-1.3	-1.3	0.04	10.75	12.1	good
OL-GP-40167.DAT	A	GP	1015	6000	5400	-2.3	-1.5	-2.3	0.06	10.7	11.3	fair
OL-GP-40168.DAT	A	GP	1196	5000	5000	-7.1	-5.7	-7.1	0.25	8.95	10.95	good
OL-VC-40168	A	VC	359	4380	4327		-7.5	-7.5	1.38	5.2	5.2	good
OL-GP-40169.DAT	A	GP	786	4200	3770	-2.6	-1.7	-2.6	0.08	10.15	11.75	good
OL-GP-40170.DAT	A	GP	1003	4400	3735	-1.0	~0	-1.0	0.02	9.9	11.8	fair
OL-GP-40171.DAT	A	GP	1116	5445	3600	-0.2	-0.2	-0.2	0.02	11.05	11.8	good
OL-GP-40172.DAT	A	GP	572	7100	3460	~0	~0	~0	0.05	9.35	11	good
OL-VC-40172	A	VC	359	15000	7233	-0.2	-1.3	-1.3	0.45	7.75	7.75	good
OL-GP-40173.DAT		GP	759	27000	17431	-0.8	-0.7	-0.8	0.03	8.75	10.35	good
OL-GP-40174.DAT	A	GP	1362	30461	15150	~0	-0.2	-0.2	0.02	11	11.75	good
OL-GP-40175.DAT	A	GP	1074	6585	5370	-2.3	-2.2	-2.3	0.11	10.15	11.75	good
OL-GP-40176.DAT	A	GP	1018	7200	6000	-2.3	-2.3	-2.3	0.57	9.7	11.7	poor
OL-GP-40177.DAT	A	GP	1108	3850	3590	-5.0	-5.5	-5.5	0.29	9.3	11	good
OL-GP-40178.DAT	A	GP	1231	6200	4393	~0	~0	~0	0.11	7.7	11.6	good
OL-GP-40179.DAT	A	GP	1264	17782	8531	~0	~0	~0	0.02	10.75	12.05	good
OL-VC-40179	A	VC	359	27000	13484	-0.3	-1.3	-1.3	0.37	7.75	7.75	good
OL-GP-40180.DAT		GP	2173	68000	66500	-3.6	-2.2	-3.6	0.10	10.3	11.8	good
OL-GP-40181.DAT		GP	21702	72000	70000	-5.3	-5.1	-5.3	0.55	9.5	11.5	good
OL-GP-40182.DAT	A	GP	2036	60000	47000	-9.8	-11.3	-11.3	2.67	9.05	11.1	poor
OL-GP-40183	A	GP	6962	120000	120000	-5.3	-4.5	-5.3	0.75	10.85	12.05	poor
OL-GP-40183.DAT	A	GP	1619	130000	120000	-2.3	-1.9	-2.3	0.22	10.1	11.5	poor
OL-GP-40184	A	GP	5276	120000	120000	-4.5	-3.0	-4.5	0.33	11.75	12	poor
OL-GP-40184.DAT	A	GP	1604	120000	74286	-0.4	-0.4	-0.4	0.06	9.5	10.6	fair
OL-VC-40184	A	VC	359	47000	47000		NA	NA	-	5.25	5.25	not analyzable due to data scatter
OL-GP-40185	A	GP	10701	120000	120000	-22.5	-19.5	NA	7.55	11	11.65	off scale at 0.4 feet
OL-GP-40185.DAT	A	GP	1713	150000	150000	-7.5	-6.0	NA	1.78	9.3	10.55	off scale at 0.95 feet
OL-GP-40186	A	GP	3178	120000	120000	-12.0	-7.5	NA	1.56	11.05	11.35	off scale at 1 foot
OL-GP-40186.DAT	A	GP	3672	120000	120000	-3.0	-2.3	-3.0	0.30	9.9	10.85	fair
OL-GP-40187.DAT		GP	1403	100000	100000		-3.8	NA	0.79	0.8	1.4	insufficient data to analyze
OL-VC-40238		VC	359	41163	38000	-3.2	-2.5	-3.2	0.29	9.25	9.25	good
OL-VC-40239	A	VC	359	41000	30000	-1.6	-1.5	-1.6	0.11	9.25	9.25	good
OL-VC-40240	A	VC	359	17000	7600	-0.1	-1.3	-1.3	0.39	9.25	9.25	good
OL-VC-40241	A	VC	359	5000	4000	-3.7	-5.0	-5.0	0.42	8.25	8.25	good
OL-VC-40242	A	VC	359	17000	10000	-1.3	-3.6	-3.6	0.70	9.25	9.25	good
OL-VC-40243	A	VC	359	18700	12000	-0.6	-0.1	-0.6	0.14	9.25	9.25	good
OL-VC-40244	A	VC	359	60000	60000	<-35.0	<-35.0	<-35	17.19	9.25	9.25	good
OL-VC-40245	A	VC	359	4000	3485	-5.1	-6.1	-6.1	0.38	9.25	9.25	good
OL-VC-40246	A	VC	359	3400	3100	-7.5	-7.8	-7.8	1.31	9.25	9.25	good
OL-VC-40247	A	VC	359	3000	2785	-4.7	-4.3	-4.7	0.49	9.25	9.25	good
OL-VC-40248	A	VC	359	3250	3300	-5.0	-3.6	-5.0	0.00	8.25	8.25	good
OL-VC-40249	A	VC	359	4200	4000	-4.6	-3.9	-4.6	1.08	8.25	8.25	good
OL-VC-40250	A	VC	359	3600	3049	-2.7	-2.6	-2.7	0.90	9.25	9.25	good
OL-GP-50026	A	GP	1000	22000	11250	-0.2	-0.3	-0.3	0.02	11	12.05	good
OL-GP-50027	A	GP	1283	25000	11350	~0	-0.4	-0.4	0.04	9.4	12.1	good
OL-GP-50028		GP	1491	41989	32500	-1.4	-1.5	-1.5	0.05	10.6	11.8	good
OL-GP-50036	E	GP	2240	2258	2258		NA	NA	-	1.45	1.7	insufficient data to analyze
OL-GP-50037	E	GP	1993	34729	11800	~0	-4.6	-4.6	0.88	10.55	12.7	fair
OL-GP-50038	E	GP	1833	19918	10500	-0.1	-0.4	-0.4	0.02	10.3	12.25	good

Table VII-1

Summary of Upwelling Velocity and Associated Data

Location ID	Remediation Area	Type[1]	Boundary Concentrations (mg/L)[2]			Upwelling Velocity (cm/yr)			90% Confidence Interval(+/-) (cm/year)	Depth[3] (feet)	Reported Depth[4] (feet)	Comments
			Upper	Lower 10' Analysis	Lower 5' Analysis	10' Analysis	5' Analysis	Upwelling Velocity				
OL-GP-50039	E	GP	1835	28235	14350	~0	-0.6	-0.6	0.02	10.8	12.9	good
OL-GP-50040	E	GP	3000	62289	38700	-0.5	-0.2	-0.5	0.02	10.45	12.65	good
OL-GP-50041	E	GP	3500	35000	20000	-0.3	-0.4	-0.4	0.01	11.45	14.45	good
OL-GP-50042	E	GP	3932	38000	19260	~0	-2.5	-2.5	0.09	11.3	12.2	fair
OL-GP-50043		GP	1311	34000	17436	-0.3	-0.6	-0.6	0.02	11.25	12.25	good
OL-GP-50044	A	GP	1346	32000	20000	-0.7	-0.5	-0.7	0.02	10.6	12.2	good
OL-GP-50045	A	GP	1035	28000	18000	-0.5	-1.1	-1.1	0.05	10.2	11.2	good
OL-GP-50046	A	GP	1277	37000	16658	~0	-0.2	-0.2	0.03	9.85	10.65	good
OL-GP-50047	A	GP	1276	28000	15000	-0.1	~0	-0.1	0.02	10.7	11.85	good
OL-GP-50048		GP	1072	50000	27000	~0	-0.4	-0.4	0.07	9.65	10.65	poor
OL-GP-50049	A	GP	1731	28000	15800	-0.6	-1.7	-1.7	0.12	8.4	10.4	good
OL-GP-50050	A	GP	1359	19915	11342	-0.4	-0.4	-0.4	0.02	11.15	11.95	good
OL-GP-50051		GP	3689	34888	28000	-6.0	-8.3	-8.3	0.76	10.75	12.05	fair to poor
OL-VC-50071		VC	359	22100	14977	-5.3	-16.8	-16.8	4.65	9.25	9.25	good
OL-STA-60072	E	VC	359	46000	23000	~0	~0	~0	0.24	8.5	8.5	fair
OL-STA-60078		VC	359	28000	17500	-1.3	-4.4	-4.4	0.89	8.5	8.5	good
OL-STA-60081	E	VC	359	44400	15300	~0	~0	~0	0.25	9.5	9.5	fair
OL-STA-60087	E	VC	359	20500	13500	-1.1	-2.0	-2.0	0.15	9.5	9.5	good
OL-STA-60090	E	VC	359	3800	2200	-0.2	-0.3	-0.3	0.08	8.5	8.5	good
OL-STA-60096	E	VC	359	10000	4500	-0.3	-0.7	-0.7	0.13	7.5	7.5	good
OL-GP-60119	E	GP	1647	19000	9500	~0	~0	~0	0.03	10.45	12.05	good
OL-GP-60120	E	GP	1461	20000	10017	~0	-0.5	-0.5	0.02	10.25	12.1	good
OL-GP-60121	E	GP	1004	36000	18500	-0.2	~0	-0.2	0.02	9.6	11	good
OL-GP-60122	E	GP	1515	13000	6988	~0	-0.6	-0.6	0.02	10.65	11.55	good
OL-GP-60123	E	GP	1322	15000	7200	~0	-0.9	-0.9	0.03	10.35	12.05	good
OL-GP-60124	E	GP	986	15000	9989	-0.8	-1.1	-1.1	0.05	10.35	11.35	good
OL-GP-60125	E	GP	2000	28000	18500	-0.6	-0.3	-0.6	0.06	8.45	11.45	good
OL-GP-60125.DAT	E	GP	1683	7000	5221	-0.8	-0.8	-0.8	0.06	9.05	10.05	good
OL-GP-60125-A	E	GP	2497	8000	6400	-0.9	-0.4	-0.9	0.03	9.6	11.5	good to fair to 7 feet
OL-VC-60125	E	VC	359	12000	4700	~0	-0.8	-0.8	0.34	9.25	9.25	good
OL-GP-60126	E	GP	1440	6200	5570	-1.6	-0.8	-1.6	0.05	10.8	11.8	good
OL-GP-60127	E	GP	1704	10000	5100	~0	-1.0	-1.0	0.05	10.65	12.05	fair
OL-VC-60127	E	VC	359	12500	5895	-0.1	-1.7	-1.7	0.47	7.75	7.75	fair, first data points offset
OL-GP-60128	E	GP	921	11000	6400	-0.2	~0	-0.2	0.02	9.95	11.4	good
OL-GP-60129	E	GP	924	40000	13124	~0	~0	~0	0.01	11.55	12.05	fair
OL-VC-60129	E	VC	359	39000	25000	-0.3	~0	-0.3	0.30	9.05	9.05	fair
OL-GP-60130	E	GP	2500	26000	12400	~0	-1.5	-1.5	0.10	10	11.1	good
OL-GP-60130.DAT	E	GP	1515	6000	4250	-0.3	-0.3	-0.3	0.03	11.3	12.3	good
OL-GP-60130-A	E	GP	1569	7500	5000	-0.2	-0.5	-0.5	0.05	9.25	11.65	good
OL-GP-60131	E	GP	2200	11629	6430	-0.5	-1.9	-1.9	0.08	11.45	11.95	fair to poor
OL-GP-60132	E	GP	1045	5410	4135	-1.5	-2.4	-2.4	0.15	9.25	10.2	good
OL-GP-60133	E	GP	962	5600	3500	-0.4	-1.0	-1.0	0.06	9.45	10.4	good
OL-GP-60134	E	GP	1173	24520	16000	-0.4	~0	-0.4	0.04	9.45	10.45	good
OL-GP-60135	E	GP	1280	42000	30158	-0.8	~0	-0.8	0.02	10.2	11	fair
OL-GP-60136	E	GP	2000	16000	11021	-1.3	-1.8	-1.8	0.10	8.6	9.45	fair to good
OL-GP-60136.DAT	E	GP	1748	4700	3900	-2.1	-2.1	-2.1	0.27	9	11	poor
OL-GP-60136-A	E	GP	1559	7700	4303	~0	-2.0	-2.0	0.07	9.05	11.55	good
OL-GP-60136-B	E	GP	2120	7700	4550	~0	-1.1	-1.1	0.10	8.8	11.9	good
OL-GP-60137	E	GP	1640	8000	5900	-1.1	-1.4	-1.4	0.08	11.05	11.9	good
OL-GP-60138	E	GP	919	5700	4597	-2.1	~0	-2.1	0.10	8.7	10.45	poor
OL-GP-60139	E	GP	907	9700	4941	-0.2	-0.9	-0.9	0.10	9.55	10.5	fair

Table VII-1

Summary of Upwelling Velocity and Associated Data

Location ID	Remediation Area	Type[1]	Boundary Concentrations (mg/L)[2]			Upwelling Velocity (cm/yr)			90% Confidence Interval(+/-) (cm/year)	Depth[3] (feet)	Reported Depth[4] (feet)	Comments
			Upper	Lower 10' Analysis	Lower 5' Analysis	10' Analysis	5' Analysis	Upwelling Velocity				
OL-GP-60140	E	GP	1031	16000	11899	-0.7	-0.2	-0.7	0.04	9.7	10.9	fair
OL-GP-60141	E	GP	1579	28000	14200	-0.3	-1.8	-1.8	0.27	10.15	10.85	fair to poor
OL-GP-60142		GP	3360	21000	12000	~0	-1.3	-1.3	0.05	9.9	11.95	good
OL-GP-60142.DAT		GP	1546	6900	4020	~0	-0.7	-0.7	0.08	8.5	9.9	good
OL-GP-60142-A		GP	2000	8100	4600	~0	-1.4	-1.4	0.05	9.5	11.9	good
OL-GP-60143	E	GP	2300	18000	11800	-1.4	-2.5	-2.5	0.12	10.05	11.9	good
OL-GP-60143.DAT	E	GP	2000	8300	5278	~0	-0.4	-0.4	0.08	9.1	11.75	poor
OL-GP-60143-A	E	GP	1800	9000	5050	-0.7	-2.5	-2.5	0.08	9.4	12.1	good
OL-GP-60144	E	GP	1362	6800	4550	-0.4	-1.8	-1.8	0.09	11.25	12.25	good
OL-GP-60145	E	GP	904	4000	3350	-2.2	-2.6	-2.6	0.18	8.55	8.95	good
OL-GP-60146	E	GP	1060	12106	8400	-0.5	~0	-0.5	0.02	10.05	11.3	good
OL-GP-60147	E	GP	690	15000	8000		~0	~0	0.23	2.75	3.8	poor
OL-GP-60148	E	GP	821	13854	8600	-1.1	-2.2	-2.2	0.22	10.05	10.85	fair
OL-GP-60149	E	GP	3500	20000	12000	-1.1	-2.2	-2.2	0.12	9.2	11.8	good
OL-GP-60149.DAT	E	GP	1524	5840	4278	-0.8	-2.2	-2.2	0.09	11.45	13.1	good
OL-GP-60149-A	E	GP	2000	8000	4670	-0.7	-2.1	-2.1	0.10	9.55	11.9	good
OL-GP-60150	E	GP	3000	25000	14600	-0.7	-2.4	-2.4	0.13	9.85	11.4	good to fair
OL-GP-60150.DAT	E	GP	1693	7500	4525	-0.8	-1.9	-1.9	0.07	11.1	11.9	good to fair
OL-GP-60150-A	E	GP	1550	7000	5100	-1.4	-2.1	-2.1	0.07	9.45	11.5	good
OL-VC-60150	E	VC	359	9000	4300	~0	~0	~0	0.10	9.25	9.25	good
OL-GP-60151	E	GP	1520	5500	4400	-0.7	-0.8	-0.8	0.08	9.4	12.1	fair to good
OL-GP-60152	E	GP	910	4920	3475	-0.9	-1.9	-1.9	0.09	9.65	10.7	good
OL-VC-60152	E	VC	359	5000	3104	-0.9	-2.1	-2.1	0.47	7.75	7.75	good
OL-GP-60153	E	GP	1070	1949	1949		NA	NA	-	1.05	2.3	insufficient data to analyze
OL-GP-60154	E	GP	677	13350	8856	-0.4	-0.2	-0.4	0.04	11.05	11.15	fair
OL-VC-60154	E	VC	359	15070	11068	-1.1	-0.9	-1.1	0.10	9.25	9.25	good
OL-GP-60155	E	GP	982	7736	7000		-16.8	-16.8	3.55	5.05	5.55	fair to poor
OL-GP-60156	E	GP	3049	18000	13000	-1.6	-3.4	-3.4	0.09	11.35	11.35	good
OL-GP-60156-A	E	GP	1824	5700	4780	-2.8	-4.0	-4.0	0.20	7.15	14.7	good
OL-GP-60157	E	GP	2673	7000	4300	~0	~0	~0	0.11	11.45	11.85	poor
OL-GP-60158	E	GP	1300	5300	4100	-1.8	-2.5	-2.5	0.15	9.85	12.15	good
OL-GP-60159	E	GP	1070	8872	4955	~0	-0.6	-0.6	0.05	9.45	10.75	good to fair
OL-GP-60160	E	GP	617	2750	2750		-3.6	-3.6	0.96	2.6	3.85	poor
OL-GP-60161	E	GP	4200	18000	11900	-1.4	-2.5	-2.5	0.09	11	11.55	good to fair
OL-GP-60161.DAT	E	GP	1969	5000	3950	-1.2	-1.9	-1.9	0.05	10.55	12.25	good
OL-GP-60161-A	E	GP	1700	5800	4500	-1.7	-3.1	-3.1	0.13	10.4	11.85	good
OL-GP-60162	E	GP	3800	18000	12200	-1.1	-2.1	-2.1	0.07	11.35	12.1	good
OL-GP-60162.DAT	E	GP	1656	5000	4000	-2.5	-3.8	-3.8	0.13	11.2	12.1	good to fair
OL-GP-60162-A	E	GP	1645	5400	4750	-2.5	-2.6	-2.6	0.16	7.55	11.55	good
OL-VC-60162	E	VC	359	7750	4912	~0	~0	~0	0.23	9.1	9.1	fair
OL-GP-60163	E	GP	2200	14000	10000	-2.5	-4.3	-4.3	0.22	9.65	11.85	good
OL-GP-60163-A	E	GP	1400	4500	4120	-3.3	-3.3	-3.3	0.20	7.8	11.55	good
OL-GP-60164	E	GP	1786	12500	8300	-1.2	-1.8	-1.8	0.21	7.7	11.3	fair
OL-GP-60165	E	GP	783	11000	6600	-0.5	-0.3	-0.5	0.02	8.9	10.5	good
OL-GP-60166	E	GP	742	13324	7400	-0.2	~0	-0.2	0.04	9.9	10.65	good
OL-GP-60167	E	GP	3300	20000	13500	-0.8	-1.9	-1.9	0.05	11.85	11.85	good
OL-GP-60167.DAT	E	GP	2073	6000	4470	-1.4	-2.1	-2.1	0.06	10.75	12.45	good
OL-GP-60167-A	E	GP	1700	7000	5400	-1.3	-1.9	-1.9	0.10	9.4	11.3	good
OL-GP-60168	E	GP	2700	20000	12000	-0.1	-3.2	-3.2	0.12	11.25	11.85	good
OL-GP-60168.DAT	E	GP	1990	5800	4000	-0.5	-3.5	-3.5	0.12	10.6	12	good
OL-GP-60168-A	E	GP	1800	6000	4680	-2.8	-3.5	-3.5	0.18	9.8	12	good to 5 feet

Table VII-1

Summary of Upwelling Velocity and Associated Data

Location ID	Remediation Area	Type[1]	Boundary Concentrations (mg/L)[2]			Upwelling Velocity (cm/yr)			90% Confidence Interval(+/-) (cm/year)	Depth[3] (feet)	Reported Depth[4] (feet)	Comments
			Upper	Lower 10' Analysis	Lower 5' Analysis	10' Analysis	5' Analysis	Upwelling Velocity				
OL-VC-60168	E	VC	359	7040	3016	~0	~0	~0	0.23	9.1	9.1	good
OL-GP-60169	E	GP	1833	5750	4200	-0.8	-2.3	-2.3	0.13	9	12	fair
OL-GP-60170	E	GP	1330	5000	4000	-1.6	-2.2	-2.2	0.07	10.65	11.8	good
OL-GP-60170-200	E	GP	2200	15000	10600	-1.4	-1.8	-1.8	0.06	10.35	11.8	good to 5 feet
OL-GP-60170-400	E	GP	4900	16000	13850	-2.6	-2.8	-2.8	0.09	10.4	12.1	good
OL-GP-60171	E	GP	829	11000	5933	~0	-0.8	-0.8	0.04	9	10.75	good
OL-VC-60171	E	VC	359	9600	5153	~0	~0	~0	0.18	9.25	9.25	good
OL-GP-60172	E	GP	1200	12000	6350	-0.2	-0.2	-0.2	0.02	9.2	13.3	good
OL-GP-60173	E	GP	961	11000	5150	~0	-0.2	-0.2	0.04	9.45	10.65	good to five feet
OL-GP-60174	E	GP	1784	6155	4125	-0.5	-3.7	-3.7	0.15	11.5	11.95	good
OL-GP-60175	E	GP	1600	5000	4300	-1.7	-1.8	-1.8	0.11	10.1	11.7	good
OL-GP-60176	E	GP	1007	5380	4220	-1.4	-1.4	-1.4	0.06	10	11	good
OL-GP-60177	E	GP	704	16000	8500	-0.2	-0.2	-0.2	0.04	9.2	10.55	good
OL-GP-60178	E	GP	928	23981	12830	-0.3	-2.0	-2.0	0.06	10.6	11.75	good
OL-GP-60179	E	GP	480	17500	8000	~0	-0.6	-0.6	0.24	9.6	10.7	good
OL-VC-60179	E	VC	359	23000	11000	-0.2	~0	-0.2	0.60	6.25	6.25	fair
OL-GP-60180	E	GP	1125	4150	3600	-2.0	-2.0	-2.0	0.06	9.75	10.2	good
OL-GP-60181	E	GP	1181	13098	6000	~0	-0.2	-0.2	0.03	10.35	11.05	good
OL-VC-60181	E	VC	359	8670	4910	~0	~0	~0	0.04	9.25	9.25	good
OL-GP-60182	E	GP	683	19762	12300	-0.2	-0.2	-0.2	0.05	8.7	10.55	good
OL-GP-60183	E	GP	874	26249	18500	-1.1	-1.1	-1.1	0.06	9.9	10.75	good
OL-GP-60184	E	GP	1404	60000	42000	-1.5	-1.6	-1.6	0.07	10.8	11.15	good to five feet
OL-GP-60185	E	GP	866	18250	9553	-0.5	-1.5	-1.5	0.21	9.1	10.7	fair
OL-GP-60186	E	GP	783	23500	15300	-0.7	-1.2	-1.2	0.11	9.5	10.65	fair
OL-GP-60187	E	GP	1016	35555	27400	-1.4	-1.4	-1.4	0.07	10	10.9	fair
OL-GP-60188	E	GP	738	45000	18000	NA	NA	NA	-	9.85	10.6	profile not analyzable
OL-GP-60189	E	GP	1176	20500	14000	-0.5	~0	-0.5	0.04	8.85	10.5	fair
OL-GP-60190	E	GP	631	14000	8800	-0.4	~0	-0.4	0.05	8.6	10.35	fair to 5 feet
OL-GP-60191	E	GP	1227	60000	35700	-1.2	-2.1	-2.1	0.16	9.75	10.85	fair
OL-VC-60191	E	VC	359	37500	35568	-2.7	-1.8	-2.7	0.84	7.75	7.75	fair
OL-GP-60192	E	GP	2783	60000	42000	-1.0	-1.1	-1.1	0.04	10.7	11.8	good
OL-GP-60193	E	GP	2000	5800	4220	-1.4	-2.2	-2.2	0.08	11.05	12.05	good
OL-GP-60194	E	GP	1088	3400	3300	-3.1	-2.5	-3.1	0.30	8.55	9.55	5-foot analysis good, 10-foot analysis poor
OL-STA-70040	E	VC	359	50000	46500	-5.4	-5.5	-5.5	1.27	7.5	7.5	good
OL-STA-70042	E	VC	359	4400	2142	~0	~0	~0	0.14	8.5	8.5	good
OL-STA-70043	E	VC	359	4300	2383	-0.2	-0.6	-0.6	0.49	8.5	8.5	good
OL-GP-70051	E	GP	2305	28000	28000		-7.0	-7.0	2.25	3.35	4.35	poor
OL-GP-70051A	E	GP	1200	33500	32000	-4.9	-4.9	-4.9	0.69	15.75	16.75	poor
OL-GP-70052	E	GP	2316	74194	35600	~0	-7.0	-7.0	1.70	14.7	15.3	poor
OL-GP-70053	E	GP	1357	60000	24100	~0	-9.8	-9.8	1.74	15.95	16.75	poor
OL-GP-70053-1	E	GP	1537	17000	17000		-6.3	-6.3	1.69	3.6	4.7	poor
OL-GP-70053-2	E	GP	359	9323	9323		NA	NA	-	3.1	3.1	data not analyzable
OL-GP-70054	E	GP	2707	60000	60000	-4.6	-3.2	-4.6	0.31	9.65	11.05	poor
OL-GP-70054A	E	GP	1000	120000	120000	-0.8	-0.8	-0.8	0.16	9.05	9.9	poor
OL-GP-70055	E	GP	18893	86514	74000	-1.7	-1.2	-1.7	0.04	11.95	12.95	good
OL-GP-70056	E	GP	1692	73000	49627	-1.5	-2.1	-2.1	0.07	16.35	16.75	fair
OL-VC-70057	E	VC	359	16900	15500	-5.3	-5.5	-5.5	1.36	7.75	7.75	good
OL-VC-70058	E	VC	359	17000	15350	-7.4	-8.2	-8.2	0.98	7.75	7.75	good
OL-VC-70059	E	VC	359	18200	16696	-13.7	-13.8	-13.8	4.07	7.75	7.75	fair
OL-VC-70061	E	VC	359	43800	34623	-2.0	-2.2	-2.2	0.62	7.75	7.75	good
OL-VC-70062	E	VC	359	38500	34400	-3.1	-2.8	-3.1	2.00	7.75	7.75	fair, data scattered

Table VII-1

Summary of Upwelling Velocity and Associated Data

Location ID	Remediation Area	Type[1]	Boundary Concentrations (mg/L)[2]			Upwelling Velocity (cm/yr)			90% Confidence Interval(+/-) (cm/year)	Depth[3] (feet)	Reported Depth[4] (feet)	Comments
			Upper	Lower 10' Analysis	Lower 5' Analysis	10' Analysis	5' Analysis	Upwelling Velocity				
OL-VC-70063	E	VC	359	40000	35611	-2.9	-2.7	-2.9	0.53	7.75	7.75	good
OL-GP-70075	E	GP	3463	18846	15800	-2.3	-3.5	-3.5	0.17	15.2	16.75	fair
OL-GP-70076	E	GP	2725	20611	15800	-1.4	-3.2	-3.2	0.18	15.1	16.75	fair
OL-GP-70077	E	GP	750	20304	14950	-3.9	-7.0	-7.0	0.71	15.65	16.75	fair to 3 feet
OL-GP-70078	E	GP	1110	47000	36000	-1.4	-1.6	-1.6	0.04	15.65	16.75	poor
OL-GP-70079	E	GP	993	56000	45500	-2.2	-2.2	-2.2	0.07	14.9	16.75	fair
OL-GP-70080	E	GP	4806	4895	4717	NA	NA	NA	-	15.25	16.75	data not analyzable - may be very high upwelling velocity
OL-GP-70081	E	GP	2112	97000	62000	-0.7	-0.7	-0.7	0.06	15.15	16.75	poor
OL-GP-70082	E	GP	1840	51155	42701	-1.7	-1.6	-1.7	0.05	15.25	16.75	good
OL-GP-70083	E	GP	2193	45000	39000	-3.2	-3.5	-3.5	0.28	15.35	16.75	fair
OL-GP-70088	E	GP	5000	15000	14500	-2.8	-2.0	-2.8	0.08	10.75	11.85	good to 6 feet
OL-GP-70088.DAT	E	GP	2400	5056	4870	-3.5	-3.5	-3.5	0.22	10.7	10.7	good to 6 feet
OL-GP-70088-A	E	GP	1686	8750	5633	-0.9	-1.9	-1.9	0.06	11.55	12	good to 6.5 feet
OL-GP-70089-A	E	GP	2977	7975	5700	-0.6	-2.5	-2.5	0.12	10.45	11.85	good
OL-VC-70089	E	VC	359	5100	4000	-0.9	~0	-0.9	0.17	9.25	9.25	good
OL-GP-70090	E	GP	1634	6771	5000	-1.6	-1.9	-1.9	0.08	10.65	11.95	good
OL-GP-70091	E	GP	1460	4311	3650	-2.6	-3.5	-3.5	0.29	10.05	10.95	fair to 6.5 feet
OL-GP-70092	E	GP	1437	4800	3780	-2.7	-4.2	-4.2	0.58	7.55	8.95	poor
OL-GP-70093	E	GP	1175	6200	4280	-1.8	-3.2	-3.2	0.14	9.1	10.1	good
OL-VC-70093	E	VC	359	6300	3280	~0	~0	~0	0.27	9.15	9.15	good
OL-GP-70094	E	GP	1100	12500	7718	-0.8	-0.7	-0.7	0.02	10.25	10.55	good
OL-GP-70095	E	GP	838	4200	4200	-5.9	-5.9	-5.9	0.54	8.35	10.1	good to 4 feet
OL-GP-70096	E	GP	1600	7400	5288	-1.1	-1.5	-1.5	0.06	10.9	10.9	good
OL-GP-70097	E	GP	1303	20000	11000	-0.2	~0	-0.2	0.04	10.25	11.1	good
OL-GP-70098	E	GP	609	6500	6500		-0.2	-0.2	0.23	2.45	3.25	poor
OL-GP-70099	E	GP	1068	6000	4250	-1.5	-2.1	-2.1	0.14	10.05	11.05	good to fair
OL-GP-70100	E	GP	1023	10907	7200	-0.4	-0.4	-0.4	0.01	11.2	11.65	good
OL-VC-70100	E	VC	359	9360	5302	-0.4	-1.2	-1.2	0.45	9.25	9.25	good
OL-GP-70101	E	GP	1112	24161	16000	-0.5	~0	-0.5	0.02	9.5	11	good
OL-GP-70102	E	GP	1158	54000	32000	-0.4	-0.4	-0.4	0.05	9.15	10.95	good to 7 feet
OL-VC-70102	E	VC	359	35500	32680	-2.4	-1.7	-2.4	0.63	7.75	7.75	good
OL-GP-70103	E	GP	1786	88000	70000	-0.4	-1.0	-1.0	0.10	9.15	10.35	fair to 6 feet
OL-GP-70104	E	GP	790	6200	5200	-2.0	-1.6	-2.0	0.04	10.85	11.9	good
OL-GP-70105	E	GP	709	35000	24000	-1.0	-1.0	-1.0	0.09	10.05	11.05	good to 4 feet
OL-GP-70106	E	GP	870	36000	30000	-1.6	~0	-1.6	0.02	10.65	12	fair to 4.5 feet
OL-GP-70107	E	GP	5734	99000	99000	~0	~0	~0	0.04	9.7	10.55	fair to poor
OL-GP-70107-1	E	GP	2571	10362	10362		NA	NA	-	2.05	3.45	data limited and not analyzable
OL-GP-70107-2	E	GP	4364	60000	52000	<-35	<-35	<-35	5.57	9.65	11.15	fair

Notes:

[1] The upwelling estimates are based on evaluations of chloride-depth profiles developed from pore water analyses obtained from Vibracore (VC) borings and from sediment conductivity data collected with a Geoprobe (GP) direct push conductivity probe.

[2] The chloride depth profiles were analyzed using Equation 1 which requires specification of chloride concentrations at the upper and lower boundaries of the domain of interest. The boundary concentrations are listed in these columns for evaluations of chloride depth profiles from the upper 5 feet of sediment and upper 10 feet of sediment.

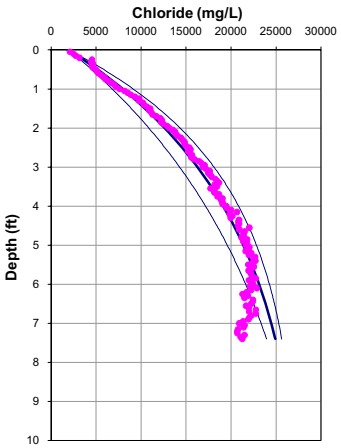
[3] This is the depth the boring was advanced below the sediment-water interface.

[4] This is the reported field depth of the boring, which for Geoprobe borings is generally greater than the depth the boring was advanced below the sediment-water interface. For the Geoprobe borings, recording of conductivity commenced at an arbitrary distance above the sediment water interface. The location of the interface was subsequently determined based on an abrupt change in conductivity.

"NA" - indicates the chloride depth profile does not have a form suitable for analysis.

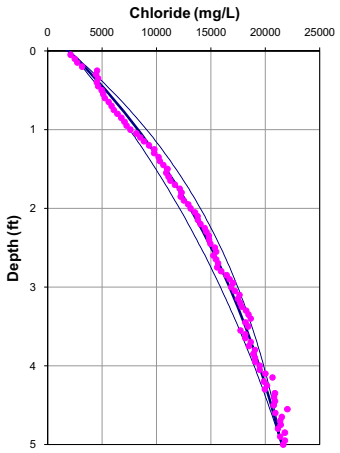
Upwelling Velocities from Sediment Conductivity Data

OL-GP-20109



Porosity = 0.65
Dispersion length = 0.3 feet
Upwelling Velocity = -1.4 cm/year

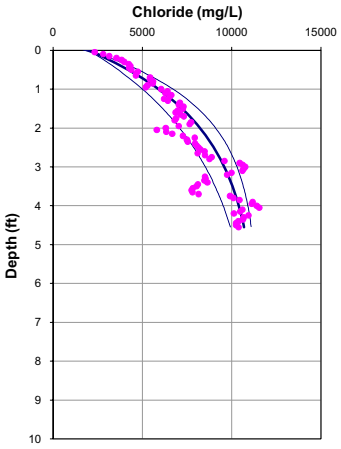
OL-GP-20109



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = -1.5 cm/year

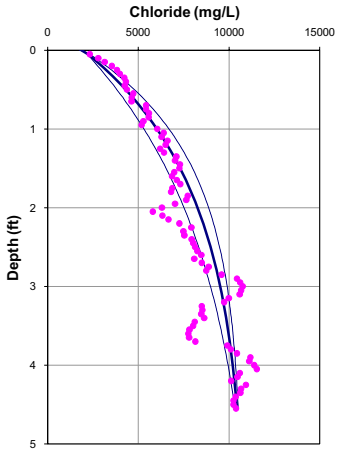
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1953	1953
Cl (mg/L)	27000	21500
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.65	0.65
Calculated Values **********		
V(cm/yr)	-2.13	-2.30
q (cm/yr)	-1.38	-1.50
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.66	0.66
Diffusion + Dispersion (cm2/day)	0.72	0.68

OL-GP-20110



Porosity = 0.65
Dispersion length = 0.3 feet
Upwelling Velocity = -3.3 cm/year

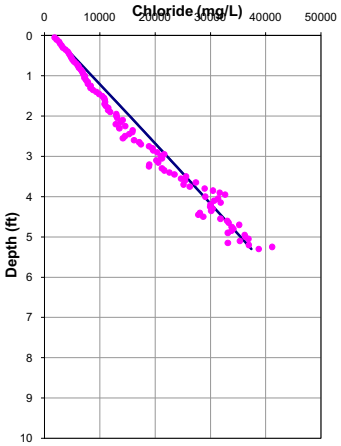
OL-GP-20110



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = -3.3 cm/year

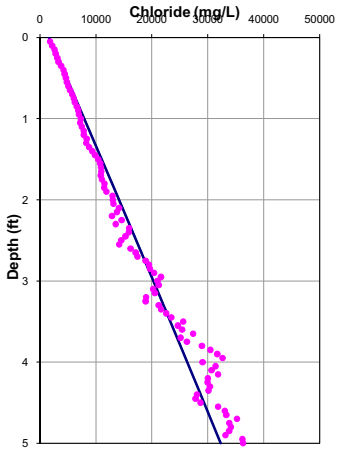
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1980	1980
Cl (mg/L)	11500	10584
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.65	0.65
Calculated Values **********		
V(cm/yr)	-5.00	-5.00
q (cm/yr)	-3.25	-3.25
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.66	0.66
Diffusion + Dispersion (cm2/day)	0.79	0.71

OL-GP-20111



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = ~0 cm/year

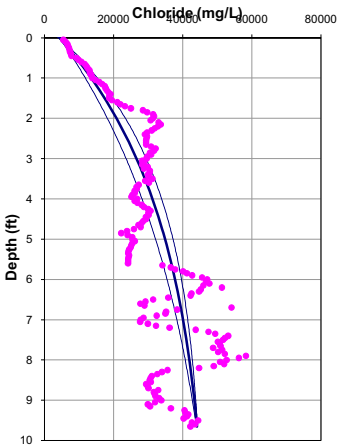
OL-GP-20111



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = ~0 cm/year

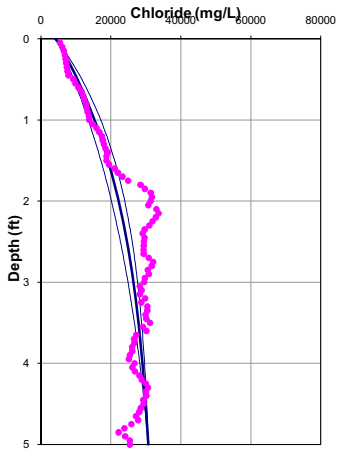
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1638	1638
Cl (mg/L)	38718	32313
L(ft)	5.5	5
D (cm2/day)	1.236	1.236
porosity	0.65	0.65
Calculated Values **********		
V(cm/yr)	-0.10	-0.10
q (cm/yr)	-0.07	-0.07
dispersion length (ft)	0.12	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.12	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.66	0.66
Diffusion + Dispersion (cm2/day)	0.66	0.66

OL-GP-20111.DAT



Porosity = 0.65
Dispersion length = 0.3 feet
Upwelling Velocity = -1.3 cm/year

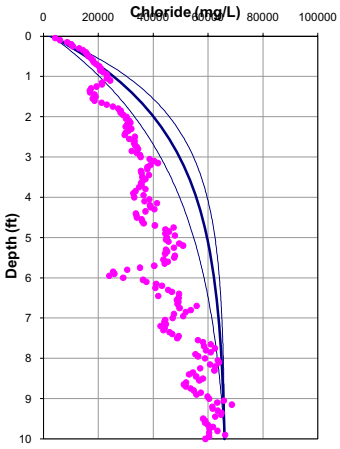
OL-GP-20111.DAT



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = -2.6 cm/year

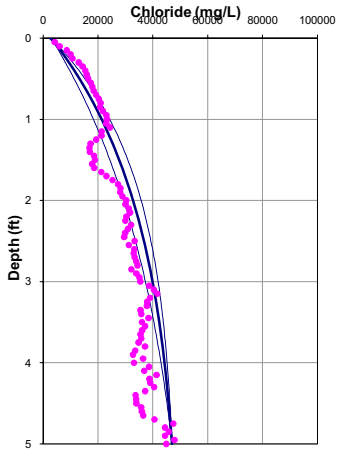
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	4339	4339
Cl (mg/L)	44500	30700
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.65	0.65
Calculated Values **********		
V(cm/yr)	-1.98	-4.00
q (cm/yr)	-1.28	-2.60
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.66	0.66
Diffusion + Dispersion (cm2/day)	0.71	0.70

OL-GP-20112



Porosity = 0.65
Dispersion length = 0.3 feet
Upwelling Velocity = -2.6 cm/year

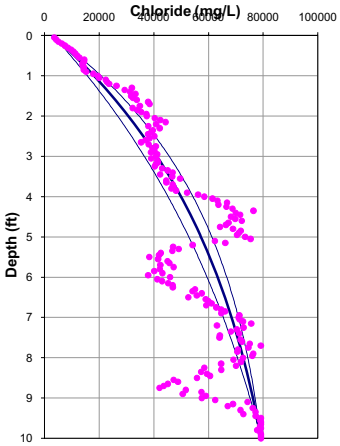
OL-GP-20112



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = -2.6 cm/year

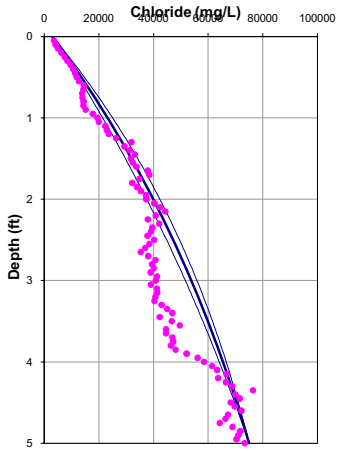
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	2947	2947
Cl (mg/L)	66000	47000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.65	0.65
Calculated Values **********		
V(cm/yr)	-4.00	-4.00
q (cm/yr)	-2.60	-2.60
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.66	0.66
Diffusion + Dispersion (cm2/day)	0.77	0.70

OL-GP-20113



Porosity = 0.65
Dispersion length = 0.3 feet
Upwelling Velocity = -1.0 cm/year

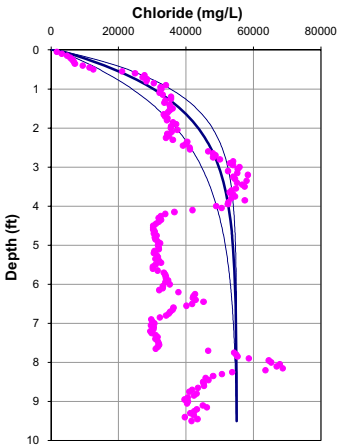
OL-GP-20113



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = -1.0 cm/year

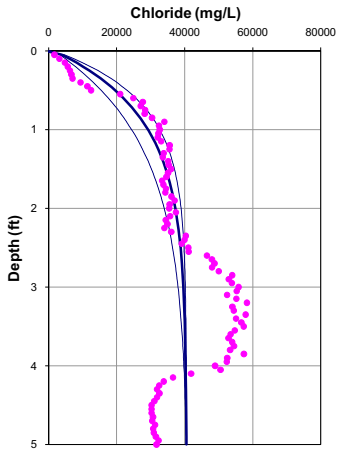
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	3050	3050
Cl (mg/L)	79200	75000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.65	0.65
Calculated Values **********		
V(cm/yr)	-1.52	-1.50
q (cm/yr)	-0.99	-0.98
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.66	0.66
Diffusion + Dispersion (cm2/day)	0.70	0.68

OL-GP-20113.DAT



Porosity = 0.65
Dispersion length = 0.3 feet
Upwelling Velocity = -5.2 cm/year

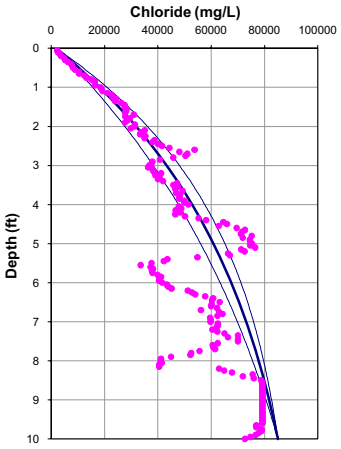
OL-GP-20113.DAT



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = -7.3 cm/year

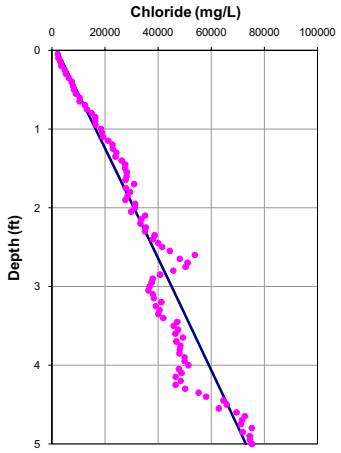
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1664	1664
Cl (mg/L)	55000	40492
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.65	0.65
Calculated Values **********		40492
V(cm/yr)	-8.00	-11.26
q (cm/yr)	-5.20	-7.32
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.66	0.66
Diffusion + Dispersion (cm2/day)	0.87	0.76

OL-GP-20115



Porosity = 0.65
Dispersion length = 0.3 feet
Upwelling Velocity = -1.0 cm/year

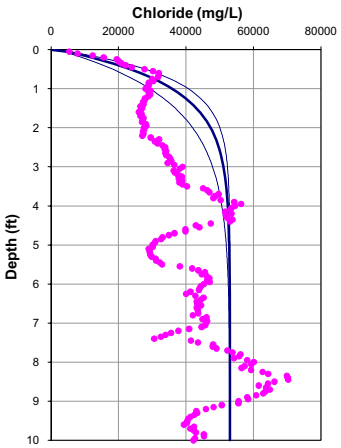
OL-GP-20115



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = ~0 cm/year

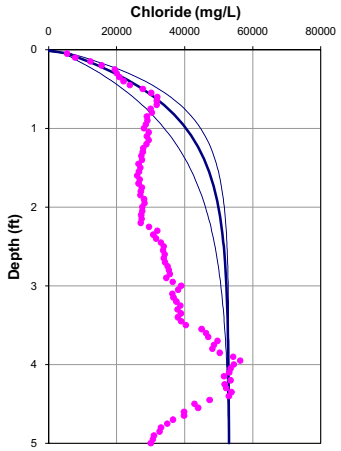
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1872	1872
Cl (mg/L)	85000	73000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.65	0.65
Calculated Values **********		
V(cm/yr)	-1.50	-0.10
q (cm/yr)	-0.98	-0.07
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.66	0.66
Diffusion + Dispersion (cm2/day)	0.70	0.66

OL-GP-20115.DAT



Porosity = 0.65
Dispersion length = 0.3 feet
Upwelling Velocity = -8.5 cm/year

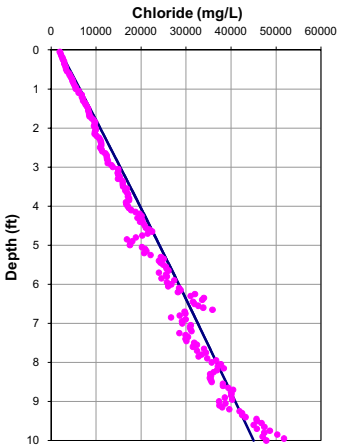
OL-GP-20115.DAT



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = -8.5 cm/year

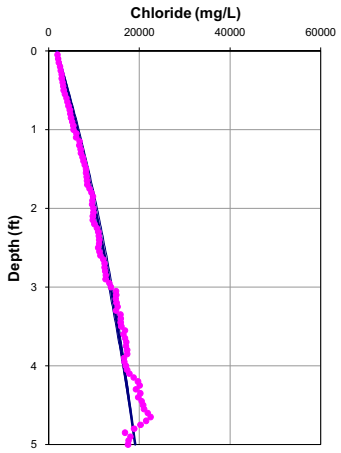
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	2019	2019
Cl (mg/L)	53000	53000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.65	0.65
Calculated Values **********		
V(cm/yr)	-13.00	-13.00
q (cm/yr)	-8.45	-8.45
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.66	0.66
Diffusion + Dispersion (cm2/day)	1.00	0.78

OL-GP-20116



Porosity = 0.65
Dispersion length = 0.3 feet
Upwelling Velocity = ~0 cm/year

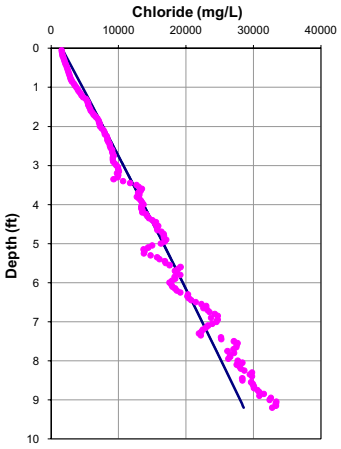
OL-GP-20116



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = -0.8 cm/year

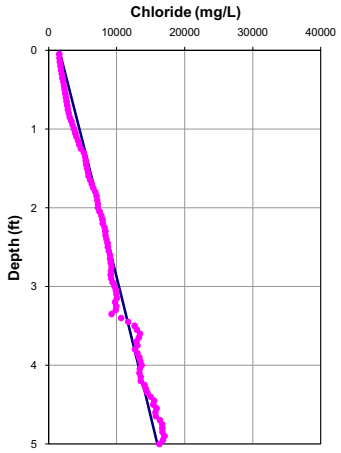
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1852	1852
Cl (mg/L)	45000	19100
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.65	0.65
Calculated Values **********		
V(cm/yr)	-0.10	-1.19
q (cm/yr)	-0.07	-0.77
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.66	0.66
Diffusion + Dispersion (cm2/day)	0.67	0.67

OL-GP-20116.DAT



Porosity = 0.65
Dispersion length = 0.3 feet
Upwelling Velocity = ~0 cm/year

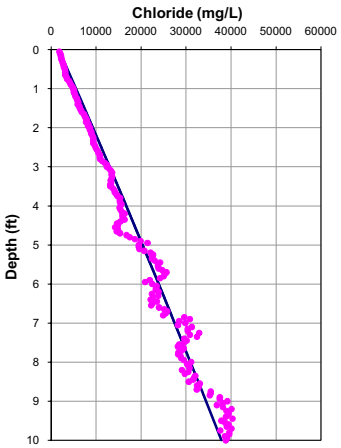
OL-GP-20116.DAT



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = ~0 cm/year

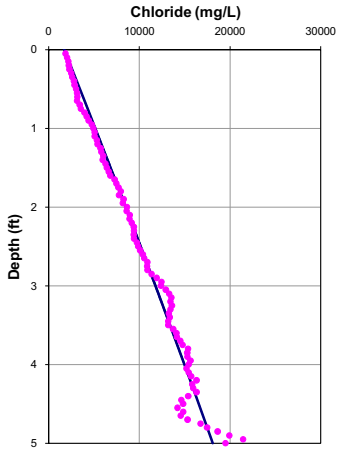
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1580	1580
Cl (mg/L)	28000	16000
L(ft)	9	5
D (cm2/day)	1.236	1.236
porosity	0.65	0.65
Calculated Values **********		
V(cm/yr)	-0.10	-0.10
q (cm/yr)	-0.07	-0.07
dispersion length (ft)	0.26	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.26	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.66	0.66
Diffusion + Dispersion (cm2/day)	0.67	0.66

OL-GP-20117



Porosity = 0.65
Dispersion length = 0.3 feet
Upwelling Velocity = ~0 cm/year

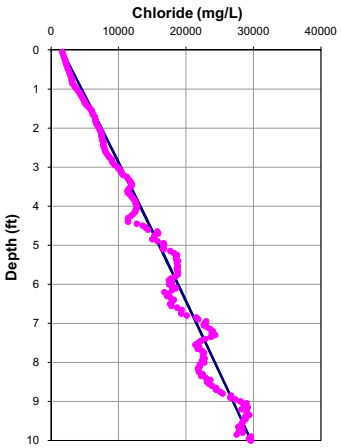
OL-GP-20117



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = -0.1 cm/year

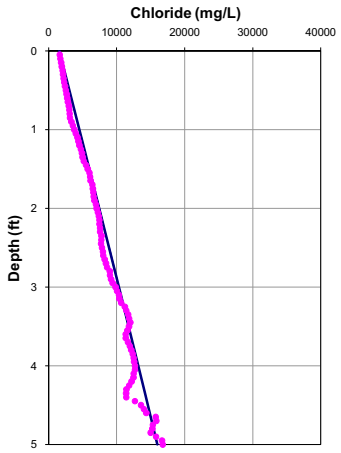
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1718	1718
Cl (mg/L)	37834	18100
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.65	0.65
Calculated Values **********		
V(cm/yr)	-0.10	-0.19
q (cm/yr)	-0.07	-0.12
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.66	0.66
Diffusion + Dispersion (cm2/day)	0.67	0.67

OL-GP-20117.DAT



Porosity = 0.65
Dispersion length = 0.3 feet
Upwelling Velocity = ~0 cm/year

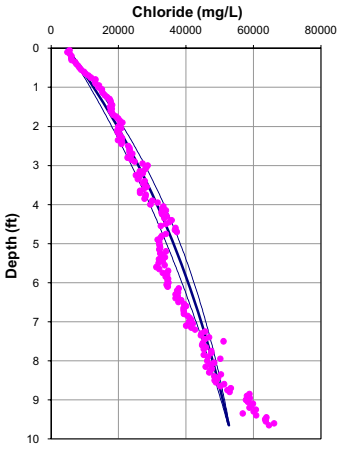
OL-GP-20117.DAT



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = ~0 cm/year

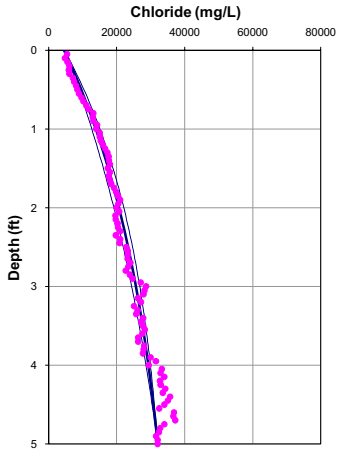
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1565	1565
Cl (mg/L)	29597	16000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.65	0.65
Calculated Values **********		
V(cm/yr)	-0.10	-0.10
q (cm/yr)	-0.07	-0.07
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.66	0.66
Diffusion + Dispersion (cm2/day)	0.67	0.66

OL-GP-20118



Porosity = 0.65
Dispersion length = 0.3 feet
Upwelling Velocity = -0.7 cm/year

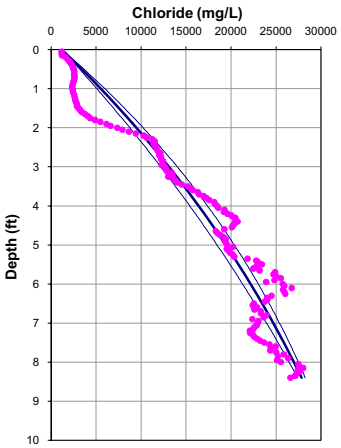
OL-GP-20118



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = -1.6 cm/year

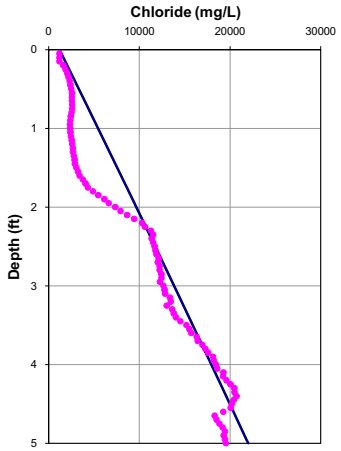
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	4635	4635
Cl (mg/L)	53565	32044
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.65	0.65
Calculated Values **********		
V(cm/yr)	-1.00	-2.53
q (cm/yr)	-0.65	-1.65
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.66	0.66
Diffusion + Dispersion (cm2/day)	0.69	0.69

OL-GP-20118.DAT



Porosity = 0.65
Dispersion length = 0.3 feet
Upwelling Velocity = -0.5 cm/year

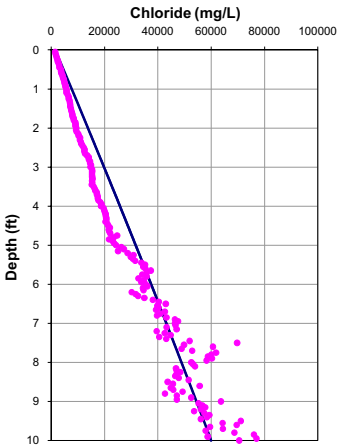
OL-GP-20118.DAT



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = ~0 cm/year

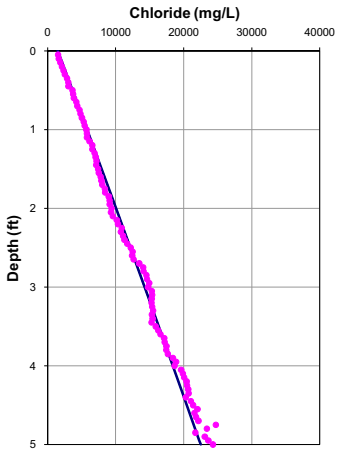
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1185	1185
Cl (mg/L)	31000	22000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.65	0.65
Calculated Values **********		
V(cm/yr)	-0.74	-0.10
q (cm/yr)	-0.48	-0.07
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.66	0.66
Diffusion + Dispersion (cm2/day)	0.68	0.66

OL-GP-20119



Porosity = 0.65
Dispersion length = 0.3 feet
Upwelling Velocity = ~0 cm/year

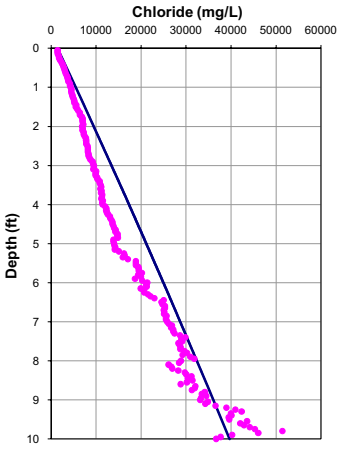
OL-GP-20119



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = ~0 cm/year

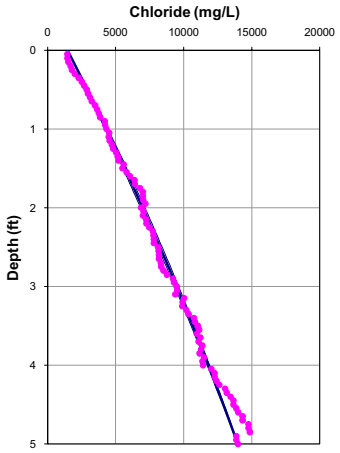
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1509	1509
Cl (mg/L)	60000	22500
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.65	0.65
Calculated Values **********		
V(cm/yr)	-0.10	-0.10
q (cm/yr)	-0.07	-0.07
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.66	0.66
Diffusion + Dispersion (cm2/day)	0.67	0.66

OL-GP-20120



Porosity = 0.65
Dispersion length = 0.3 feet
Upwelling Velocity = ~0 cm/year

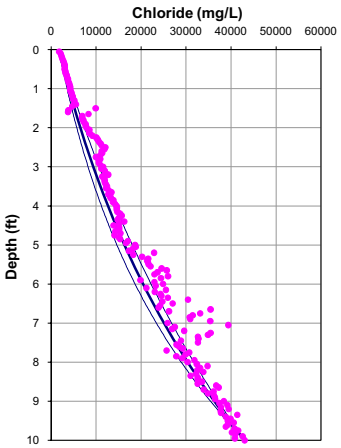
OL-GP-20120



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = -0.4 cm/year

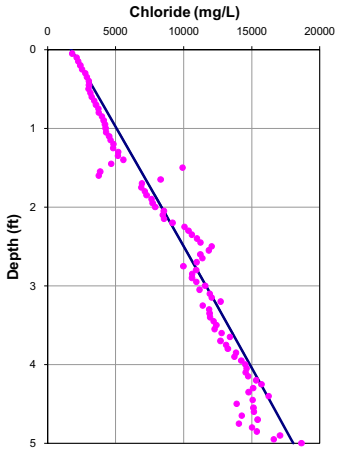
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1463	1463
Cl (mg/L)	39669	13985
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.65	0.65
Calculated Values **********		
V(cm/yr)	-0.10	-0.55
q (cm/yr)	-0.07	-0.36
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.66	0.66
Diffusion + Dispersion (cm2/day)	0.67	0.67

OL-GP-20121



Porosity = 0.65
Dispersion length = 0.3 feet
Upwelling Velocity = ~0 cm/year

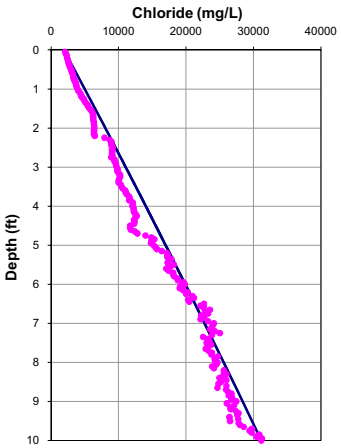
OL-GP-20121



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = ~0 cm/year

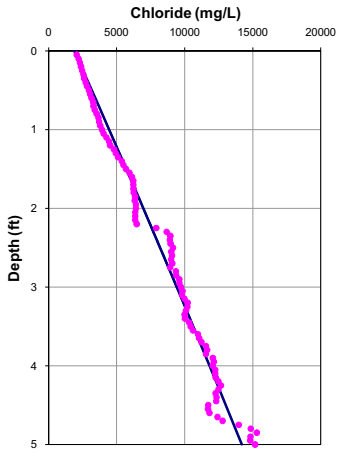
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1724	1724
Cl (mg/L)	43000	18051
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.65	0.65
Calculated Values **********		
V(cm/yr)	1.00	-0.10
q (cm/yr)	0.65	-0.07
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.66	0.66
Diffusion + Dispersion (cm2/day)	0.69	0.66

OL-GP-20121.DAT



Porosity = 0.65
Dispersion length = 0.3 feet
Upwelling Velocity = ~0 cm/year

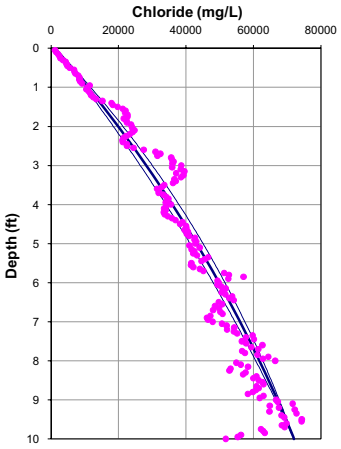
OL-GP-20121.DAT



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = ~0 cm/year

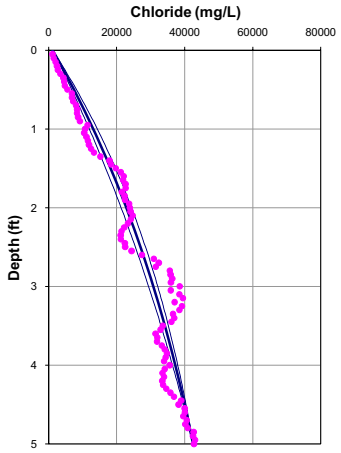
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1898	1898
Cl (mg/L)	31135	14200
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.65	0.65
Calculated Values **********		
V(cm/yr)	-0.10	-0.15
q (cm/yr)	-0.07	-0.10
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.66	0.66
Diffusion + Dispersion (cm2/day)	0.67	0.67

OL-GP-20122



Porosity = 0.65
Dispersion length = 0.3 feet
Upwelling Velocity = -0.4 cm/year

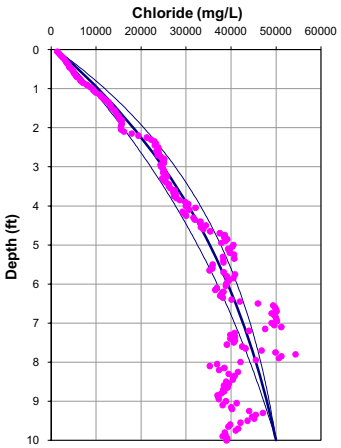
OL-GP-20122



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = -1.1 cm/year

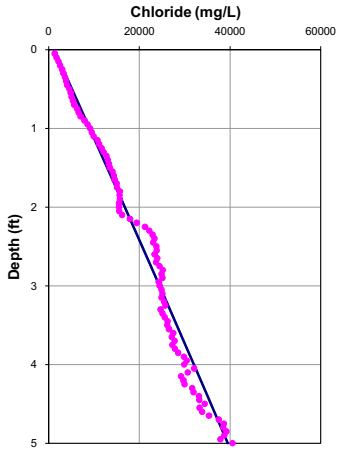
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1188	1188
Cl (mg/L)	72000	42500
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.65	0.65
Calculated Values **********		
V(cm/yr)	-0.61	-1.67
q (cm/yr)	-0.40	-1.08
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.66	0.66
Diffusion + Dispersion (cm2/day)	0.68	0.68

OL-GP-20122.DAT



Porosity = 0.65
Dispersion length = 0.3 feet
Upwelling Velocity = -0.9 cm/year

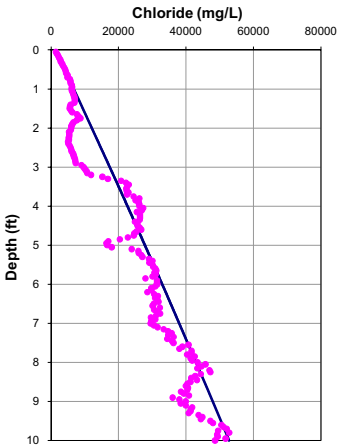
OL-GP-20122.DAT



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = ~0 cm/year

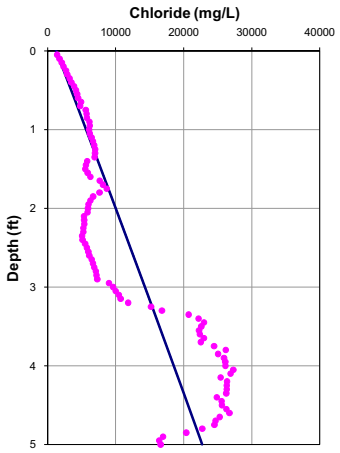
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1187	1187
Cl (mg/L)	50000	39500
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.65	0.65
Calculated Values **********		
V(cm/yr)	-1.40	-0.10
q (cm/yr)	-0.91	-0.07
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.66	0.66
Diffusion + Dispersion (cm2/day)	0.70	0.66

OL-GP-20123



Porosity = 0.65
Dispersion length = 0.3 feet
Upwelling Velocity = ~0 cm/year

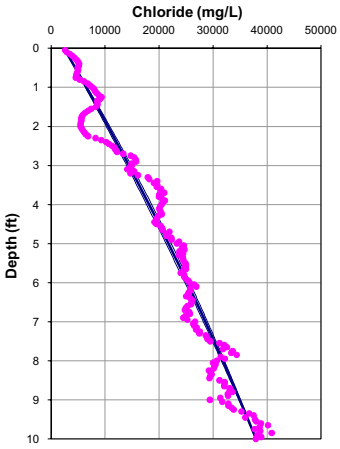
OL-GP-20123



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = ~0 cm/year

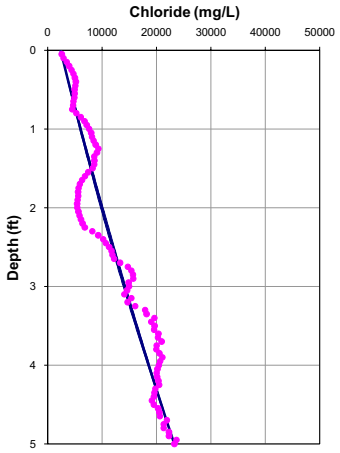
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1266	1266
Cl (mg/L)	52759	22730
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.65	0.65
Calculated Values **********		
V(cm/yr)	-0.10	-0.10
q (cm/yr)	-0.07	-0.07
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.66	0.66
Diffusion + Dispersion (cm2/day)	0.67	0.66

OL-GP-20123.DAT



Porosity = 0.65
Dispersion length = 0.3 feet
Upwelling Velocity = -0.2 cm/year

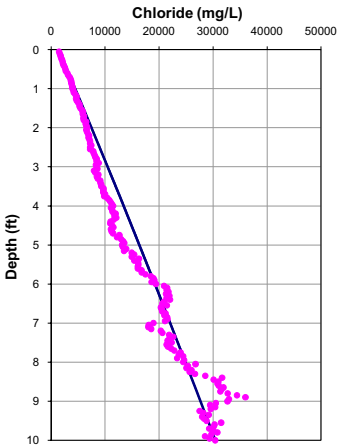
OL-GP-20123.DAT



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = ~0 cm/year

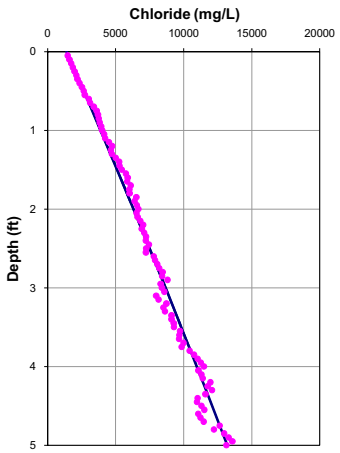
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	2375	2375
Cl (mg/L)	37931	23290
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.65	0.65
Calculated Values **********		
V(cm/yr)	-0.29	0.50
q (cm/yr)	-0.19	0.33
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.66	0.66
Diffusion + Dispersion (cm2/day)	0.67	0.67

OL-GP-20124



Porosity = 0.65
Dispersion length = 0.3 feet
Upwelling Velocity = ~0 cm/year

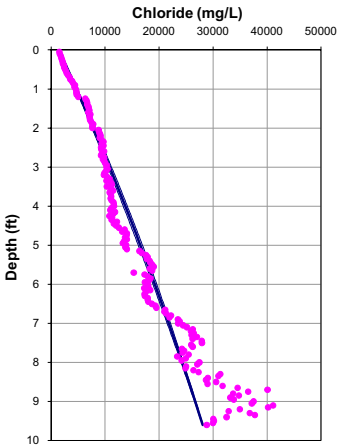
OL-GP-20124



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = -0.1 cm/year

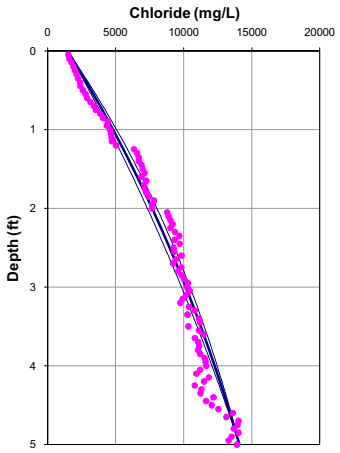
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1404	1404
Cl (mg/L)	30396	13200
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.65	0.65
Calculated Values **********		
V(cm/yr)	-0.10	-0.21
q (cm/yr)	-0.07	-0.14
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.66	0.66
Diffusion + Dispersion (cm2/day)	0.67	0.67

OL-GP-20125



Porosity = 0.65
Dispersion length = 0.3 feet
Upwelling Velocity = -0.2 cm/year

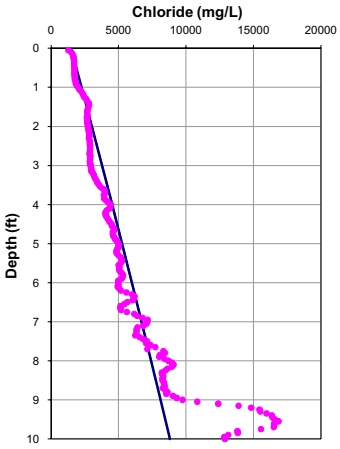
OL-GP-20125



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = -0.8 cm/year

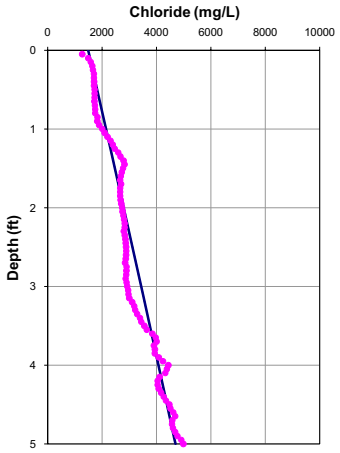
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1461	1461
Cl (mg/L)	29000	14100
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.65	0.65
Calculated Values **********		
V(cm/yr)	-0.31	-1.23
q (cm/yr)	-0.20	-0.80
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.66	0.66
Diffusion + Dispersion (cm2/day)	0.67	0.67

OL-GP-20126



Porosity = 0.65
Dispersion length = 0.3 feet
Upwelling Velocity = ~0 cm/year

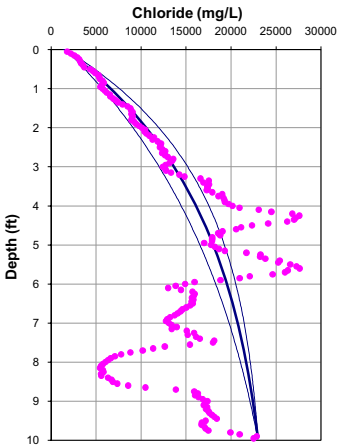
OL-GP-20126



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = ~0 cm/year

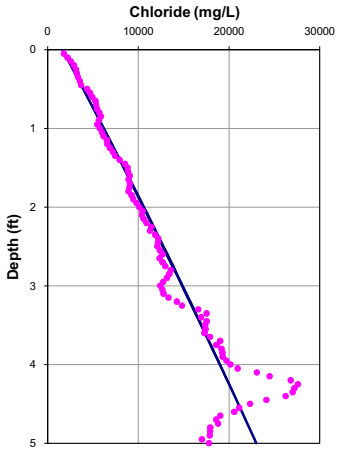
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1488	1488
Cl (mg/L)	8800	4700
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.65	0.65
Calculated Values **********		
V(cm/yr)	-0.10	-0.10
q (cm/yr)	-0.07	-0.07
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.66	0.66
Diffusion + Dispersion (cm2/day)	0.67	0.66

OL-GP-20127



Porosity = 0.65
Dispersion length = 0.3 feet
Upwelling Velocity = -1.3 cm/year

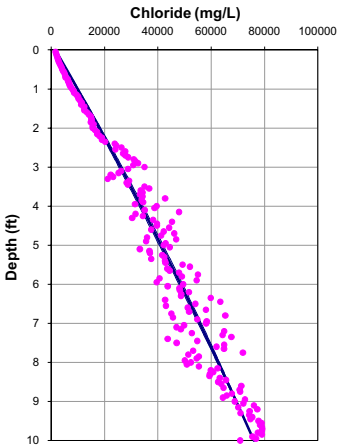
OL-GP-20127



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = -0.2 cm/year

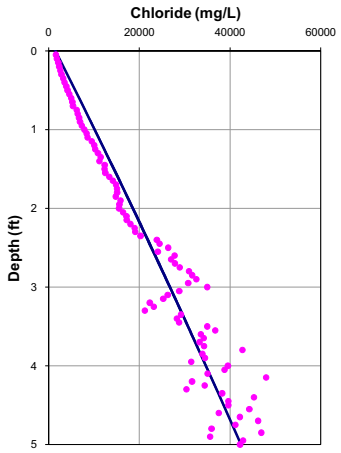
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1640	1640
Cl (mg/L)	23000	23000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.65	0.65
Calculated Values **********		
V(cm/yr)	-2.05	-0.25
q (cm/yr)	-1.33	-0.16
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.66	0.66
Diffusion + Dispersion (cm2/day)	0.72	0.67

OL-GP-20128



Porosity = 0.65
Dispersion length = 0.3 feet
Upwelling Velocity = -0.1 cm/year

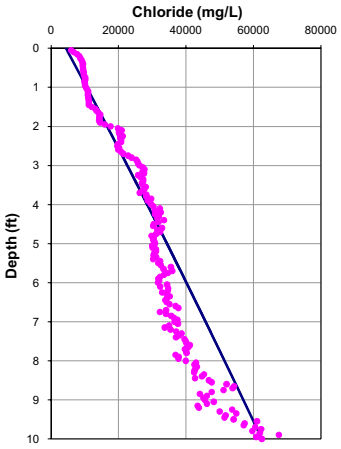
OL-GP-20128



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = -0.1 cm/year

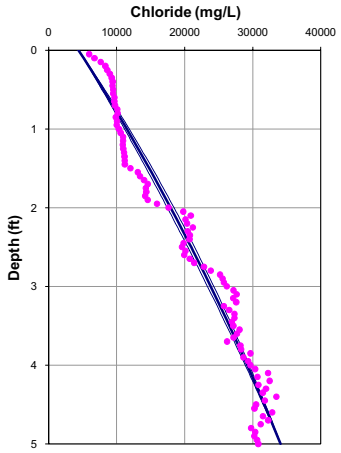
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1514	1514
Cl (mg/L)	76000	42400
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.65	0.65
Calculated Values **********		
V(cm/yr)	-0.22	-0.23
q (cm/yr)	-0.14	-0.15
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.66	0.66
Diffusion + Dispersion (cm2/day)	0.67	0.67

OL-GP-20128.DAT



Porosity = 0.65
Dispersion length = 0.3 feet
Upwelling Velocity = ~0 cm/year

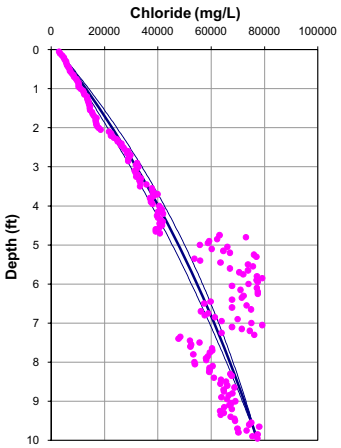
OL-GP-20128.DAT



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = -0.5 cm/year

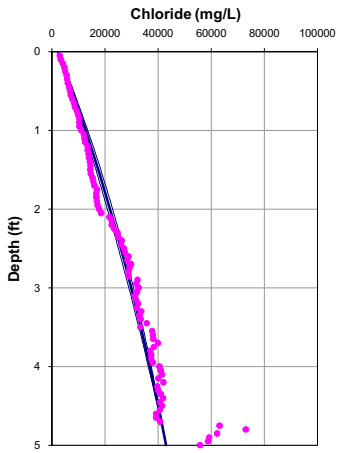
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	4436	4436
Cl (mg/L)	62425	34104
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.65	0.65
Calculated Values **********		34104
V(cm/yr)	-0.10	-0.73
q (cm/yr)	-0.07	-0.48
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.66	0.66
Diffusion + Dispersion (cm2/day)	0.67	0.67

OL-GP-20129



Porosity = 0.65
Dispersion length = 0.3 feet
Upwelling Velocity = -0.5 cm/year

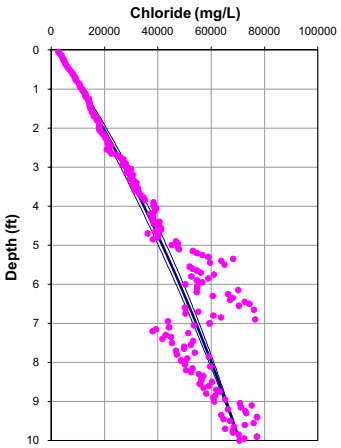
OL-GP-20129



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = -0.7 cm/year

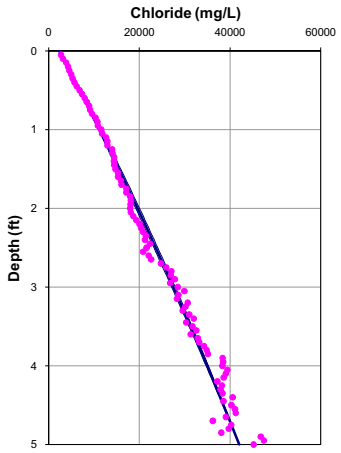
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	2327	2327
Cl (mg/L)	77348	43000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.65	0.65
Calculated Values **********		
V(cm/yr)	-0.70	-1.08
q (cm/yr)	-0.46	-0.70
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.66	0.66
Diffusion + Dispersion (cm2/day)	0.68	0.67

OL-GP-20129-A



Porosity = 0.65
Dispersion length = 0.3 feet
Upwelling Velocity = -0.3 cm/year

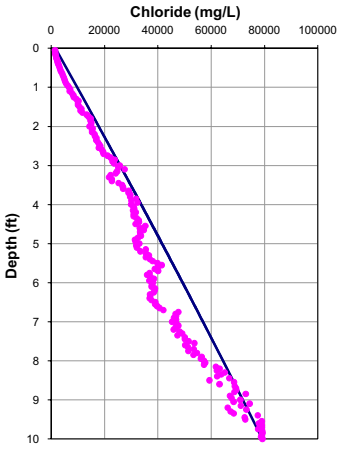
OL-GP-20129-A



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = -0.3 cm/year

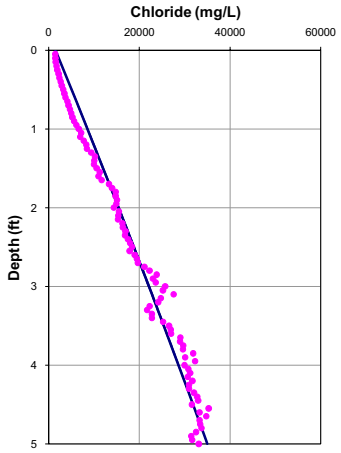
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	2345	2345
Cl (mg/L)	70632	42000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.65	0.65
Calculated Values **********		
V(cm/yr)	-0.50	-0.47
q (cm/yr)	-0.33	-0.31
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.66	0.66
Diffusion + Dispersion (cm2/day)	0.68	0.67

OL-GP-20130



Porosity = 0.65
Dispersion length = 0.3 feet
Upwelling Velocity = ~0 cm/year

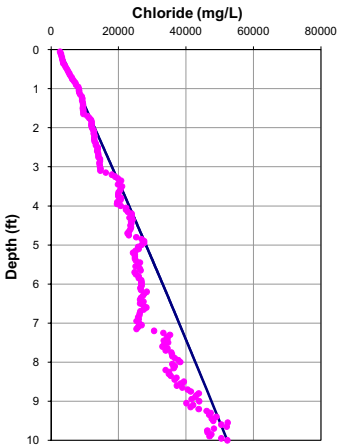
OL-GP-20130



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = -0.1 cm/year

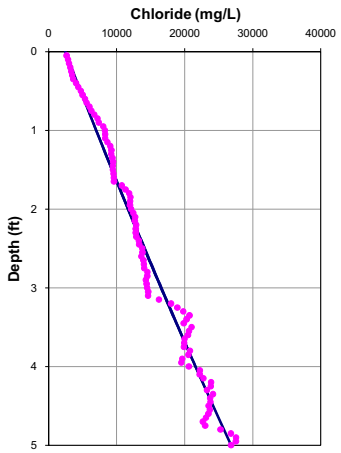
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1539	1539
Cl (mg/L)	79200	35000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.65	0.65
Calculated Values **********		
V(cm/yr)	-0.10	-0.20
q (cm/yr)	-0.07	-0.13
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.66	0.66
Diffusion + Dispersion (cm2/day)	0.67	0.67

OL-GP-20130.DAT



Porosity = 0.65
Dispersion length = 0.3 feet
Upwelling Velocity = ~0 cm/year

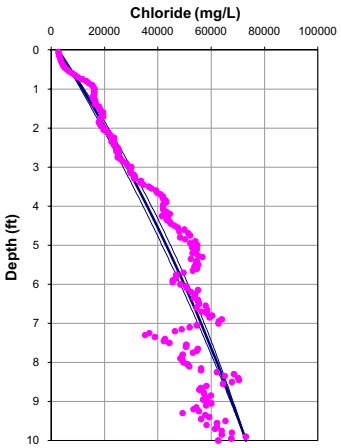
OL-GP-20130.DAT



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = ~0 cm/year

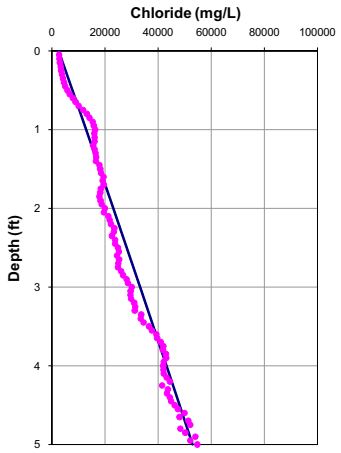
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	2473	2473
Cl (mg/L)	52219	26821
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.65	0.65
Calculated Values **********		
V(cm/yr)	-0.10	0.29
q (cm/yr)	-0.07	0.19
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.66	0.66
Diffusion + Dispersion (cm2/day)	0.67	0.67

OL-GP-20131



Porosity = 0.65
Dispersion length = 0.3 feet
Upwelling Velocity = -0.3 cm/year

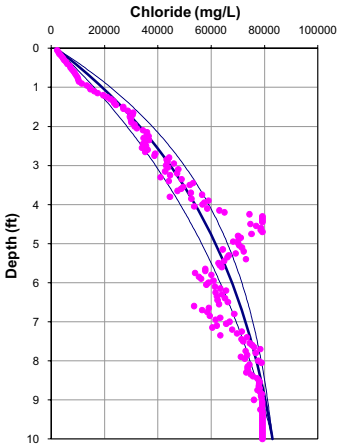
OL-GP-20131



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = ~0 cm/year

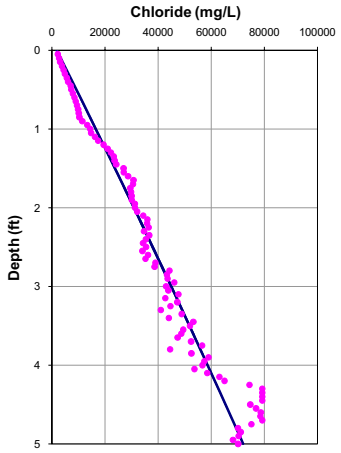
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	2578	2578
Cl (mg/L)	73000	53000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.65	0.65
Calculated Values **********		
V(cm/yr)	-0.50	-0.10
q (cm/yr)	-0.33	-0.07
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.66	0.66
Diffusion + Dispersion (cm2/day)	0.68	0.66

OL-GP-20132



Porosity = 0.65
Dispersion length = 0.3 feet
Upwelling Velocity = -1.1 cm/year

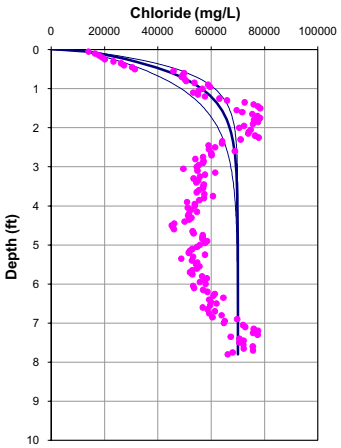
OL-GP-20132



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = -0.1 cm/year

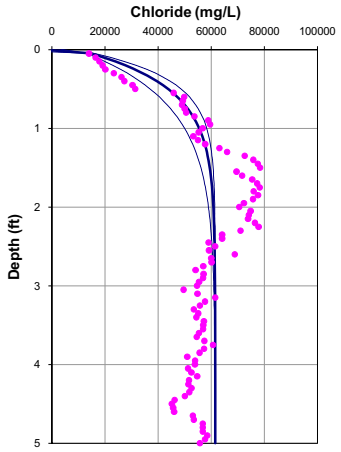
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1792	1792
Cl (mg/L)	83000	72000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.65	0.65
Calculated Values **********		
V(cm/yr)	-1.74	-0.20
q (cm/yr)	-1.13	-0.13
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.66	0.66
Diffusion + Dispersion (cm2/day)	0.71	0.67

OL-GP-20132.DAT



Porosity = 0.65
Dispersion length = 0.3 feet
Upwelling Velocity = -14.2 cm/year

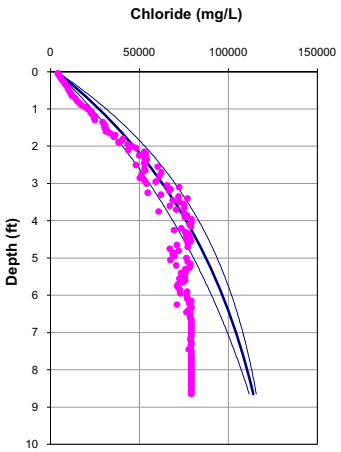
OL-GP-20132.DAT



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = -14.4 cm/year

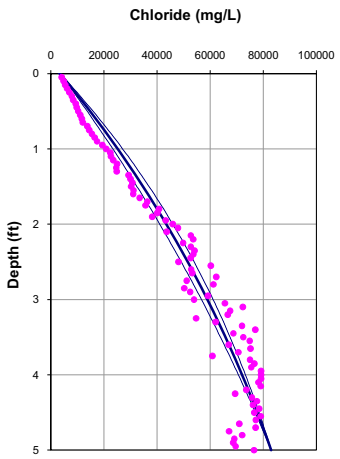
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	9536	9536
Cl (mg/L)	70000	61500
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.65	0.65
Calculated Values **********		
V(cm/yr)	-21.79	-22.13
q (cm/yr)	-14.16	-14.39
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.66	0.66
Diffusion + Dispersion (cm2/day)	1.22	0.86

OL-GP-20133



Porosity = 0.65
Dispersion length = 0.3 feet
Upwelling Velocity = -1.0 cm/year

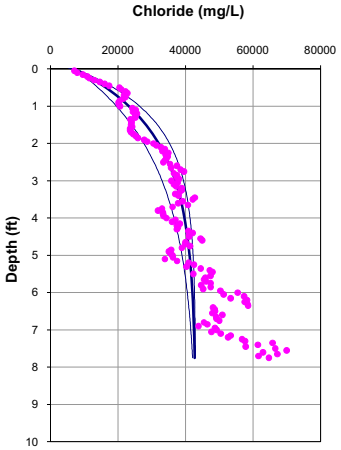
OL-GP-20133



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = -0.9 cm/year

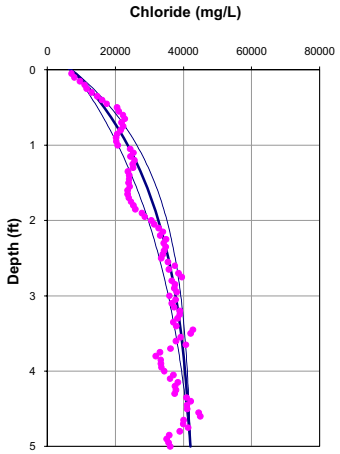
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	3437	3437
Cl (mg/L)	120000	83000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.65	0.65
Calculated Values **********		
V(cm/yr)	-1.60	-1.38
q (cm/yr)	-1.04	-0.90
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.66	0.66
Diffusion + Dispersion (cm2/day)	0.70	0.68

OL-GP-20134



Porosity = 0.65
Dispersion length = 0.3 feet
Upwelling Velocity = -3.7 cm/year

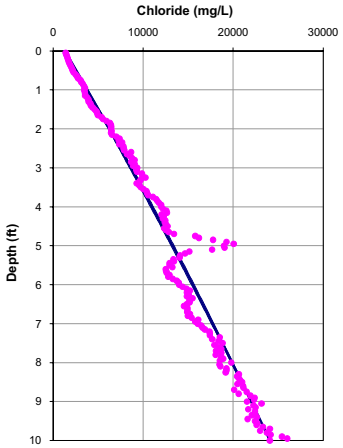
OL-GP-20134



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = -3.3 cm/year

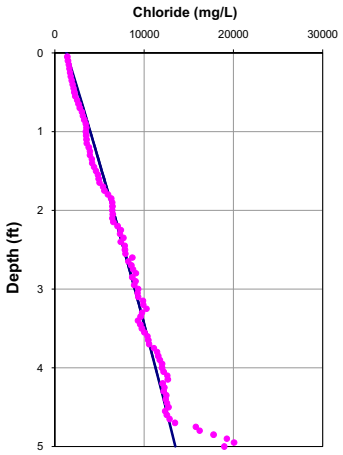
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	7288	7288
Cl (mg/L)	43000	42000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.65	0.65
Calculated Values **********		
V(cm/yr)	-5.71	-5.00
q (cm/yr)	-3.71	-3.25
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.66	0.66
Diffusion + Dispersion (cm2/day)	0.81	0.71

OL-GP-30059



Porosity = 0.65
Dispersion length = 0.3 feet
Upwelling Velocity = -0.1 cm/year

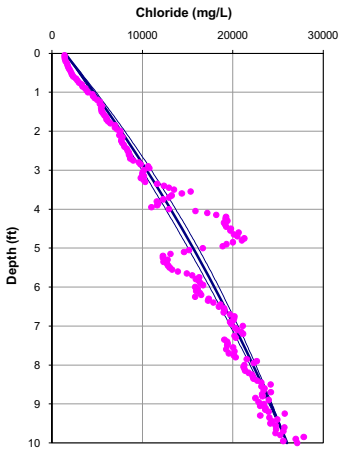
OL-GP-30059



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = -0.2 cm/year

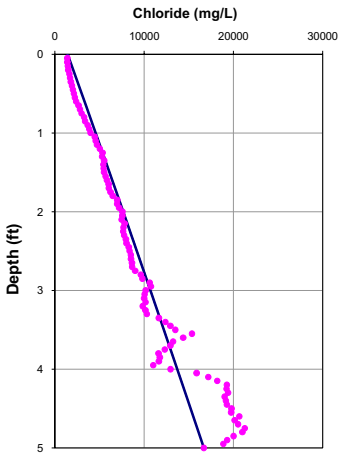
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1302	1302
Cl (mg/L)	24073	13500
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.65	0.65
Calculated Values **********		
V(cm/yr)	-0.16	-0.36
q (cm/yr)	-0.11	-0.23
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.66	0.66
Diffusion + Dispersion (cm2/day)	0.67	0.67

OL-GP-30060



Porosity = 0.65
Dispersion length = 0.3 feet
Upwelling Velocity = -0.3 cm/year

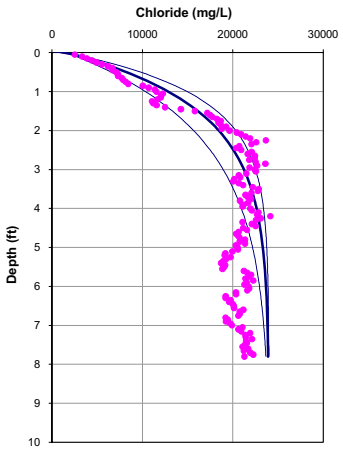
OL-GP-30060



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = ~0 cm/year

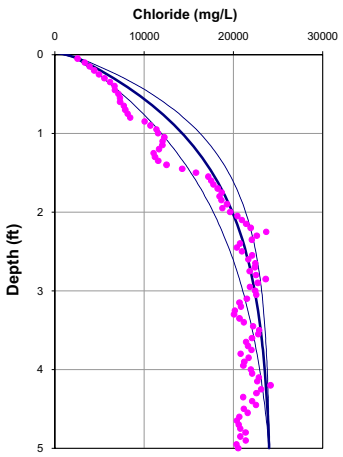
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1435	1435
Cl (mg/L)	26000	16675
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.65	0.65
Calculated Values **********		
V(cm/yr)	-0.51	-0.10
q (cm/yr)	-0.33	-0.07
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.66	0.66
Diffusion + Dispersion (cm2/day)	0.68	0.66

OL-GP-30061



Porosity = 0.65
Dispersion length = 0.3 feet
Upwelling Velocity = -4.6 cm/year

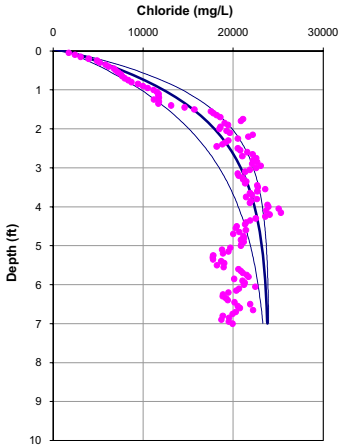
OL-GP-30061



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = -4.6 cm/year

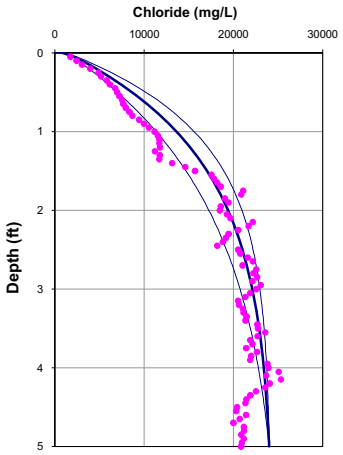
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1692	1692
Cl (mg/L)	24000	24000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.65	0.65
Calculated Values **********'		22943
V(cm/yr)	-7.00	-7.00
q (cm/yr)	-4.55	-4.55
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.66	0.66
Diffusion + Dispersion (cm2/day)	0.84	0.73

OL-GP-30061-A



Porosity = 0.65
Dispersion length = 0.3 feet
Upwelling Velocity = -4.2 cm/year

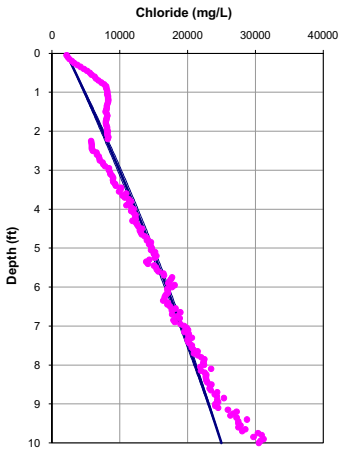
OL-GP-30061-A



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = -4.2 cm/year

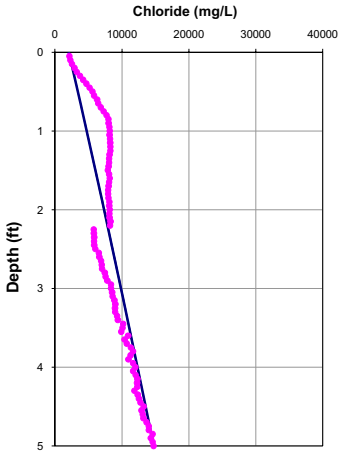
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1351	1351
Cl (mg/L)	24000	24000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.65	0.65
Calculated Values **********		
V(cm/yr)	-6.50	-6.50
q (cm/yr)	-4.23	-4.23
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.66	0.66
Diffusion + Dispersion (cm2/day)	0.83	0.72

OL-GP-30062



Porosity = 0.65
Dispersion length = 0.3 feet
Upwelling Velocity = -0.2 cm/year

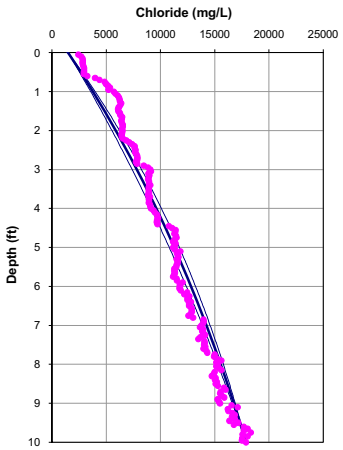
OL-GP-30062



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = -0.1 cm/year

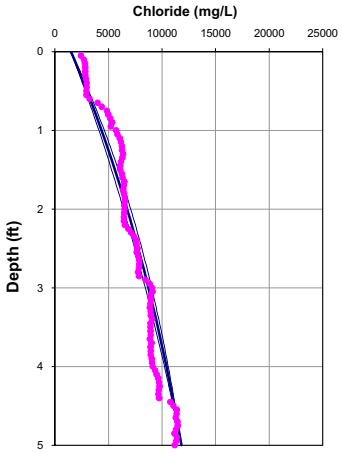
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	2083	2083
Cl (mg/L)	25000	14730
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.65	0.65
Calculated Values **********		
V(cm/yr)	-0.32	-0.20
q (cm/yr)	-0.21	-0.13
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.66	0.66
Diffusion + Dispersion (cm2/day)	0.67	0.67

OL-GP-30063



Porosity = 0.65
Dispersion length = 0.3 feet
Upwelling Velocity = -0.4 cm/year

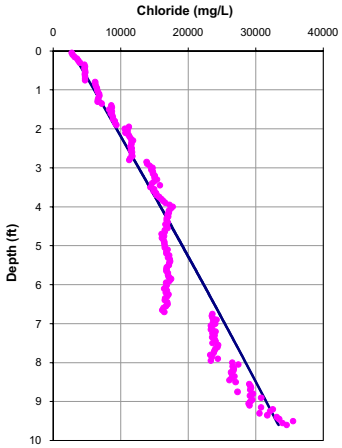
OL-GP-30063



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = -0.9 cm/year

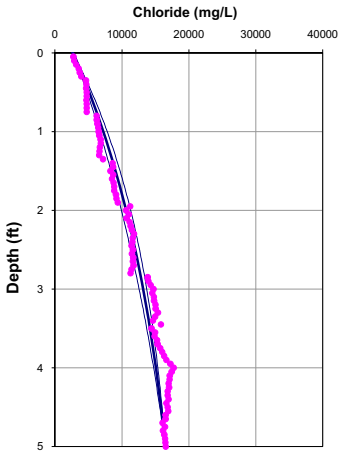
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1485	1485
Cl (mg/L)	17880	11800
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.65	0.65
Calculated Values **********		
V(cm/yr)	-0.64	-1.46
q (cm/yr)	-0.42	-0.95
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.66	0.66
Diffusion + Dispersion (cm2/day)	0.68	0.68

OL-GP-30064



Porosity = 0.65
Dispersion length = 0.3 feet
Upwelling Velocity = ~0 cm/year

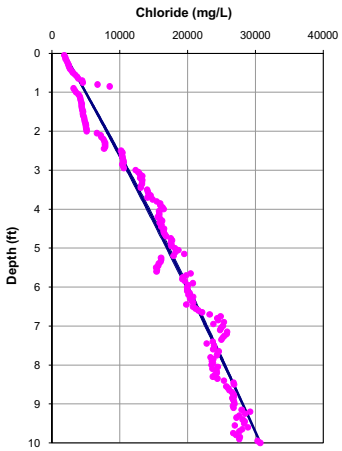
OL-GP-30064



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = -1.5 cm/year

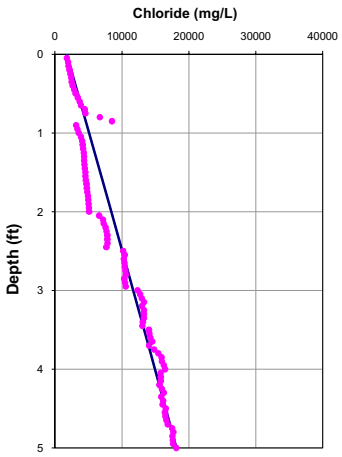
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	2687	2687
Cl (mg/L)	34587	16500
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.65	0.65
Calculated Values **********		
V(cm/yr)	-0.10	-2.38
q (cm/yr)	-0.07	-1.55
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.66	0.66
Diffusion + Dispersion (cm2/day)	0.67	0.68

OL-GP-30065



Porosity = 0.65
Dispersion length = 0.3 feet
Upwelling Velocity = -0.1 cm/year

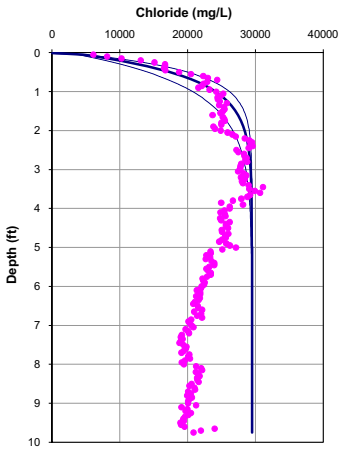
OL-GP-30065



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = ~0 cm/year

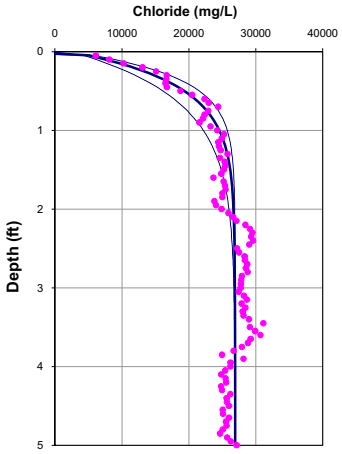
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1738	1738
Cl (mg/L)	30716	18129
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.65	0.65
Calculated Values **********		
V(cm/yr)	-0.19	-0.10
q (cm/yr)	-0.12	-0.07
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.66	0.66
Diffusion + Dispersion (cm2/day)	0.67	0.66

OL-GP-30066



Porosity = 0.65
Dispersion length = 0.3 feet
Upwelling Velocity = -16.4 cm/year

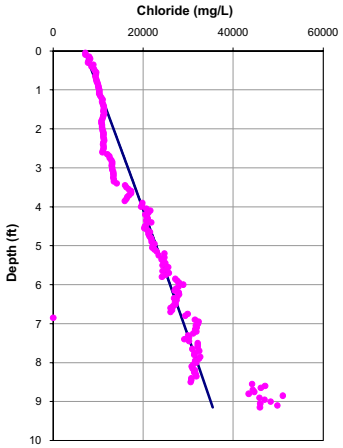
OL-GP-30066



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = -16.1 cm/year

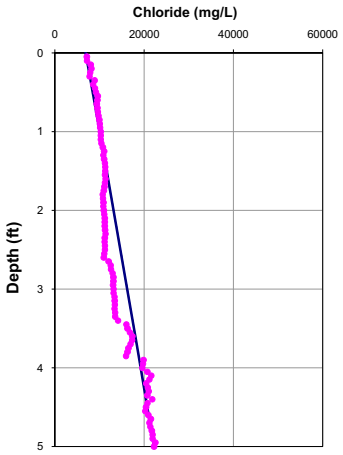
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	2443	2443
Cl (mg/L)	29500	26900
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.65	0.65
Calculated Values **********		
V(cm/yr)	-25.20	-24.76
q (cm/yr)	-16.38	-16.09
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.66	0.66
Diffusion + Dispersion (cm2/day)	1.31	0.88

OL-GP-30067



Porosity = 0.65
Dispersion length = 0.3 feet
Upwelling Velocity = ~0 cm/year

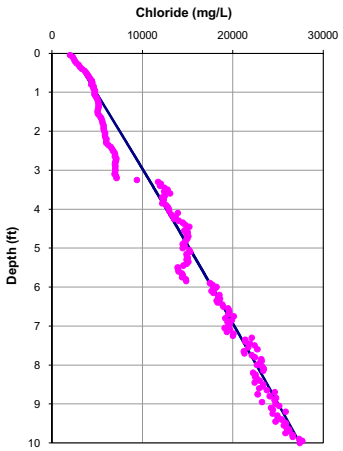
OL-GP-30067



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = ~0 cm/year

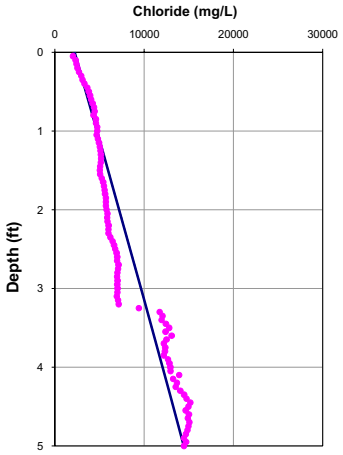
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	6901	6901
Cl (mg/L)	35000	22190
L(ft)	9	5
D (cm2/day)	1.236	1.236
porosity	0.65	0.65
Calculated Values **********		
V(cm/yr)	-0.10	-0.10
q (cm/yr)	-0.07	-0.07
dispersion length (ft)	0.26	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.26	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.66	0.66
Diffusion + Dispersion (cm2/day)	0.67	0.66

OL-GP-30068



Porosity = 0.65
Dispersion length = 0.3 feet
Upwelling Velocity = ~0 cm/year

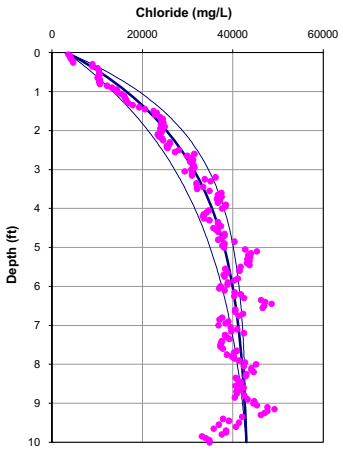
OL-GP-30068



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = ~0 cm/year

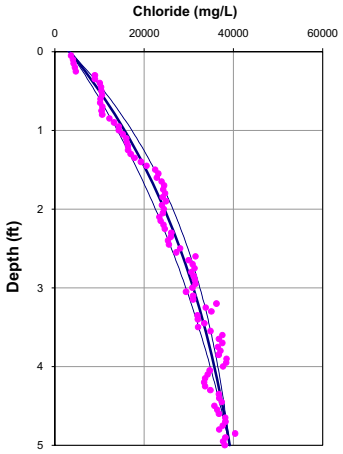
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	2196	2196
Cl (mg/L)	27408	14444
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.65	0.65
Calculated Values **********		
V(cm/yr)	-0.10	-0.10
q (cm/yr)	-0.07	-0.07
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.66	0.66
Diffusion + Dispersion (cm2/day)	0.67	0.66

OL-GP-30069



Porosity = 0.65
Dispersion length = 0.3 feet
Upwelling Velocity = -2.3 cm/year

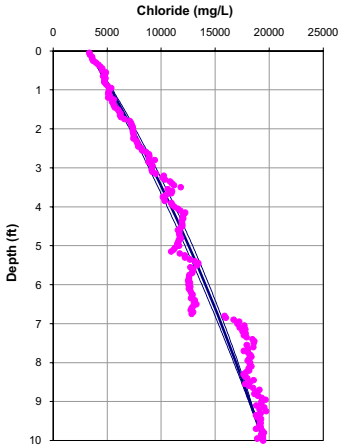
OL-GP-30069



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = -1.7 cm/year

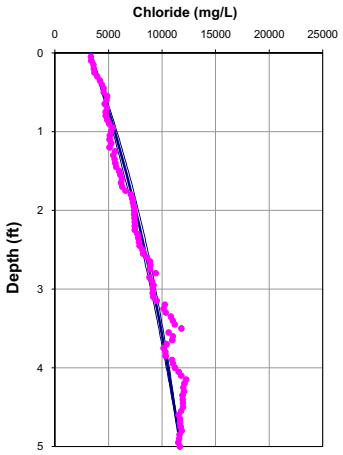
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	3317	3317
Cl (mg/L)	43000	39135
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.65	0.65
Calculated Values **********'		39135
V(cm/yr)	-3.55	-2.63
q (cm/yr)	-2.30	-1.71
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.66	0.66
Diffusion + Dispersion (cm2/day)	0.75	0.69

OL-GP-30070



Porosity = 0.65
Dispersion length = 0.3 feet
Upwelling Velocity = -0.3 cm/year

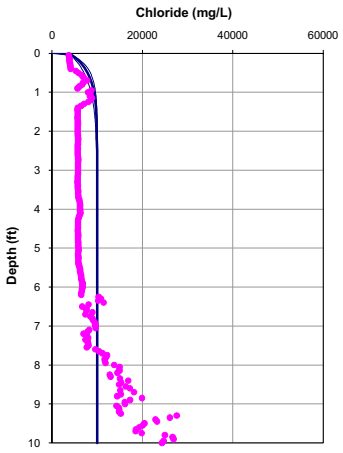
OL-GP-30070



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = -0.9 cm/year

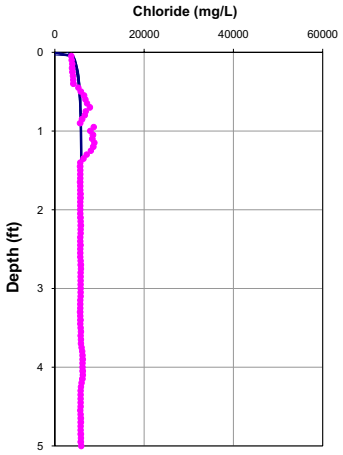
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	3280	3280
Cl (mg/L)	19438	11700
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.65	0.65
Calculated Values **********		
V(cm/yr)	-0.49	-1.40
q (cm/yr)	-0.32	-0.91
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.66	0.66
Diffusion + Dispersion (cm2/day)	0.68	0.68

OL-GP-30071-1



Porosity = 0.65
Dispersion length = 0.3 feet
Upwelling Velocity = <-32.5 cm/year

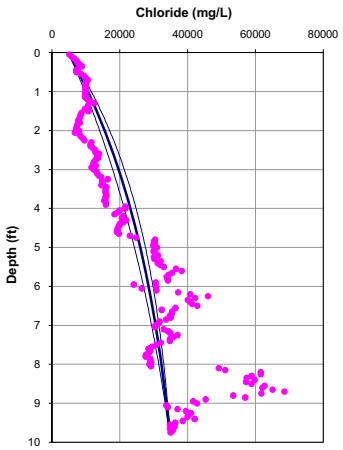
OL-GP-30071-1



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = <-32.5 cm/year

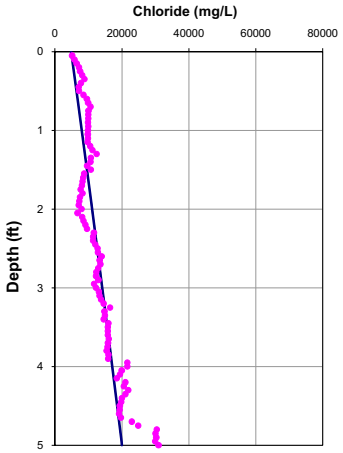
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	3762	3762
Cl (mg/L)	10000	5880
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.65	0.65
Calculated Values **********		
V(cm/yr)	-50.00	-50.00
q (cm/yr)	-32.50	-32.50
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.66	0.66
Diffusion + Dispersion (cm2/day)	1.94	1.11

OL-GP-30071-2



Porosity = 0.65
Dispersion length = 0.3 feet
Upwelling Velocity = -0.9 cm/year

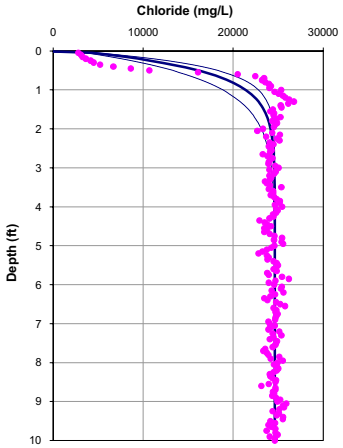
OL-GP-30071-2



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = -0.1 cm/year

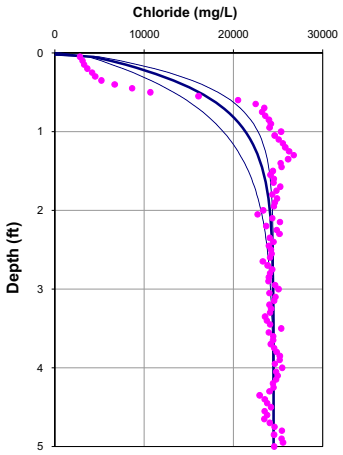
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	4820	4820
Cl (mg/L)	35010	20000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.65	0.65
Calculated Values **********		
V(cm/yr)	-1.44	-0.19
q (cm/yr)	-0.94	-0.12
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.66	0.66
Diffusion + Dispersion (cm2/day)	0.70	0.67

OL-GP-30072-1



Porosity = 0.65
Dispersion length = 0.3 feet
Upwelling Velocity = -24.1 cm/year

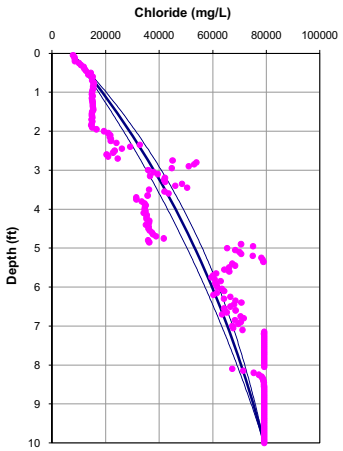
OL-GP-30072-1



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = -12.7 cm/year

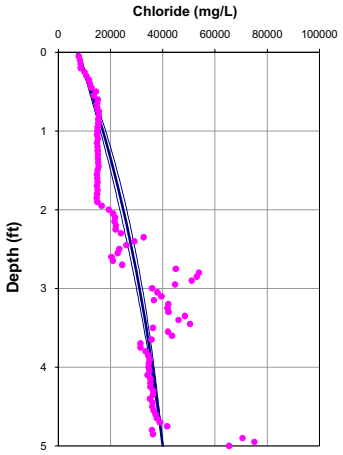
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	2297	2297
Cl (mg/L)	24632	24500
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.65	0.65
Calculated Values **********		
V(cm/yr)	-37.15	-19.54
q (cm/yr)	-24.15	-12.70
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.66	0.66
Diffusion + Dispersion (cm2/day)	1.61	0.84

OL-GP-30072-2



Porosity = 0.65
Dispersion length = 0.3 feet
Upwelling Velocity = -0.6 cm/year

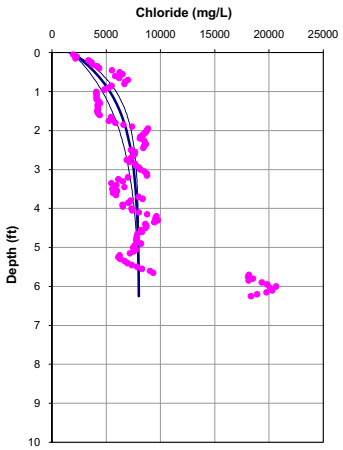
OL-GP-30072-2



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = -1.2 cm/year

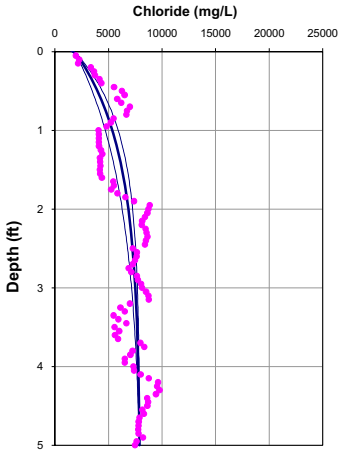
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	7360	7360
Cl (mg/L)	79200	40000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.65	0.65
Calculated Values **********		
V(cm/yr)	-0.95	-1.85
q (cm/yr)	-0.61	-1.20
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.66	0.66
Diffusion + Dispersion (cm2/day)	0.69	0.68

OL-GP-30073-1



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = -4.8 cm/year

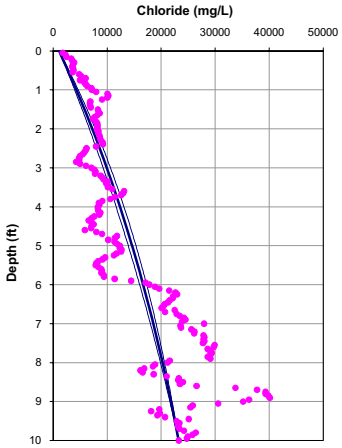
OL-GP-30073-1



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = -4.8 cm/year

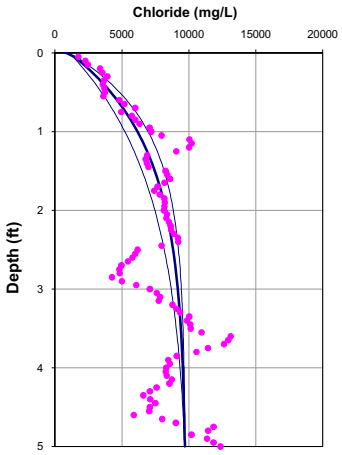
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1832	1832
Cl (mg/L)	8000	7892
L(ft)	6	5
D (cm2/day)	1.236	1.236
porosity	0.65	0.65
Calculated Values **********'		7891.6
V(cm/yr)	-7.46	-7.44
q (cm/yr)	-4.85	-4.83
dispersion length (ft)	0.14	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.14	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.66	0.66
Diffusion + Dispersion (cm2/day)	0.75	0.73

OL-GP-30073-2



Porosity = 0.65
Dispersion length = 0.3 feet
Upwelling Velocity = -0.5 cm/year

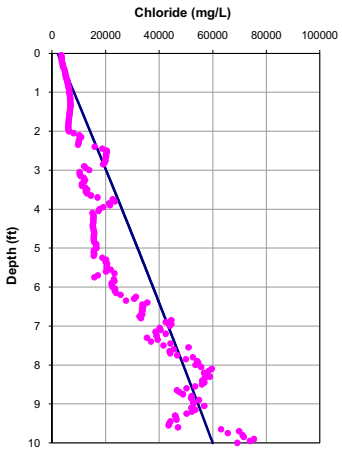
OL-GP-30073-2



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = -5.0 cm/year

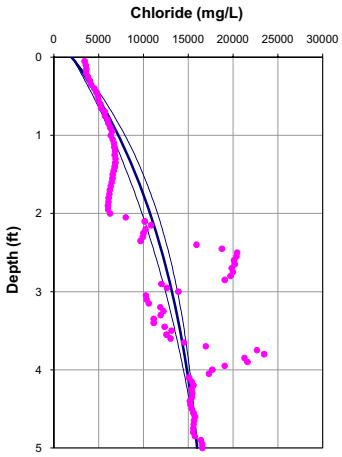
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1086	1086
Cl (mg/L)	23256	9700
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.65	0.65
Calculated Values **********		
V(cm/yr)	-0.74	-7.64
q (cm/yr)	-0.48	-4.97
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.66	0.66
Diffusion + Dispersion (cm2/day)	0.68	0.73

OL-GP-30074



Porosity = 0.65
Dispersion length = 0.3 feet
Upwelling Velocity = ~0 cm/year

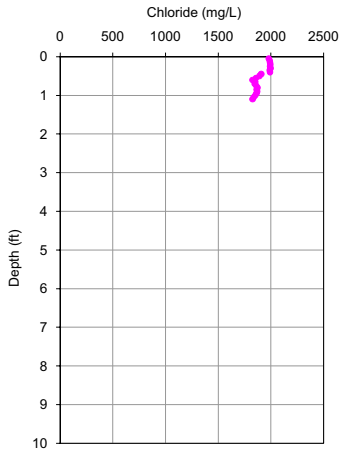
OL-GP-30074



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = -2.0 cm/year

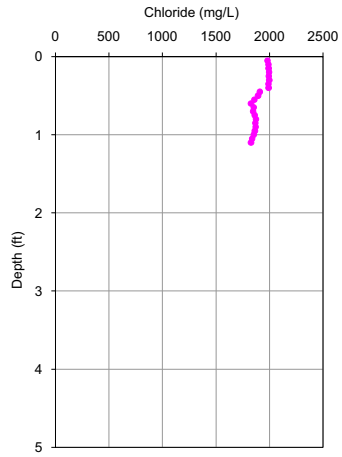
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	2042	2042
Cl (mg/L)	60000	16000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.65	0.65
Calculated Values **********		
V(cm/yr)	-0.10	-3.11
q (cm/yr)	-0.07	-2.02
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.66	0.66
Diffusion + Dispersion (cm2/day)	0.67	0.69

OL-GP-30075-1



Porosity = 0.65
Dispersion length = 0.3 feet
Upwelling Velocity = NA cm/year

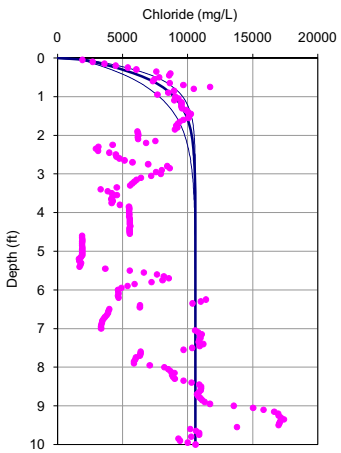
OL-GP-30075-1



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = NA cm/year

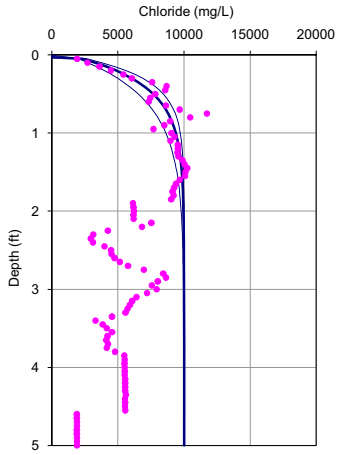
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1980	1980
Cl (mg/L)	1827	1827
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.65	0.65
Calculated Values **********		
V(cm/yr)	-19.90	-13.24
q (cm/yr)	-12.94	-8.61
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.66	0.66
Diffusion + Dispersion (cm2/day)	1.17	0.78

OL-GP-30075-2



Porosity = 0.65
Dispersion length = 0.3 feet
Upwelling Velocity = -18.9 cm/year

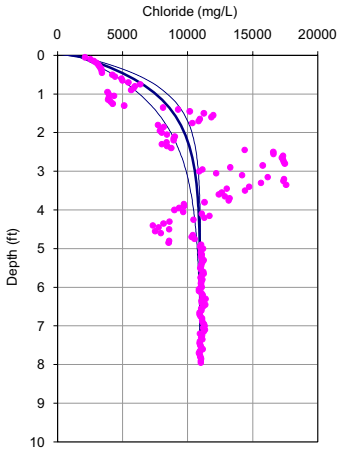
OL-GP-30075-2



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = -18.9 cm/year

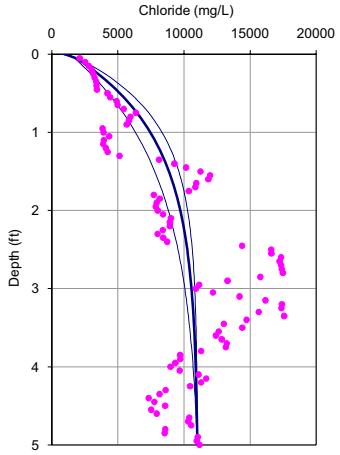
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1268	1268
Cl (mg/L)	10608	10000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.65	0.65
Calculated Values **********		
V(cm/yr)	-29.00	-29.10
q (cm/yr)	-18.85	-18.92
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.66	0.66
Diffusion + Dispersion (cm2/day)	1.40	0.92

OL-GP-30075-3



Porosity = 0.65
Dispersion length = 0.3 feet
Upwelling Velocity = -7.7 cm/year

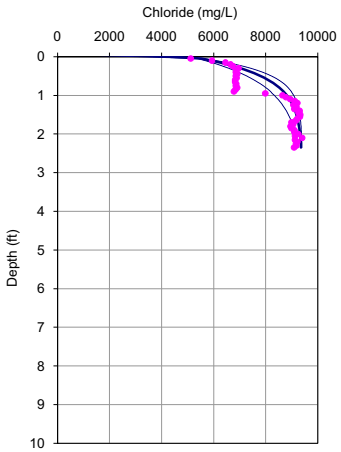
OL-GP-30075-3



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = -5.7 cm/year

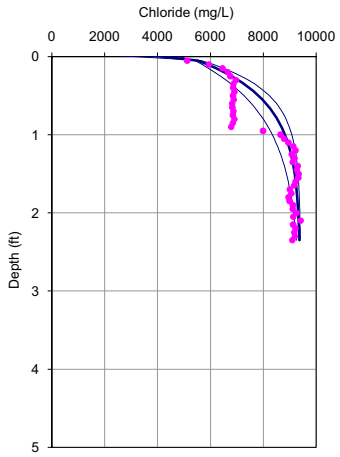
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1373	1373
Cl (mg/L)	11000	11000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.65	0.65
Calculated Values **********		
V(cm/yr)	-11.82	-8.75
q (cm/yr)	-7.68	-5.68
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.66	0.66
Diffusion + Dispersion (cm2/day)	0.97	0.74

OL-GP-30075-4



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = -13.0 cm/year

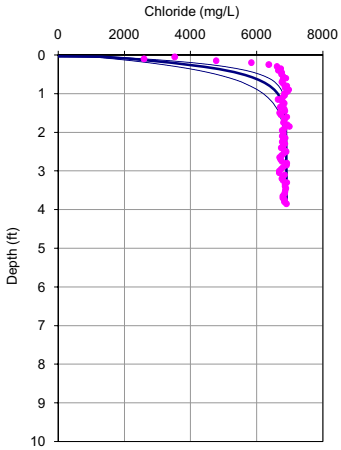
OL-GP-30075-4



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = -13.0 cm/year

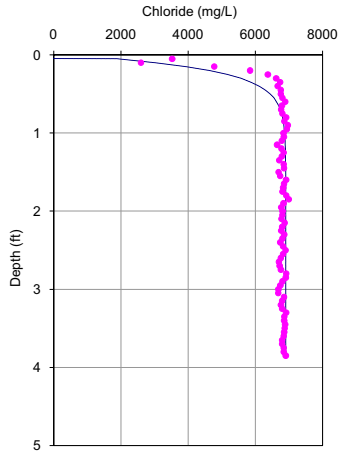
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	5120	5120
Cl (mg/L)	9400	9400
L(ft)	5	5
D (cm2/day)	1.236	1.236
porosity	0.65	0.65
Calculated Values **********		
V(cm/yr)	-20.00	-20.00
q (cm/yr)	-13.00	-13.00
dispersion length (ft)	0.11	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.11	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.66	0.66
Diffusion + Dispersion (cm2/day)	0.84	0.84

OL-GP-30075-5



Porosity = 0.65
Dispersion length = 0.3 feet
Upwelling Velocity = <-32.5 cm/year

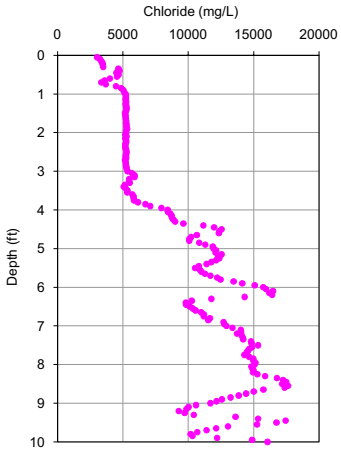
OL-GP-30075-5



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = <-32.5 cm/year

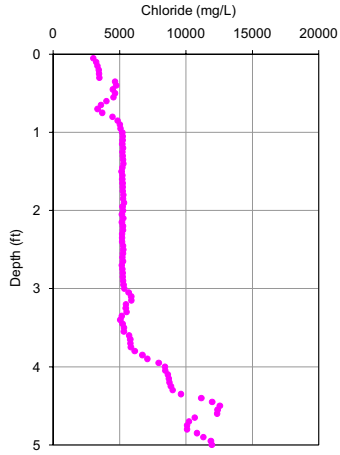
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	6900	6900
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.65	0.65
Calculated Values **********		
V(cm/yr)	-1000.00	-300.00
q (cm/yr)	-650.00	-195.00
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	-0.09	-0.03
Effective. Diffusion (cm2/day)	0.66	0.66
Diffusion + Dispersion (cm2/day)	26.14	3.31

OL-GP-30075-6



Porosity = 0.65
Dispersion length = 0.3 feet
Upwelling Velocity = NA cm/year

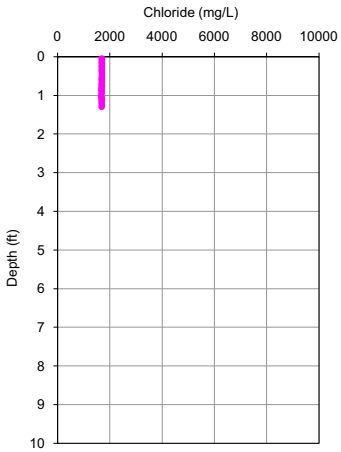
OL-GP-30075-6



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = NA cm/year

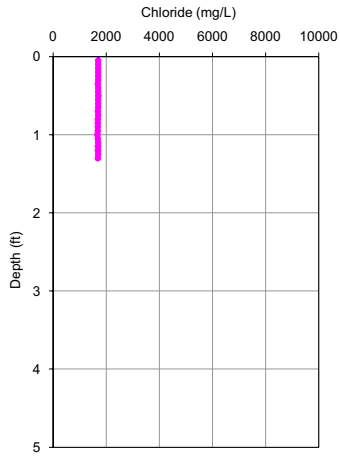
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	2609	2609
Cl (mg/L)	16060	11945
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.65	0.65
Calculated Values **********		
V(cm/yr)	-0.42	-0.10
q (cm/yr)	-0.27	-0.07
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.66	0.66
Diffusion + Dispersion (cm2/day)	0.67	0.66

OL-GP-30075-7



Porosity = 0.65
Dispersion length = 0.3 feet
Upwelling Velocity = NA cm/year

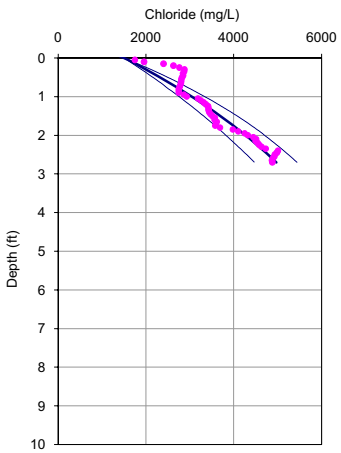
OL-GP-30075-7



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = NA cm/year

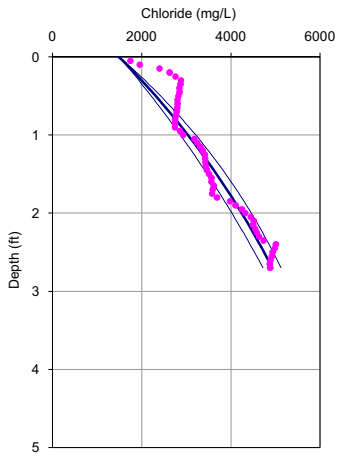
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1709	1709
Cl (mg/L)	1680	1680
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.65	0.65
Calculated Values **********		
V(cm/yr)	-50.00	4916.20
q (cm/yr)	-32.50	3195.53
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.44
Effective. Diffusion (cm2/day)	0.66	0.66
Diffusion + Dispersion (cm2/day)	1.94	44.04

OL-GP-30076-1



Porosity = 0.65
Dispersion length = 0.3 feet
Upwelling Velocity = -1.3 cm/year

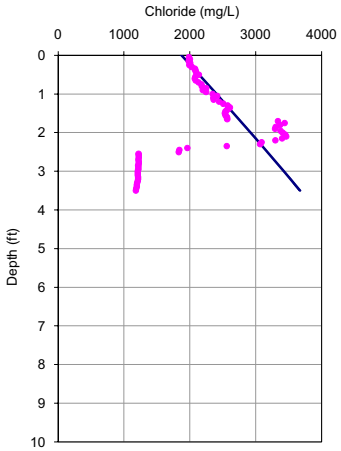
OL-GP-30076-1



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = -1.3 cm/year

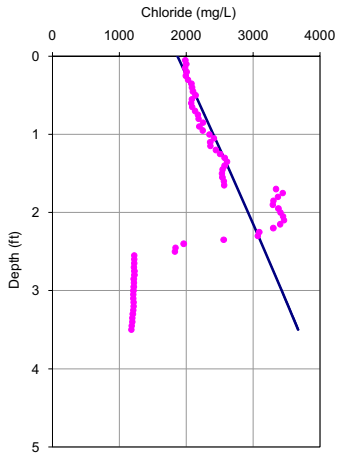
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1500	1500
Cl (mg/L)	8200	6500
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.65	0.65
Calculated Values **********		
V(cm/yr)	-2.00	-2.00
q (cm/yr)	-1.30	-1.30
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.66	0.66
Diffusion + Dispersion (cm2/day)	0.71	0.68

OL-GP-30076-2



Porosity = 0.65
Dispersion length = 0.0 feet
Upwelling Velocity = NA cm/year

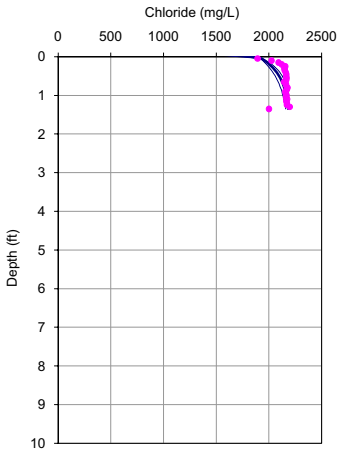
OL-GP-30076-2



Porosity = 0.65
Dispersion length = 0.0 feet
Upwelling Velocity = NA cm/year

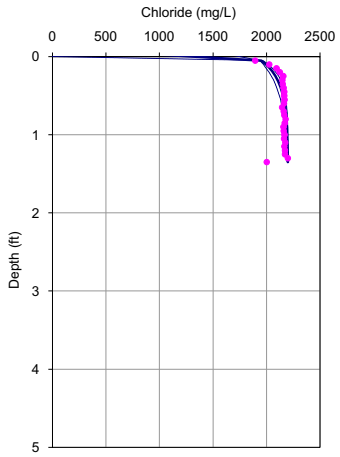
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1870	1870
Cl (mg/L)	3000	3000
L(ft)	2.15	2.15
D (cm2/day)	1.236	1.236
porosity	0.65	0.65
Calculated Values **********		
V(cm/yr)	-0.24	-0.24
q (cm/yr)	-0.16	-0.16
dispersion length (ft)	0.03	0.03
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.03	0.03
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.66	0.66
Diffusion + Dispersion (cm2/day)	0.66	0.66

OL-GP-30076-3



Porosity = 0.65
Dispersion length = 0.3 feet
Upwelling Velocity = <-32.5 cm/year

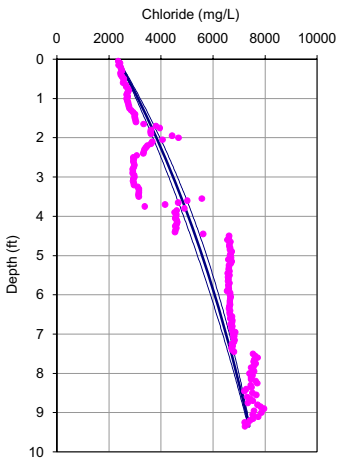
OL-GP-30076-3



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = <-32.5 cm/year

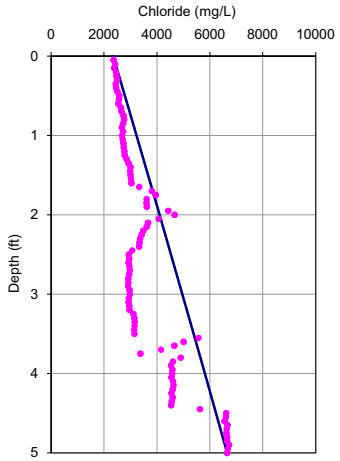
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1900	1900
Cl (mg/L)	2200	2200
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.65	0.65
Calculated Values **********		
V(cm/yr)	-50.00	-50.00
q (cm/yr)	-32.50	-32.50
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.66	0.66
Diffusion + Dispersion (cm2/day)	1.94	1.11

OL-GP-30076-4



Porosity = 0.65
Dispersion length = 0.3 feet
Upwelling Velocity = -0.5 cm/year

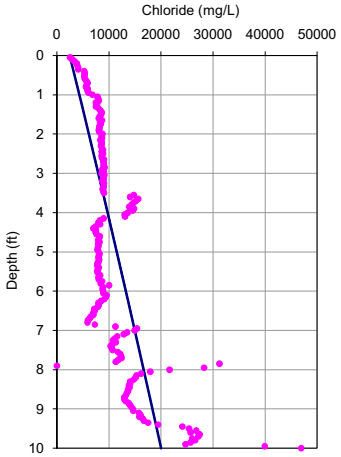
OL-GP-30076-4



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = ~0 cm/year

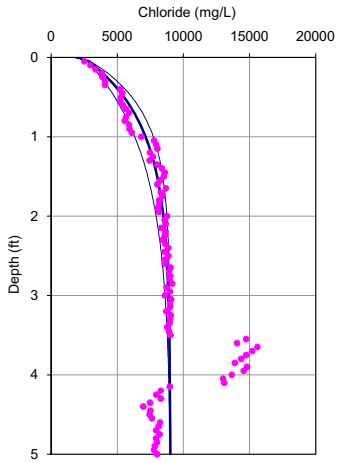
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	2343	2343
Cl (mg/L)	7600	6650
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.65	0.65
Calculated Values **********		
V(cm/yr)	-0.77	-0.10
q (cm/yr)	-0.50	-0.07
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.66	0.66
Diffusion + Dispersion (cm2/day)	0.68	0.66

OL-GP-30077



Porosity = 0.65
Dispersion length = 0.3 feet
Upwelling Velocity = ~0 cm/year

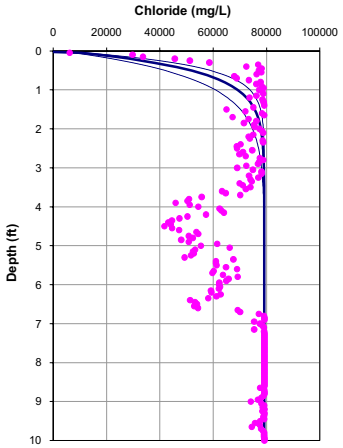
OL-GP-30077



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = -7.5 cm/year

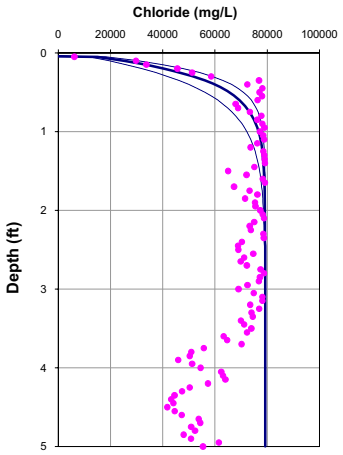
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	2446	2446
Cl (mg/L)	20000	9000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.65	0.65
Calculated Values **********		
V(cm/yr)	-0.10	-11.48
q (cm/yr)	-0.07	-7.46
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.66	0.66
Diffusion + Dispersion (cm2/day)	0.67	0.77

OL-GP-40074



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = <-37.5 cm/year

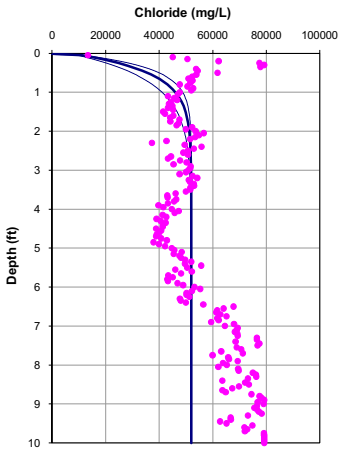
OL-GP-40074



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = <-37.5 cm/year

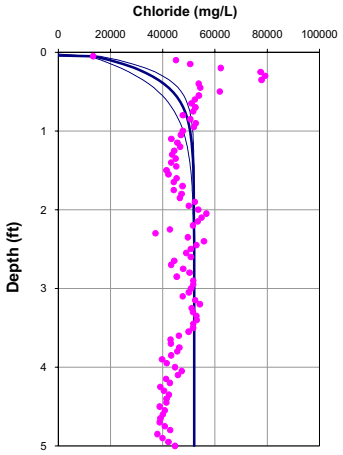
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	3124	3124
Cl (mg/L)	79200	79200
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-50.00	-50.00
q (cm/yr)	-37.50	-37.50
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	2.06	1.23

OL-GP-40074A



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = <-37.5 cm/year

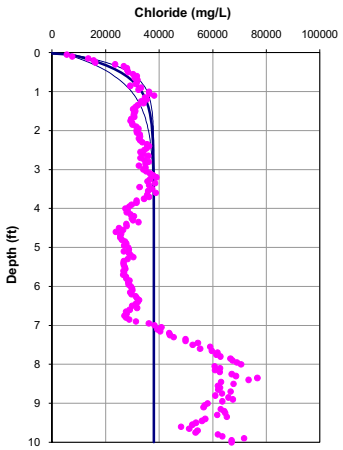
OL-GP-40074A



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = <-37.5 cm/year

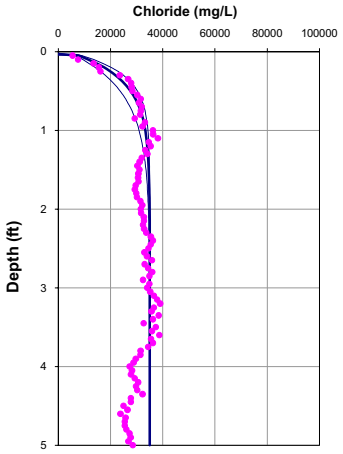
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	6717	6717
Cl (mg/L)	52000	52000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-50.00	-50.00
q (cm/yr)	-37.50	-37.50
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	2.06	1.23

OL-GP-40075



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = <-37.5 cm/year

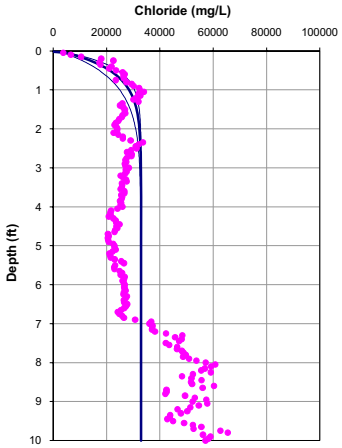
OL-GP-40075



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -29.6 cm/year

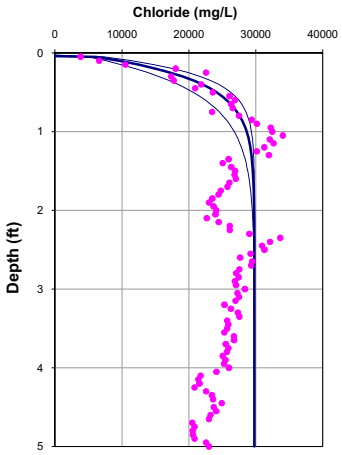
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	3539	3539
Cl (mg/L)	38000	35050
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-50.00	-39.47
q (cm/yr)	-37.50	-29.60
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	2.06	1.13

OL-GP-40076



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -33.0 cm/year

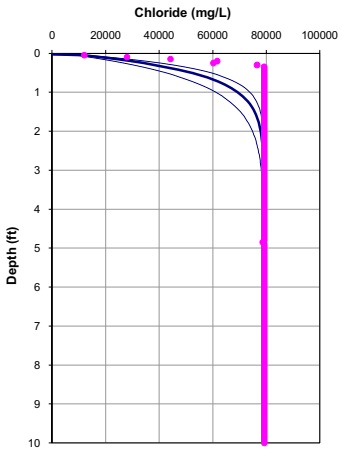
OL-GP-40076



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -33.5 cm/year

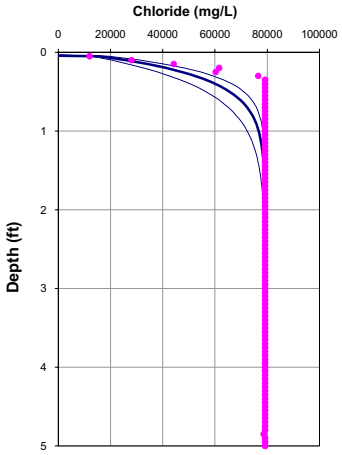
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	2071	2071
Cl (mg/L)	33000	29800
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-44.00	-44.67
q (cm/yr)	-33.00	-33.50
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	1.91	1.18

OL-GP-40076A



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = <-37.5 cm/year

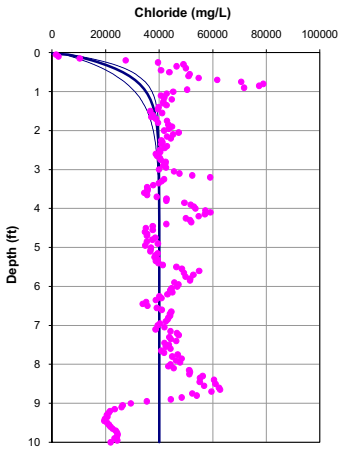
OL-GP-40076A



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = <-37.5 cm/year

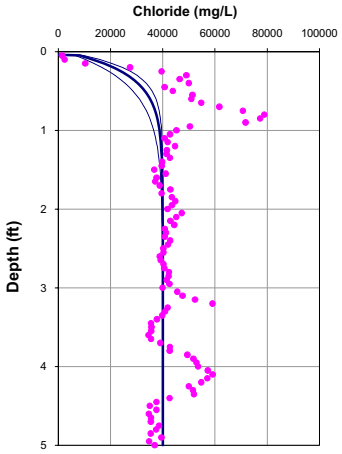
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	4329	4329
Cl (mg/L)	79200	79200
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-50.00	-50.00
q (cm/yr)	-37.50	-37.50
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	2.06	1.23

OL-GP-40077



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = <-37.5 cm/year

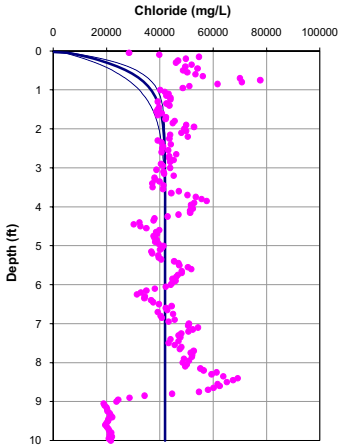
OL-GP-40077



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = <-37.5 cm/year

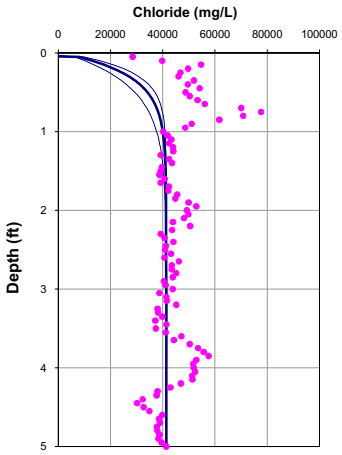
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	2400	2400
Cl (mg/L)	40000	40000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-50.00	-50.00
q (cm/yr)	-37.50	-37.50
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	2.06	1.23

OL-GP-40078



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = <-37.5 cm/year

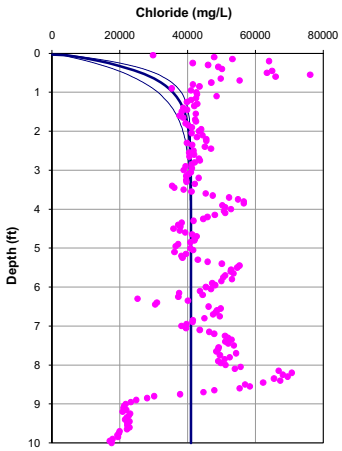
OL-GP-40078



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = <-37.5 cm/year

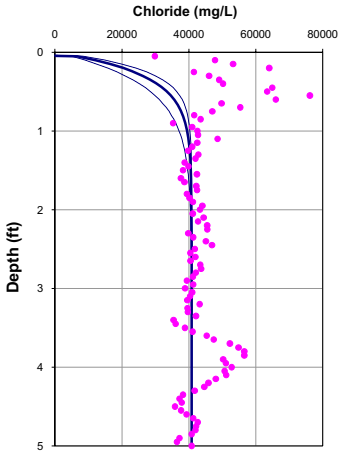
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1700	1700
Cl (mg/L)	42000	41332
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-50.00	-50.00
q (cm/yr)	-37.50	-37.50
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	2.06	1.23

OL-GP-40079



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = <-37.5 cm/year

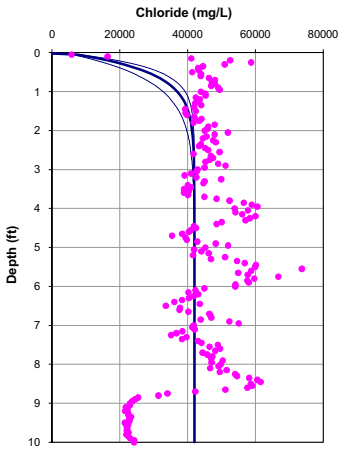
OL-GP-40079



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = <-37.5 cm/year

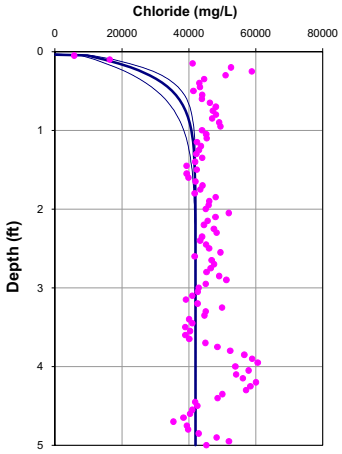
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	41000	40812
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-50.00	-50.00
q (cm/yr)	-37.50	-37.50
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	2.06	1.23

OL-GP-40079A



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = <-37.5 cm/year

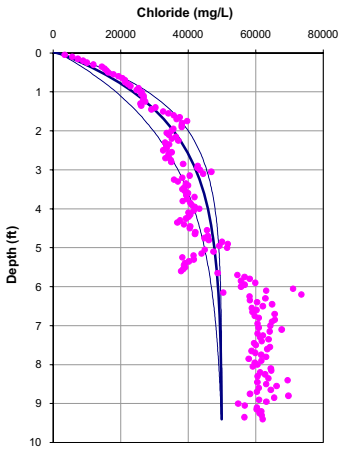
OL-GP-40079A



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = <-37.5 cm/year

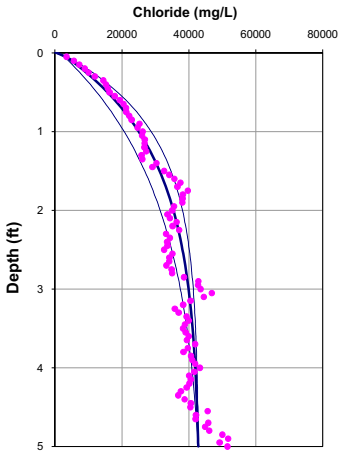
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	3633	3633
Cl (mg/L)	42000	42000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-50.00	-50.00
q (cm/yr)	-37.50	-37.50
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	2.06	1.23

OL-GP-40080



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -5.3 cm/year

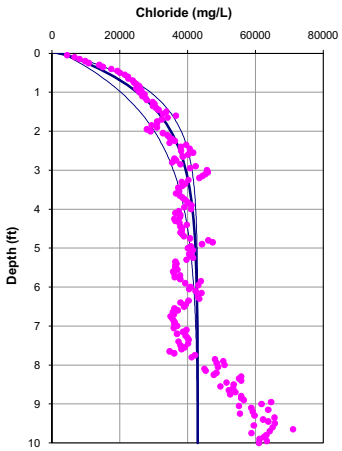
OL-GP-40080



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -6.3 cm/year

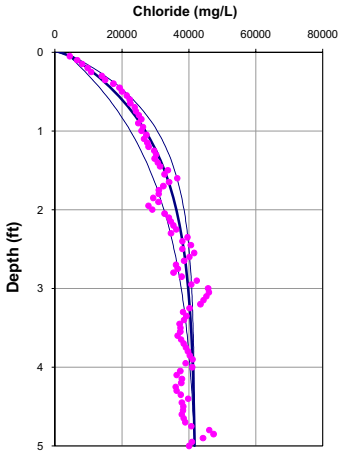
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1572	1572
Cl (mg/L)	50000	42800
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-7.00	-8.44
q (cm/yr)	-5.25	-6.33
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.96	0.86

OL-GP-40081



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -7.6 cm/year

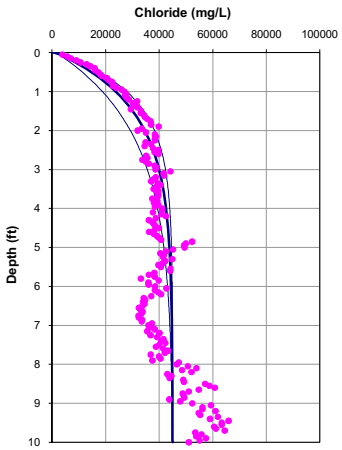
OL-GP-40081



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -7.5 cm/year

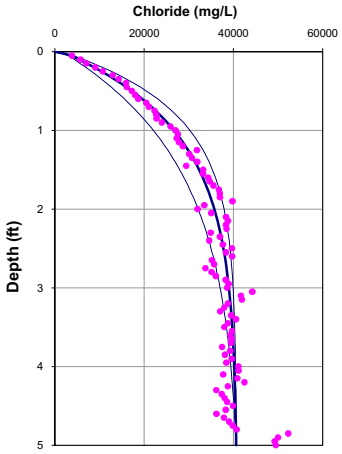
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	2885	2885
Cl (mg/L)	43000	41700
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-10.10	-10.00
q (cm/yr)	-7.58	-7.50
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	1.04	0.87

OL-GP-40082



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -6.5 cm/year

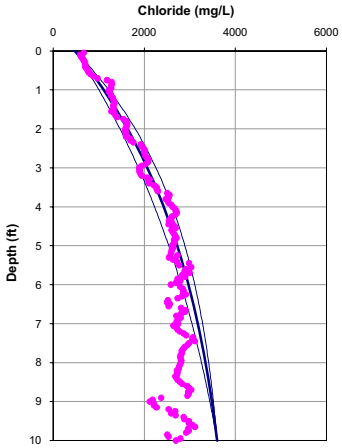
OL-GP-40082



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -8.0 cm/year

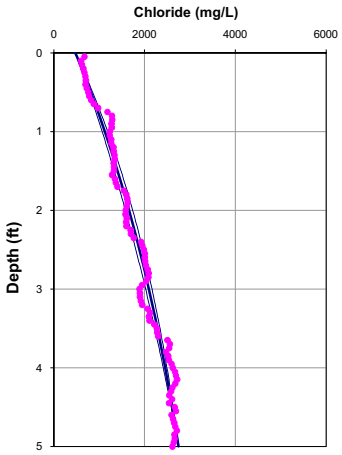
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1587	1587
Cl (mg/L)	45000	40600
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-8.61	-10.71
q (cm/yr)	-6.45	-8.03
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	1.00	0.88

OL-GP-40107



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -1.4 cm/year

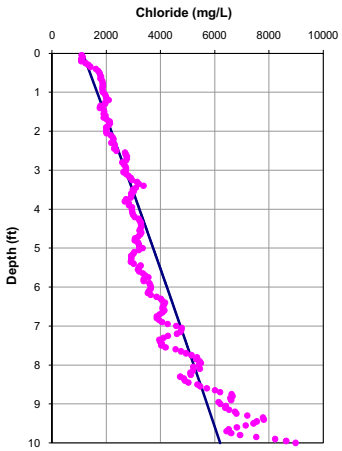
OL-GP-40107



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -1.4 cm/year

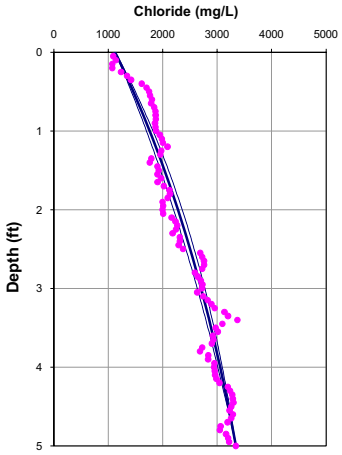
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	477	477
Cl (mg/L)	3600	2750
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-1.88	-1.88
q (cm/yr)	-1.41	-1.41
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.83	0.80

OL-GP-40108



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = ~0 cm/year

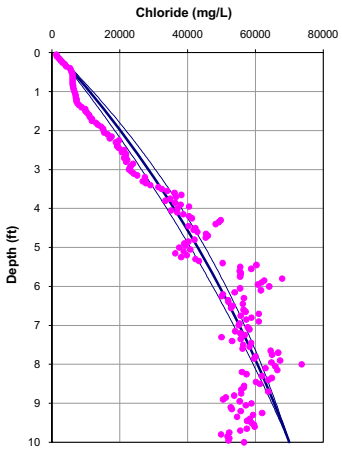
OL-GP-40108



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -1.4 cm/year

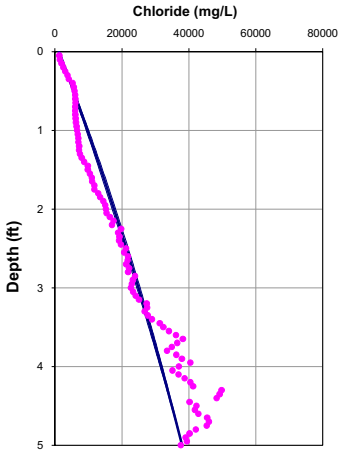
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1129	1129
Cl (mg/L)	6200	3343
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-0.10	-1.89
q (cm/yr)	-0.08	-1.41
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.79	0.80

OL-GP-40109



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -0.6 cm/year

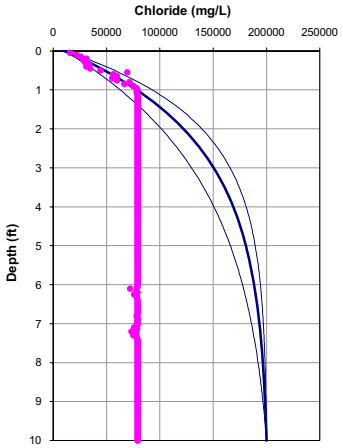
OL-GP-40109



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -0.6 cm/year

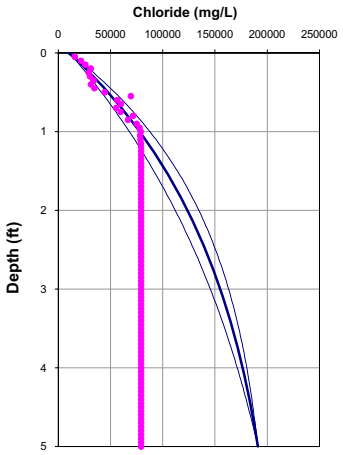
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1155	1155
Cl (mg/L)	70000	38000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-0.85	-0.74
q (cm/yr)	-0.64	-0.55
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.81	0.79

OL-GP-40110



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -3.5 cm/year

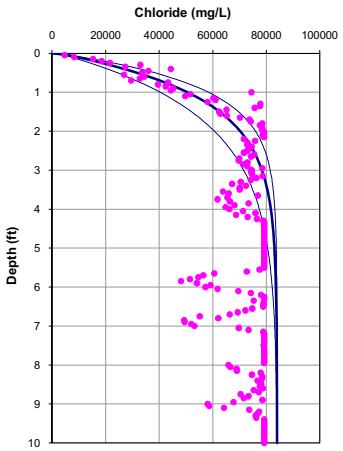
OL-GP-40110



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -2.8 cm/year

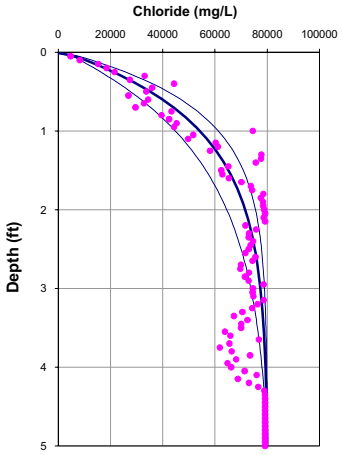
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	10703	10703
Cl (mg/L)	200000	191000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-4.71	-3.73
q (cm/yr)	-3.53	-2.80
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.90	0.82

OL-GP-40110A



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -8.6 cm/year

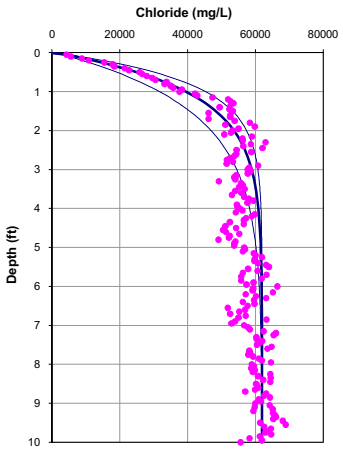
OL-GP-40110A



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -8.7 cm/year

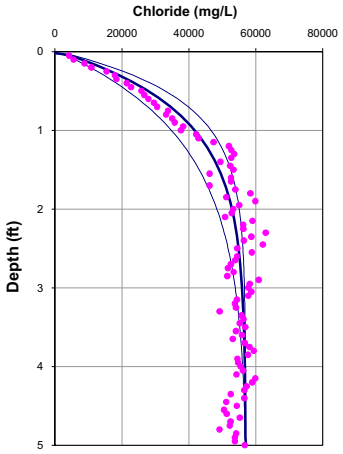
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	2499	2499
Cl (mg/L)	84000	80000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-11.48	-11.58
q (cm/yr)	-8.61	-8.68
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	1.08	0.89

OL-GP-40114



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -10.1 cm/year

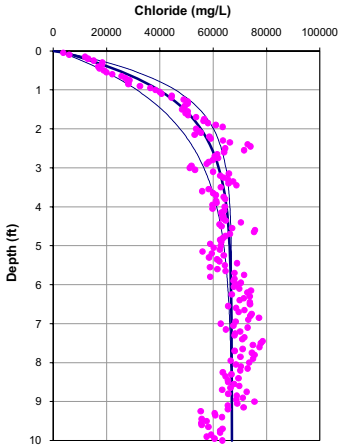
OL-GP-40114



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -10.6 cm/year

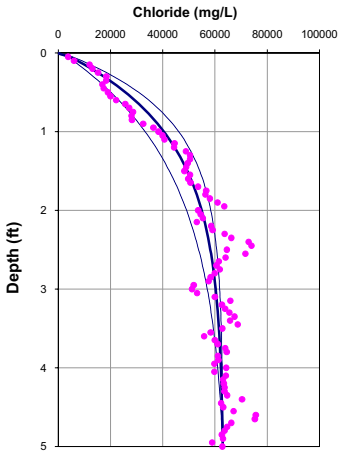
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1108	1108
Cl (mg/L)	62000	56950
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-13.42	-14.12
q (cm/yr)	-10.07	-10.59
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	1.13	0.91

OL-GP-40115



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -8.3 cm/year

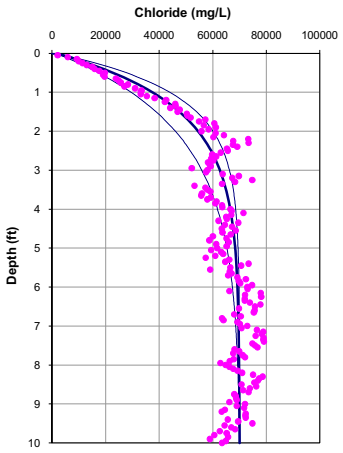
OL-GP-40115



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -7.8 cm/year

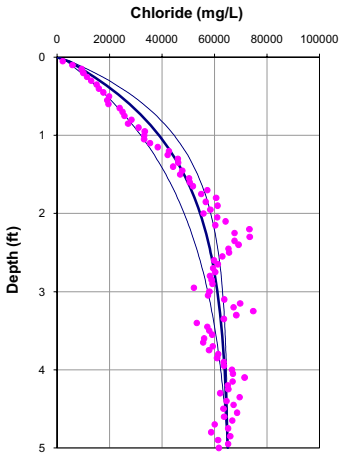
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1508	1508
Cl (mg/L)	67000	63000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-11.04	-10.39
q (cm/yr)	-8.28	-7.79
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	1.07	0.88

OL-GP-40116



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -6.8 cm/year

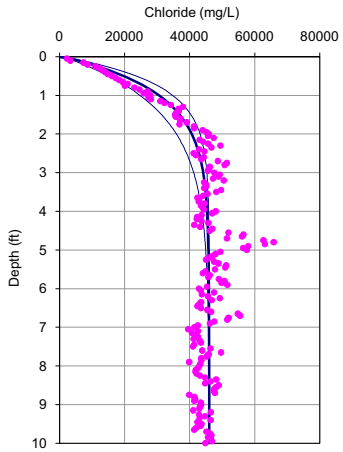
OL-GP-40116



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -6.7 cm/year

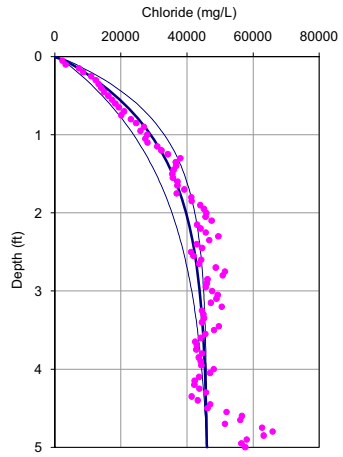
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1514	1514
Cl (mg/L)	70000	65000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-9.03	-8.99
q (cm/yr)	-6.77	-6.74
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	1.01	0.86

OL-GP-40117



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -11.1 cm/year

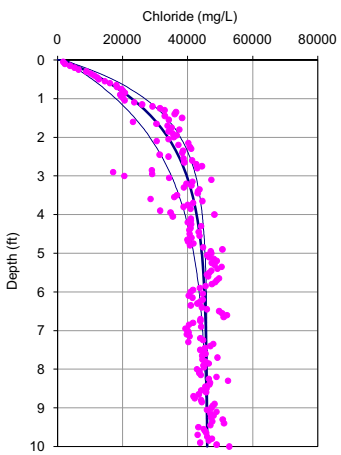
OL-GP-40117



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -7.5 cm/year

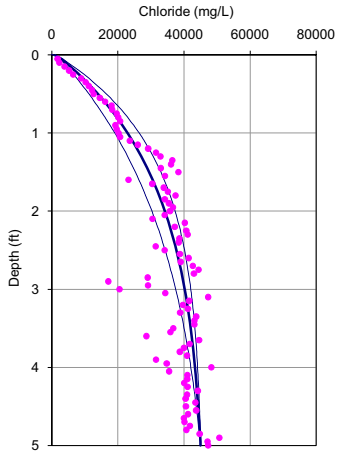
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1102	1102
Cl (mg/L)	46000	46000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-14.86	-10.00
q (cm/yr)	-11.14	-7.50
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	1.16	0.87

OL-GP-40118



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -5.7 cm/year

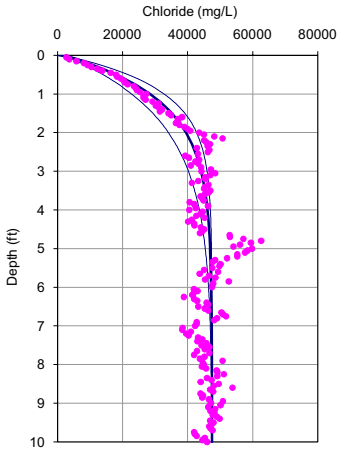
OL-GP-40118



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -4.8 cm/year

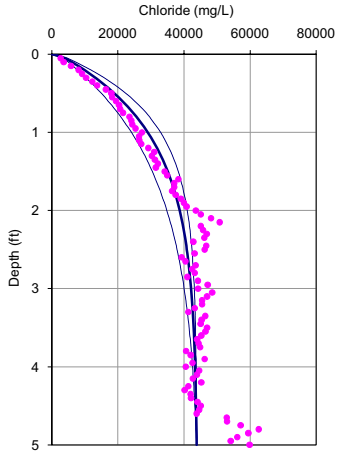
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1455	1455
Cl (mg/L)	46000	45000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-7.63	-6.44
q (cm/yr)	-5.72	-4.83
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.98	0.84

OL-GP-40119



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -8.3 cm/year

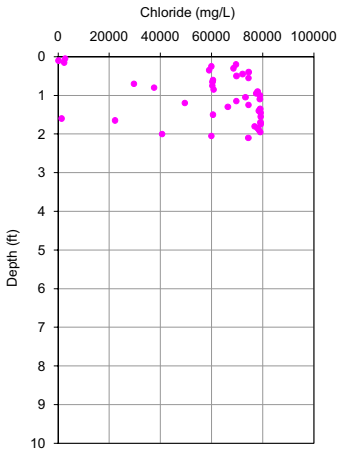
OL-GP-40119



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -8.2 cm/year

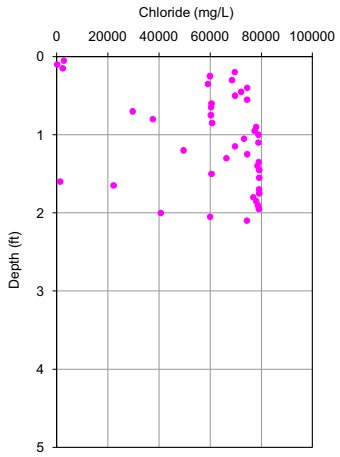
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1974	1974
Cl (mg/L)	47500	43800
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-11.12	-10.87
q (cm/yr)	-8.34	-8.15
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	1.07	0.88

OL-GP-40123



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = NA cm/year

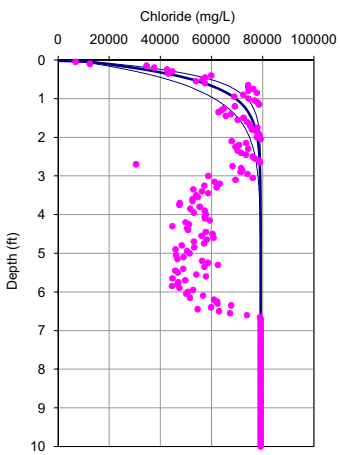
OL-GP-40123



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = NA cm/year

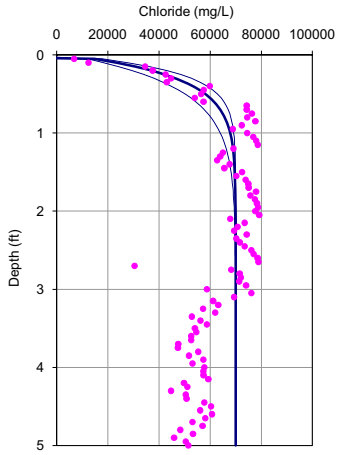
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	72	72
Cl (mg/L)	74386	74386
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-6.74	-4.97
q (cm/yr)	-5.06	-3.72
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.96	0.83

OL-GP-40143



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = <-37.5 cm/year

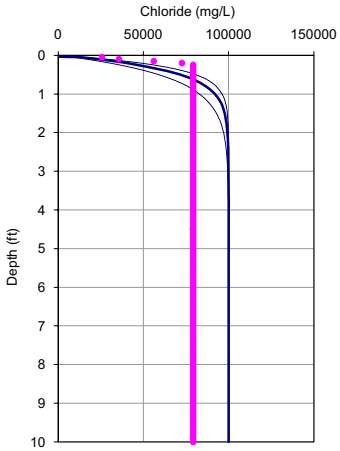
OL-GP-40143



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = <-37.5 cm/year

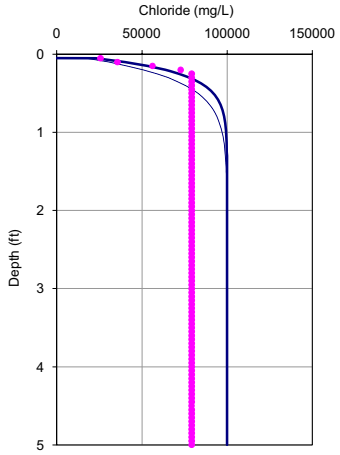
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	4583	4583
Cl (mg/L)	79200	70000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-50.00	-50.00
q (cm/yr)	-37.50	-37.50
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	2.06	1.23

OL-GP-40144



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = <-37.5 cm/year

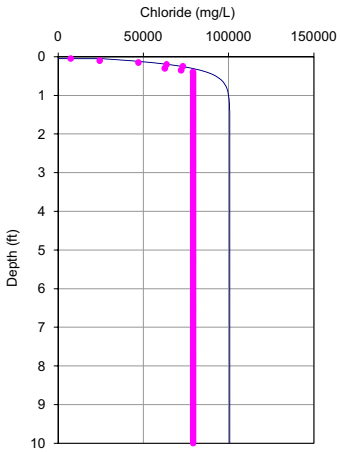
OL-GP-40144



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = <-37.5 cm/year

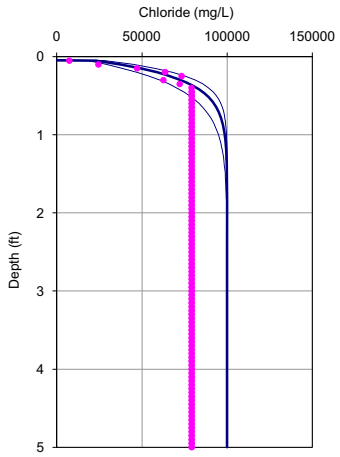
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1000	1000
Cl (mg/L)	100000	100000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-100.00	-100.00
q (cm/yr)	-75.00	-75.00
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	-0.01	-0.01
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	3.33	1.67

OL-GP-40145



Porosity = 0.75
Dispersion length = 0.0 feet
Upwelling Velocity = <-37.5 cm/year

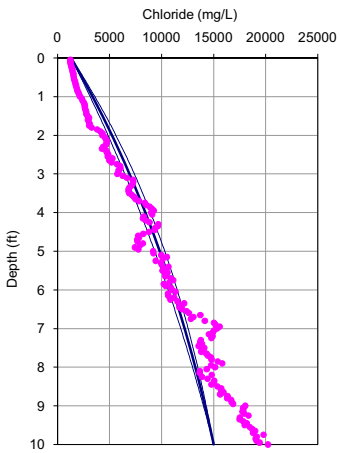
OL-GP-40145



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = <-37.5 cm/year

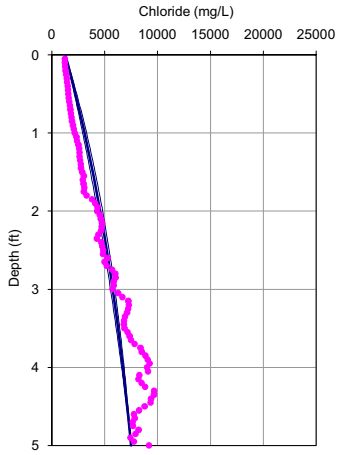
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	5020	5020
Cl (mg/L)	100000	100000
L(ft)	1	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-70.00	-70.00
q (cm/yr)	-52.50	-52.50
dispersion length (ft)	0.01	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.01	0.11
V(ft/d)	-0.01	-0.01
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.84	1.40

OL-GP-40148



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -0.7 cm/year

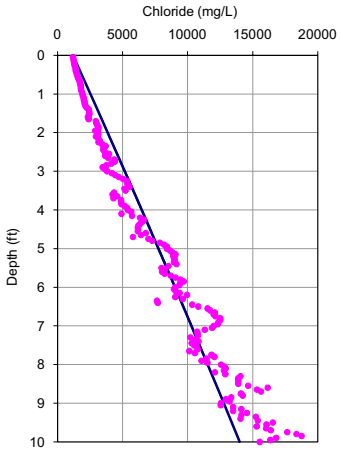
OL-GP-40148



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -1.5 cm/year

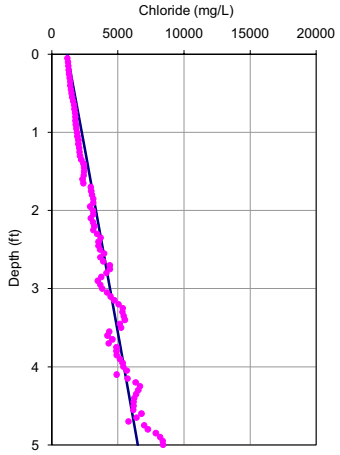
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1288	1288
Cl (mg/L)	15000	7500
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-0.97	-2.04
q (cm/yr)	-0.73	-1.53
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.81	0.80

OL-GP-40149



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = ~0 cm/year

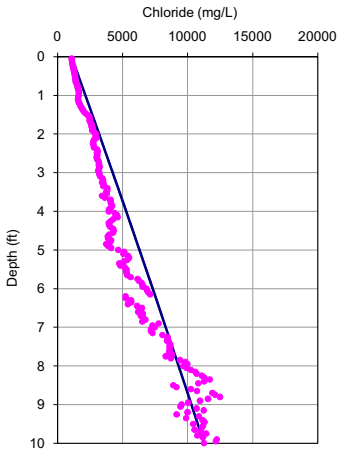
OL-GP-40149



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = ~0 cm/year

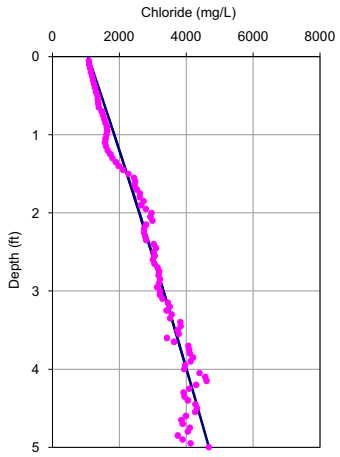
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1180	1180
Cl (mg/L)	14000	6500
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-0.10	-0.10
q (cm/yr)	-0.08	-0.08
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.79	0.79

OL-GP-40150



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = ~0 cm/year

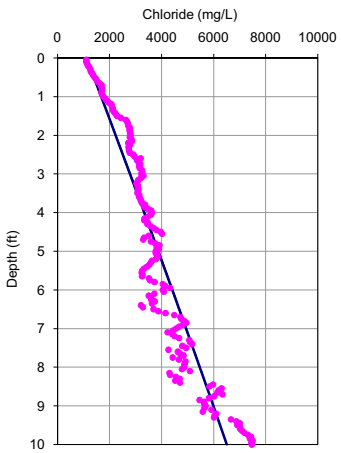
OL-GP-40150



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -0.3 cm/year

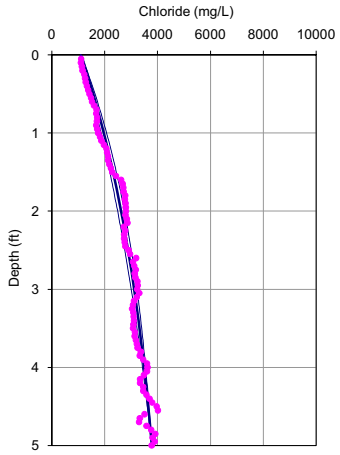
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1072	1072
Cl (mg/L)	11259	4674
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-0.10	-0.37
q (cm/yr)	-0.08	-0.28
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.79	0.79

OL-GP-40151



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = ~0 cm/year

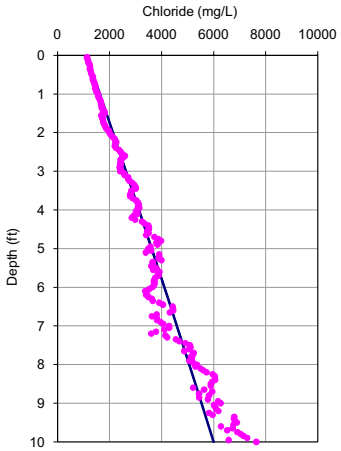
OL-GP-40151



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -2.0 cm/year

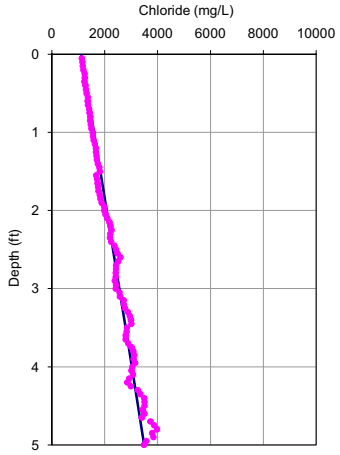
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1107	1107
Cl (mg/L)	6500	3779
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-0.10	-2.66
q (cm/yr)	-0.08	-2.00
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.79	0.81

OL-GP-40152



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = ~0 cm/year

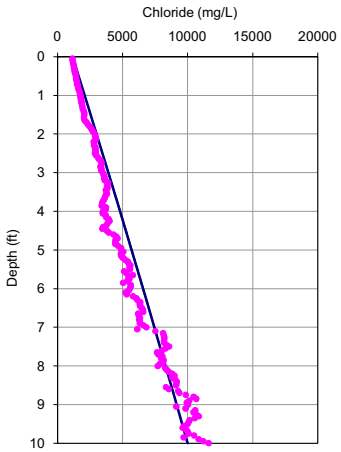
OL-GP-40152



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = ~0 cm/year

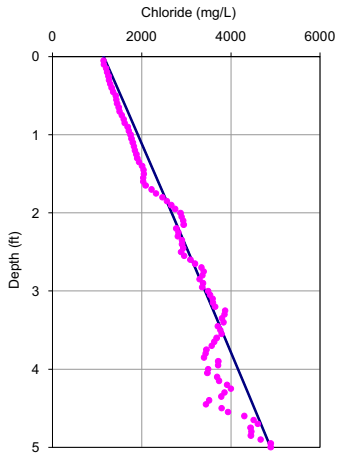
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1108	1108
Cl (mg/L)	6000	3488
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-0.10	-0.13
q (cm/yr)	-0.08	-0.10
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.79	0.79

OL-GP-40153



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = ~0 cm/year

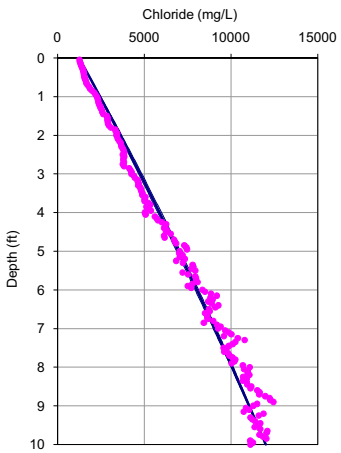
OL-GP-40153



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = ~0 cm/year

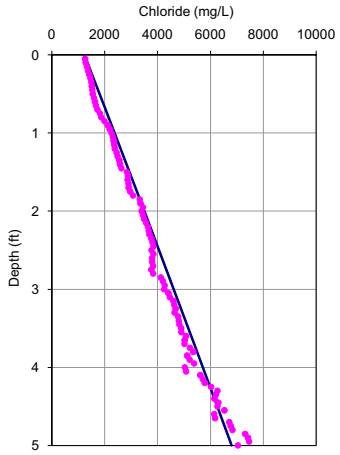
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1153	1153
Cl (mg/L)	10000	4893
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-0.10	-0.10
q (cm/yr)	-0.08	-0.08
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.79	0.79

OL-GP-40154



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -0.2 cm/year

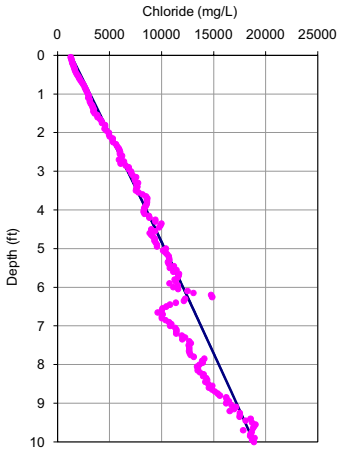
OL-GP-40154



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = ~0 cm/year

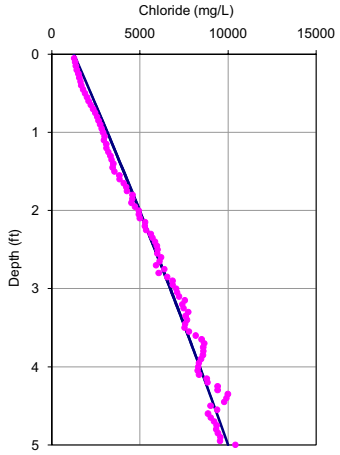
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1239	1239
Cl (mg/L)	12000	6800
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-0.25	-0.10
q (cm/yr)	-0.19	-0.08
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.79	0.79

OL-GP-40155



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = ~0 cm/year

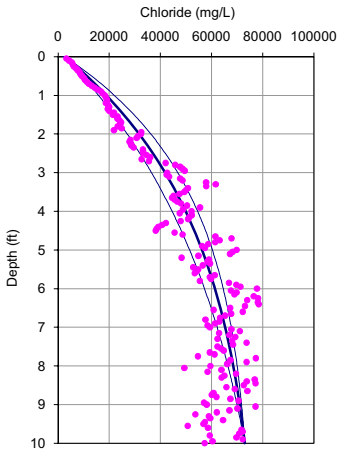
OL-GP-40155



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -0.3 cm/year

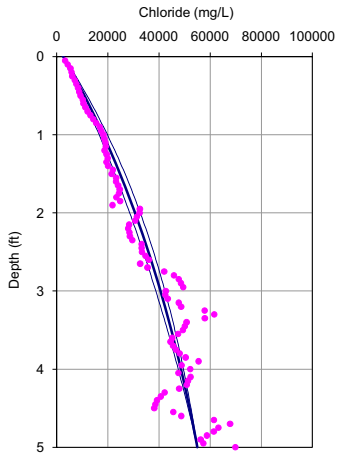
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1267	1267
Cl (mg/L)	18875	10000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-0.10	-0.38
q (cm/yr)	-0.08	-0.29
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.79	0.79

OL-GP-40156



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -1.8 cm/year

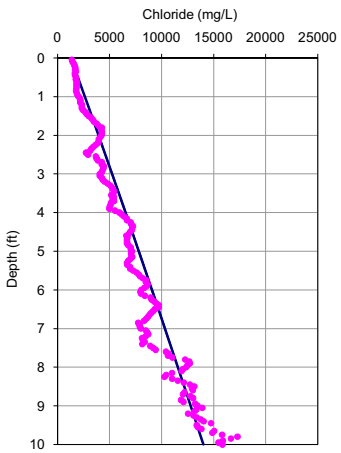
OL-GP-40156



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -1.6 cm/year

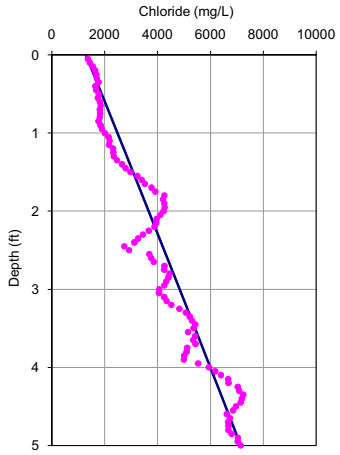
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	2676	2676
Cl (mg/L)	73000	55000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-2.36	-2.13
q (cm/yr)	-1.77	-1.60
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.84	0.80

OL-GP-40157



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = ~0 cm/year

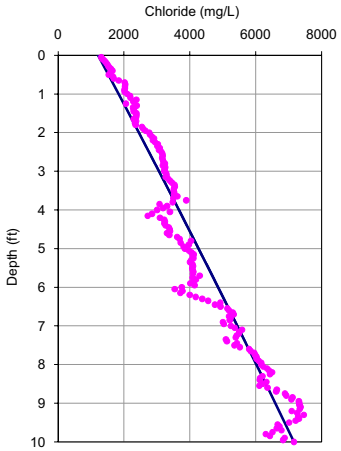
OL-GP-40157



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = ~0 cm/year

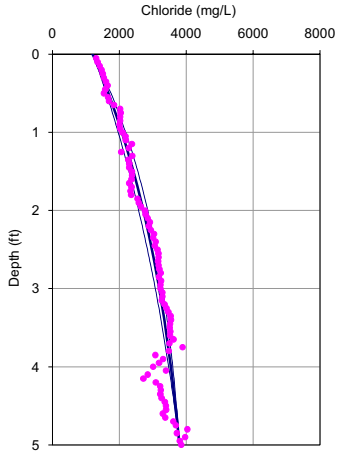
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1285	1285
Cl (mg/L)	14000	7140
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-0.10	-0.10
q (cm/yr)	-0.08	-0.08
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.79	0.79

OL-GP-40158



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = ~0 cm/year

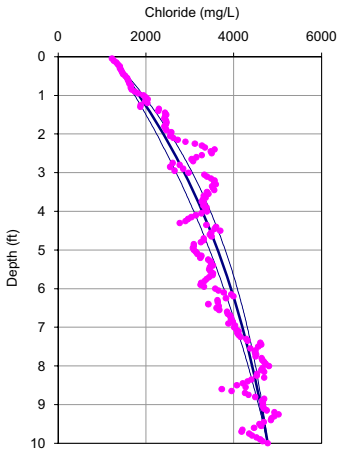
OL-GP-40158



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -2.2 cm/year

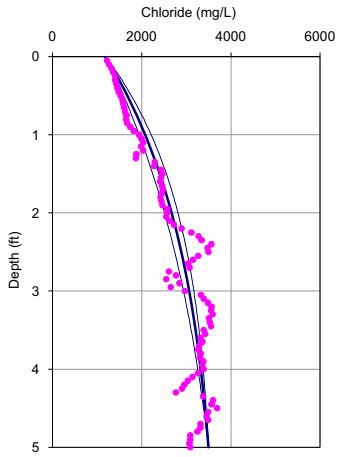
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1213	1213
Cl (mg/L)	7163	3800
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-0.10	-2.93
q (cm/yr)	-0.08	-2.20
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.79	0.81

OL-GP-40159



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -1.1 cm/year

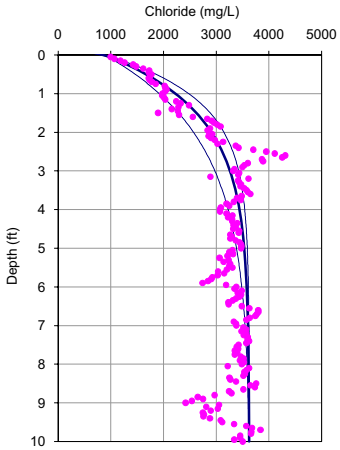
OL-GP-40159



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -3.0 cm/year

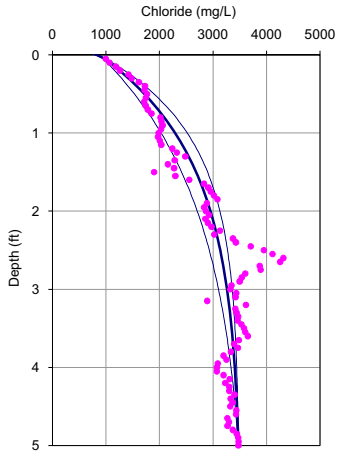
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1192	1192
Cl (mg/L)	4773	3500
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-1.51	-4.00
q (cm/yr)	-1.13	-3.00
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.82	0.82

OL-GP-40160



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -6.0 cm/year

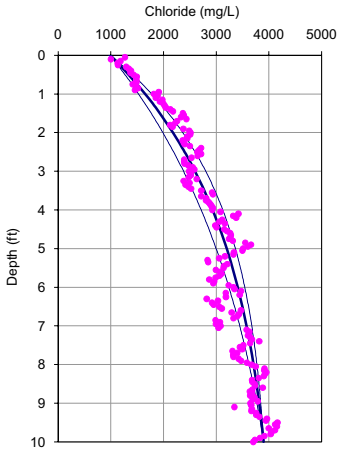
OL-GP-40160



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -5.8 cm/year

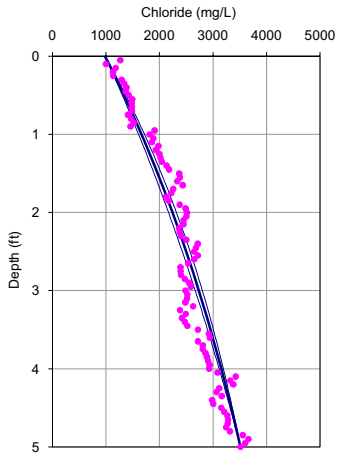
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	881	881
Cl (mg/L)	3625	3474
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-7.94	-7.75
q (cm/yr)	-5.96	-5.81
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.99	0.85

OL-GP-40161



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -1.7 cm/year

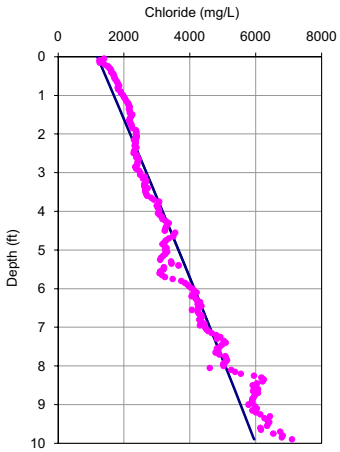
OL-GP-40161



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -1.2 cm/year

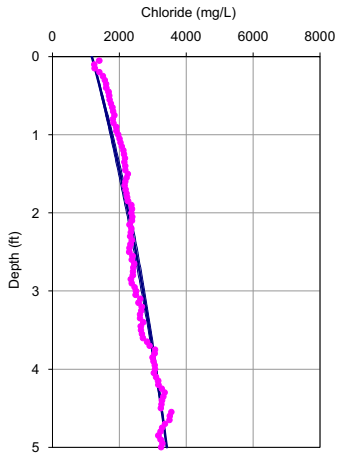
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	986	986
Cl (mg/L)	3900	3512
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-2.32	-1.54
q (cm/yr)	-1.74	-1.15
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.84	0.80

OL-GP-40162



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = ~0 cm/year

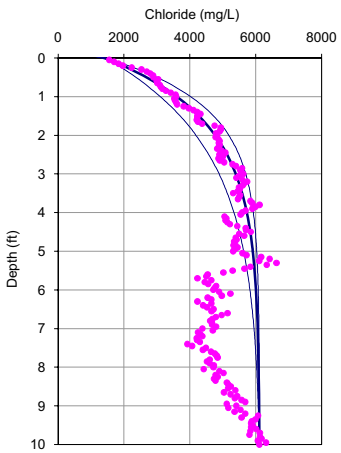
OL-GP-40162



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -1.0 cm/year

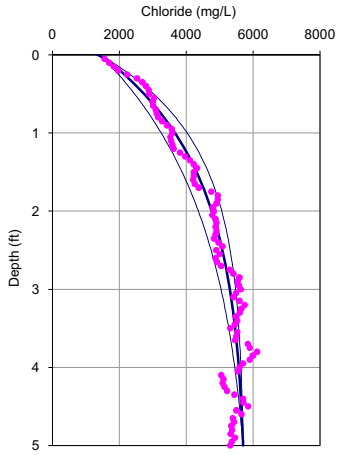
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1185	1185
Cl (mg/L)	6000	3420
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-0.10	-1.35
q (cm/yr)	-0.08	-1.01
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.79	0.80

OL-GP-40163



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -5.4 cm/year

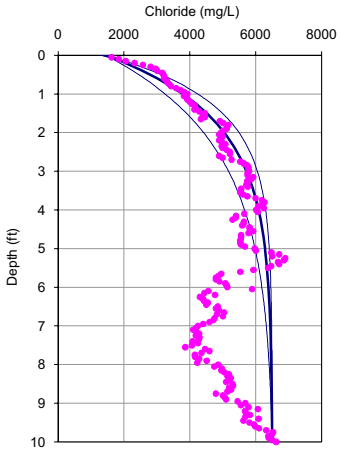
OL-GP-40163



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -5.4 cm/year

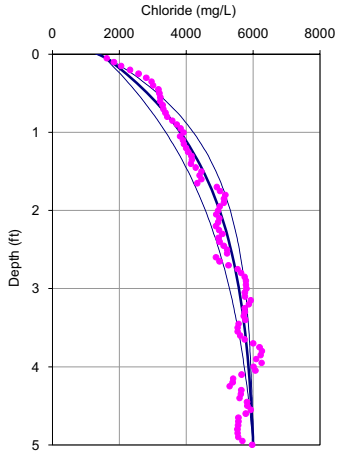
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1432	1432
Cl (mg/L)	6113	5700
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-7.20	-7.20
q (cm/yr)	-5.40	-5.40
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.97	0.85

OL-GP-40163-A



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -5.4 cm/year

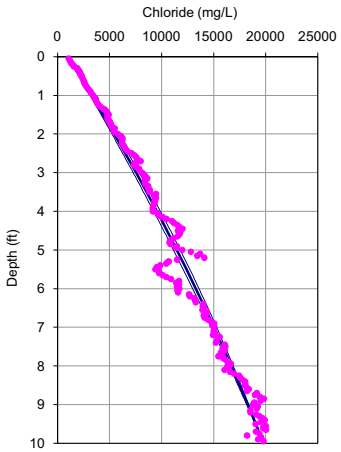
OL-GP-40163-A



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -5.4 cm/year

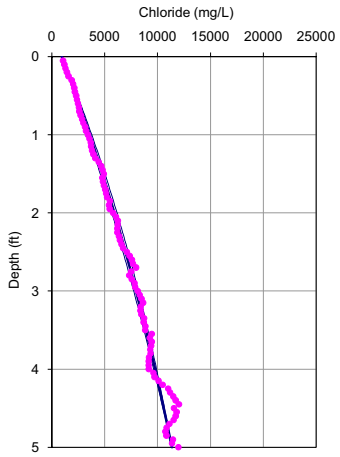
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1449	1449
Cl (mg/L)	6500	6000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-7.18	-7.18
q (cm/yr)	-5.39	-5.38
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.97	0.85

OL-GP-40164.DAT



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -0.3 cm/year

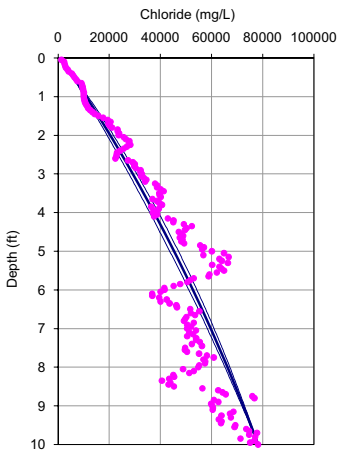
OL-GP-40164.DAT



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -0.9 cm/year

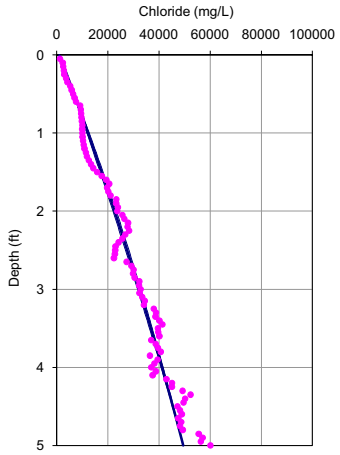
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	957	957
Cl (mg/L)	19799	11350
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-0.44	-1.22
q (cm/yr)	-0.33	-0.91
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.80	0.80

OL-GP-40165.DAT



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -0.4 cm/year

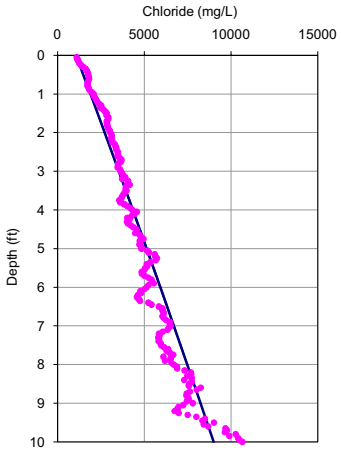
OL-GP-40165.DAT



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -0.5 cm/year

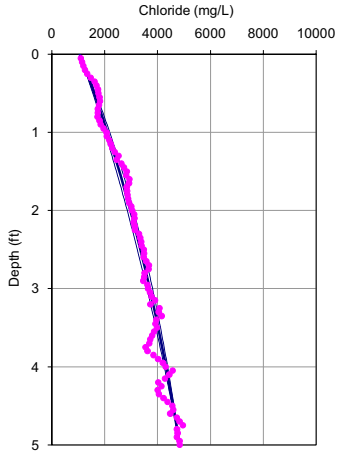
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1034	1034
Cl (mg/L)	78194	49500
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-0.58	-0.72
q (cm/yr)	-0.43	-0.54
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.80	0.79

OL-GP-40166



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = ~0 cm/year

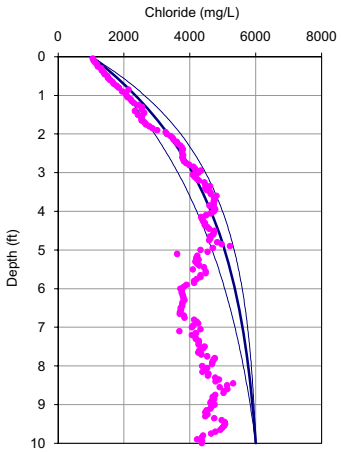
OL-GP-40166



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -1.3 cm/year

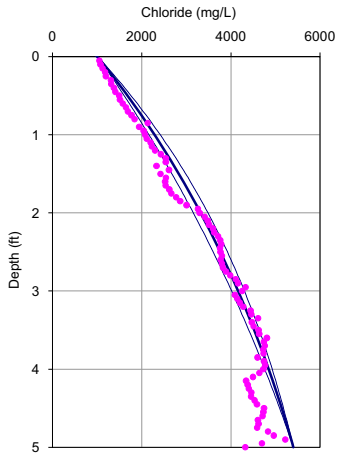
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1065	1065
Cl (mg/L)	9000	4835
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-0.10	-1.67
q (cm/yr)	-0.08	-1.25
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.79	0.80

OL-GP-40167.DAT



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -2.3 cm/year

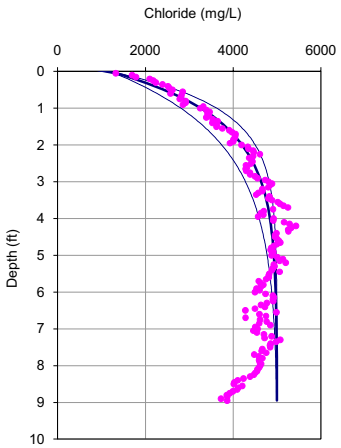
OL-GP-40167.DAT



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -1.5 cm/year

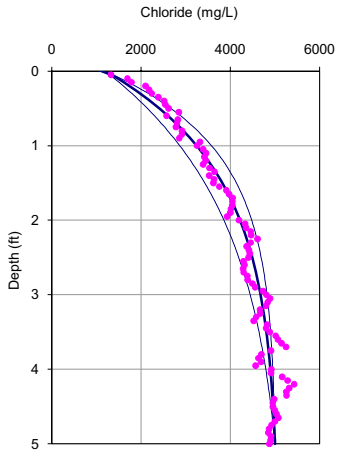
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1015	1015
Cl (mg/L)	6000	5400
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-3.00	-2.00
q (cm/yr)	-2.25	-1.50
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.86	0.80

OL-GP-40168.DAT



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -7.1 cm/year

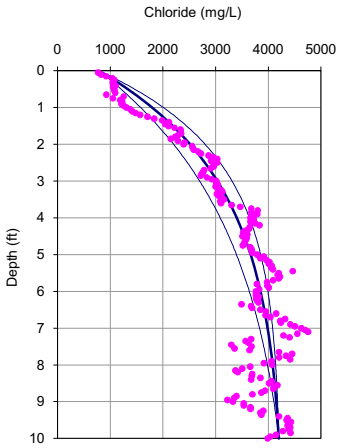
OL-GP-40168.DAT



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -5.7 cm/year

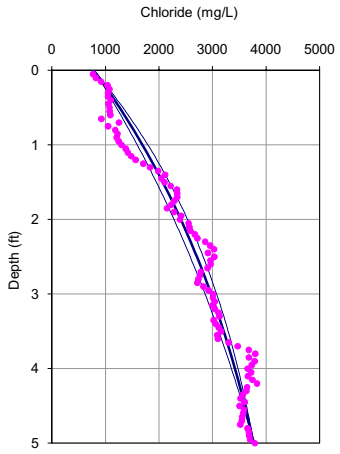
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1196	1196
Cl (mg/L)	5000	5000
L(ft)	9.65	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-9.50	-7.61
q (cm/yr)	-7.13	-5.71
dispersion length (ft)	0.29	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.29	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	1.01	0.85

OL-GP-40169.DAT



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -2.6 cm/year

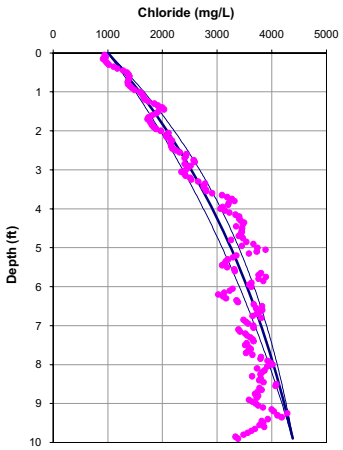
OL-GP-40169.DAT



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -1.7 cm/year

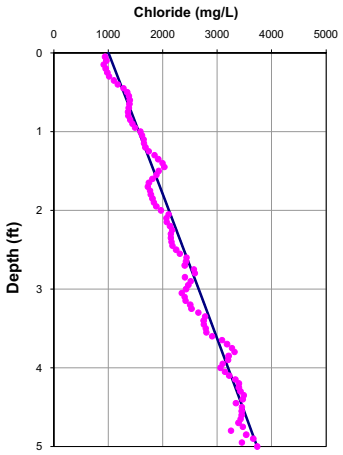
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	786	786
Cl (mg/L)	4200	3770
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-3.52	-2.29
q (cm/yr)	-2.64	-1.72
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.87	0.80

OL-GP-40170.DAT



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -1.0 cm/year

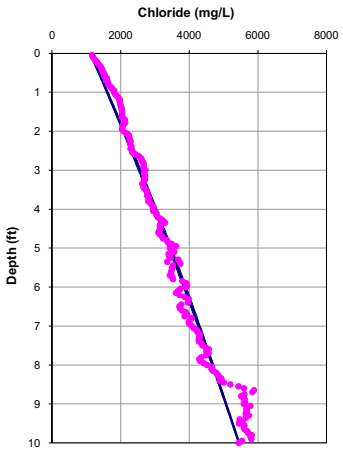
OL-GP-40170.DAT



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = ~0 cm/year

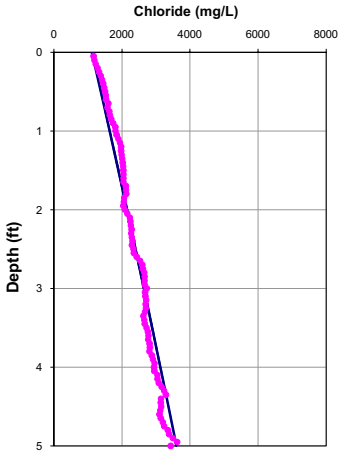
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1003	1003
Cl (mg/L)	4400	3735
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-1.31	-0.10
q (cm/yr)	-0.99	-0.08
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.82	0.79

OL-GP-40171.DAT



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -0.2 cm/year

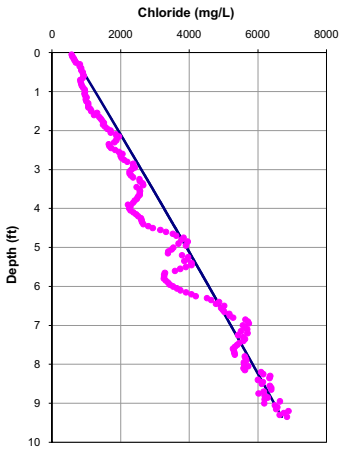
OL-GP-40171.DAT



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -0.2 cm/year

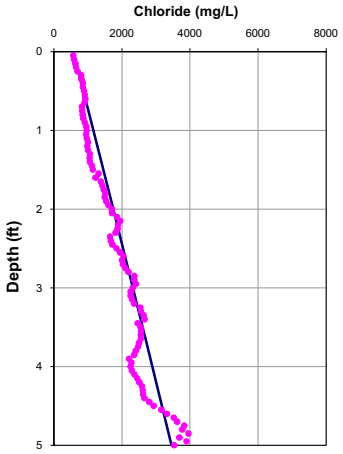
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1116	1116
Cl (mg/L)	5445	3600
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-0.29	-0.26
q (cm/yr)	-0.22	-0.19
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.79	0.79

OL-GP-40172.DAT



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = ~0 cm/year

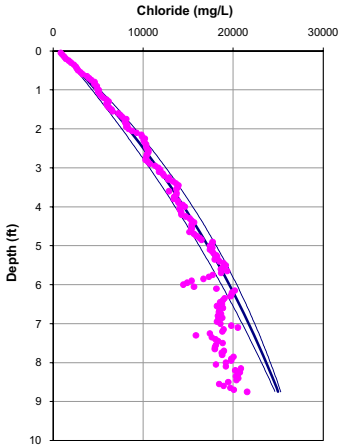
OL-GP-40172.DAT



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = ~0 cm/year

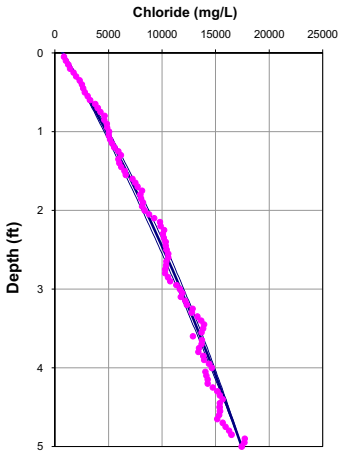
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	572	572
Cl (mg/L)	7100	3460
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-0.10	-0.10
q (cm/yr)	-0.08	-0.08
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.79	0.79

OL-GP-40173.DAT



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -0.8 cm/year

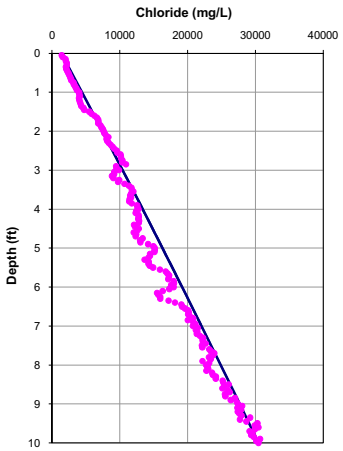
OL-GP-40173.DAT



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -0.7 cm/year

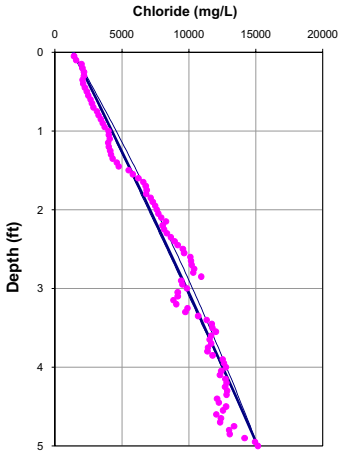
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	759	759
Cl (mg/L)	27000	17431
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-1.00	-0.96
q (cm/yr)	-0.75	-0.72
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.81	0.79

OL-GP-40174.DAT



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = ~0 cm/year

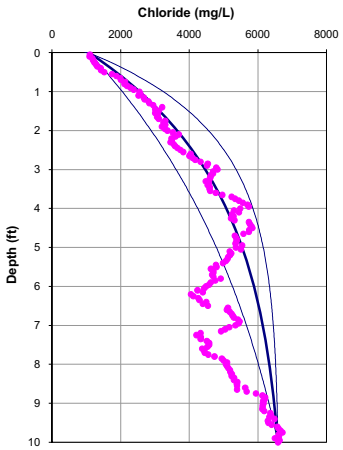
OL-GP-40174.DAT



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -0.2 cm/year

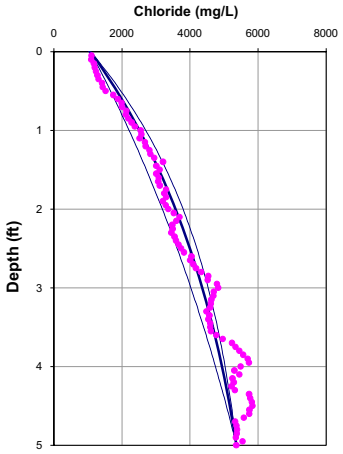
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1362	1362
Cl (mg/L)	30461	15150
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-0.10	-0.25
q (cm/yr)	-0.08	-0.19
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.79	0.79

OL-GP-40175.DAT



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -2.3 cm/year

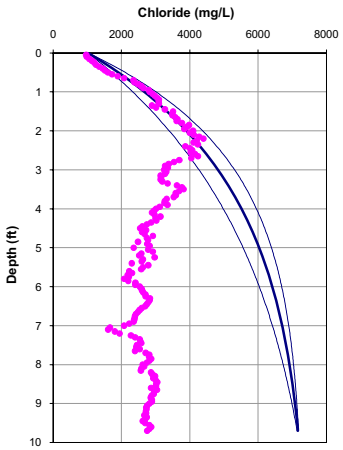
OL-GP-40175.DAT



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -2.2 cm/year

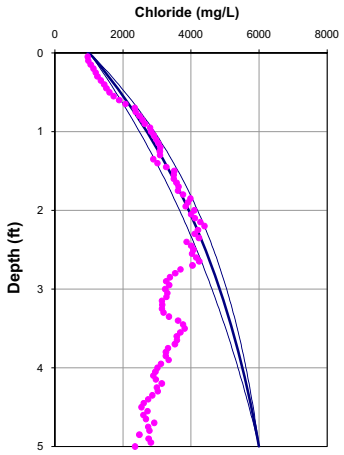
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1074	1074
Cl (mg/L)	6585	5370
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-3.00	-2.94
q (cm/yr)	-2.25	-2.21
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.86	0.81

OL-GP-40176.DAT



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -2.3 cm/year

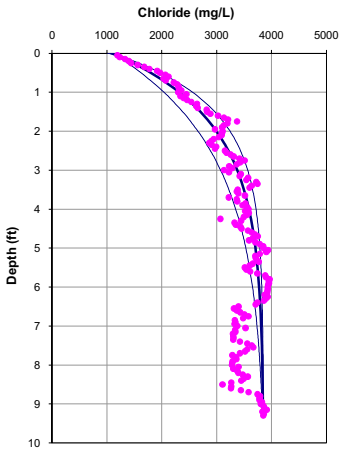
OL-GP-40176.DAT



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -2.3 cm/year

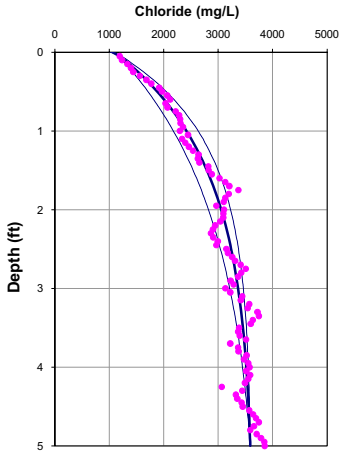
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1018	1018
Cl (mg/L)	7200	6000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-3.00	-3.00
q (cm/yr)	-2.25	-2.25
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.86	0.81

OL-GP-40177.DAT



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -5.0 cm/year

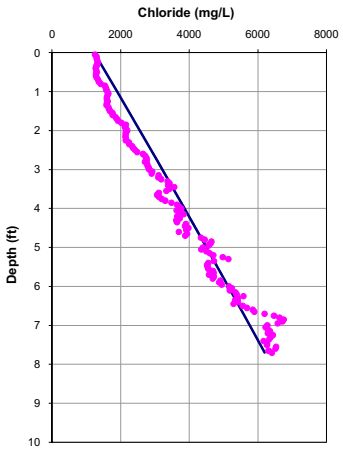
OL-GP-40177.DAT



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -5.5 cm/year

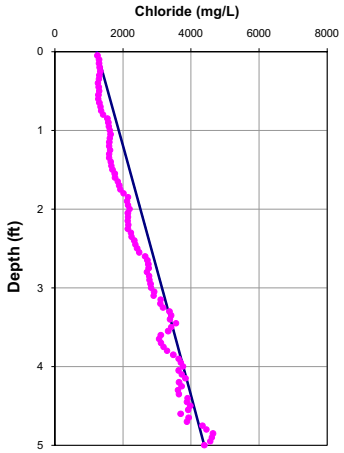
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1108	1108
Cl (mg/L)	3850	3590
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-6.61	-7.33
q (cm/yr)	-4.96	-5.49
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.95	0.85

OL-GP-40178.DAT



Porosity = 0.75
Dispersion length = 0.2 feet
Upwelling Velocity = ~0 cm/year

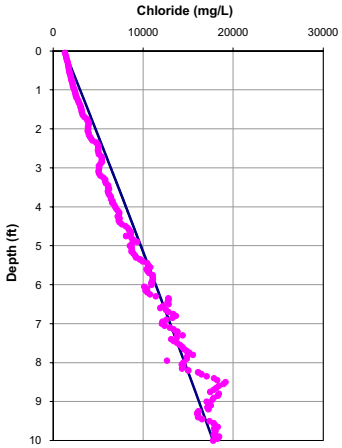
OL-GP-40178.DAT



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = ~0 cm/year

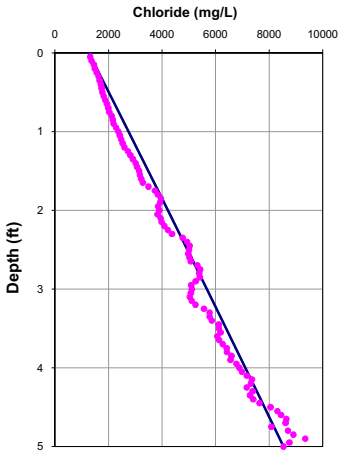
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1231	1231
Cl (mg/L)	6200	4393
L(ft)	7.7	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-0.10	-0.10
q (cm/yr)	-0.08	-0.08
dispersion length (ft)	0.20	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.20	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.79	0.79

OL-GP-40179.DAT



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = ~0 cm/year

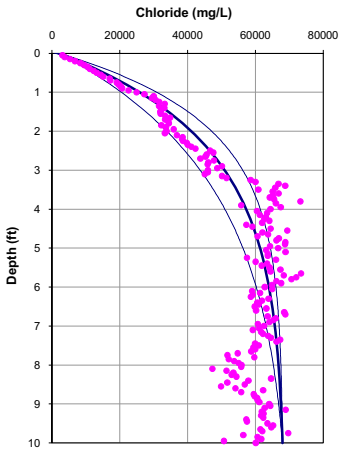
OL-GP-40179.DAT



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = ~0 cm/year

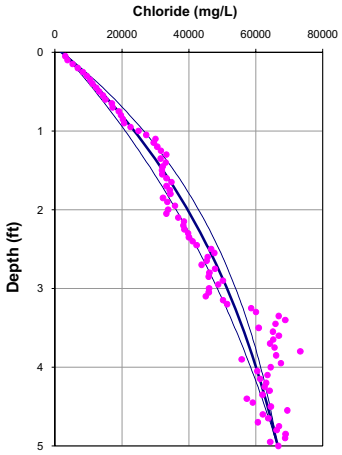
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1264	1264
Cl (mg/L)	17782	8531
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-0.10	-0.10
q (cm/yr)	-0.08	-0.08
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.79	0.79

OL-GP-40180.DAT



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -3.6 cm/year

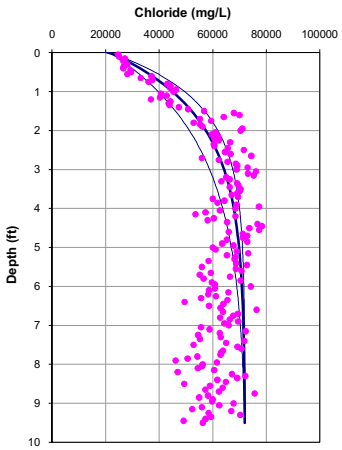
OL-GP-40180.DAT



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -2.2 cm/year

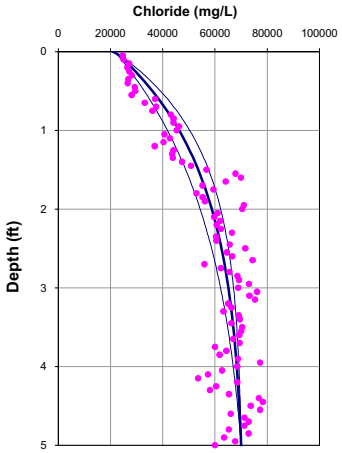
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	2173	2173
Cl (mg/L)	68000	66500
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-4.76	-2.94
q (cm/yr)	-3.57	-2.20
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.91	0.81

OL-GP-40181.DAT



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -5.3 cm/year

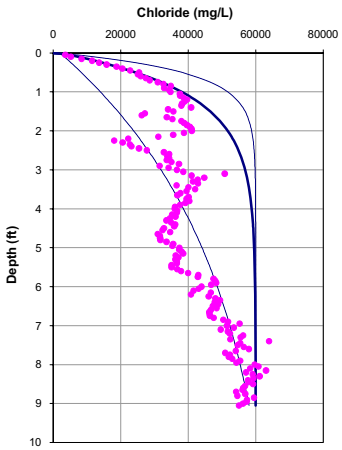
OL-GP-40181.DAT



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -5.1 cm/year

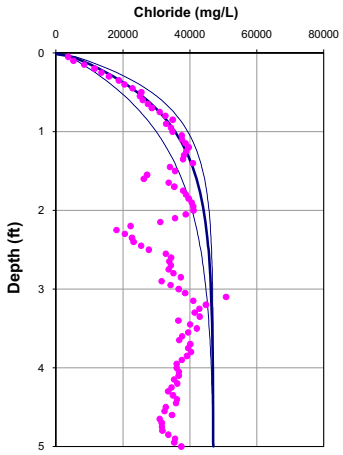
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	21702	21702
Cl (mg/L)	72000	70000
L(ft)	9.65	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-7.07	-6.85
q (cm/yr)	-5.30	-5.14
dispersion length (ft)	0.29	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.29	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.96	0.85

OL-GP-40182.DAT



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -9.8 cm/year

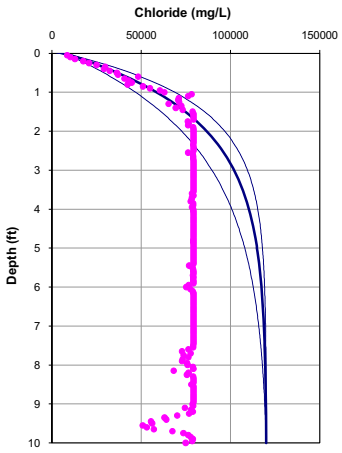
OL-GP-40182.DAT



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -11.3 cm/year

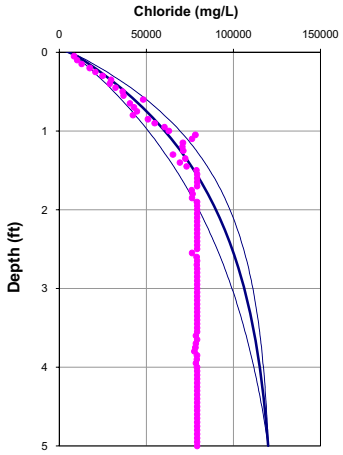
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	2036	2036
Cl (mg/L)	60000	47000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-13.00	-15.00
q (cm/yr)	-9.75	-11.25
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	1.12	0.92

OL-GP-40183



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -5.3 cm/year

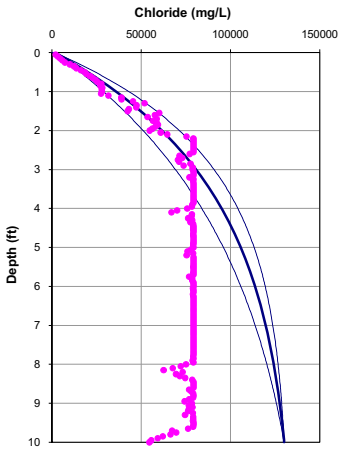
OL-GP-40183



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -4.5 cm/year

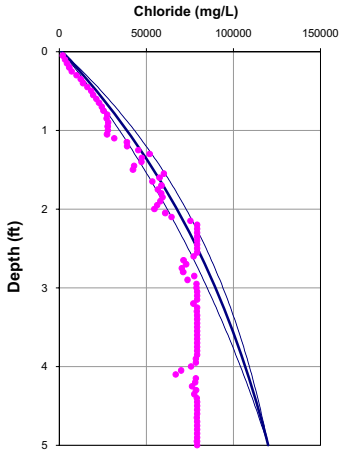
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	6962	6962
Cl (mg/L)	120000	120000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-7.00	-6.00
q (cm/yr)	-5.25	-4.50
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.96	0.84

OL-GP-40183.DAT



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -2.3 cm/year

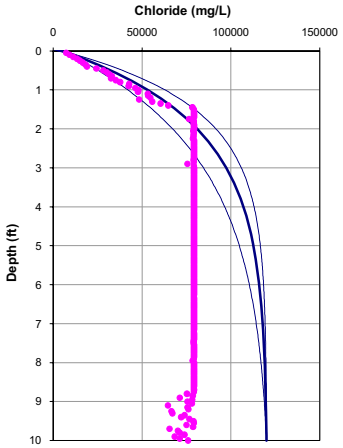
OL-GP-40183.DAT



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -1.9 cm/year

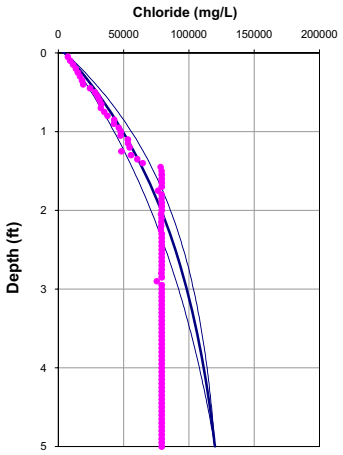
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1619	1619
Cl (mg/L)	130000	120000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-3.00	-2.50
q (cm/yr)	-2.25	-1.88
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.86	0.81

OL-GP-40184



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -4.5 cm/year

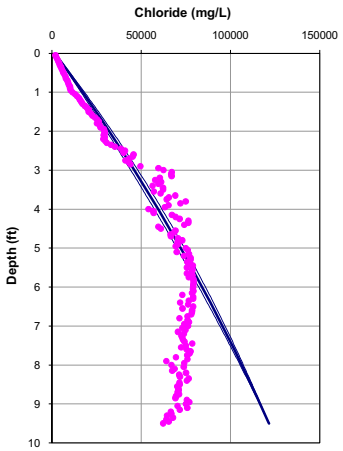
OL-GP-40184



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -3.0 cm/year

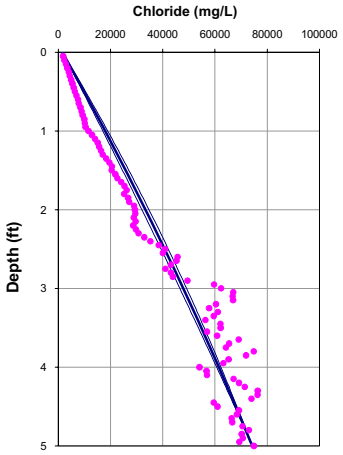
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	5276	5276
Cl (mg/L)	120000	120000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-6.00	-4.00
q (cm/yr)	-4.50	-3.00
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.94	0.82

OL-GP-40184.DAT



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -0.4 cm/year

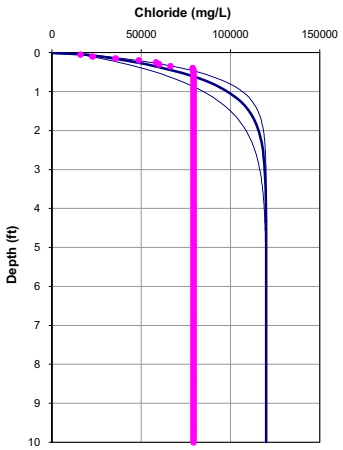
OL-GP-40184.DAT



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -0.4 cm/year

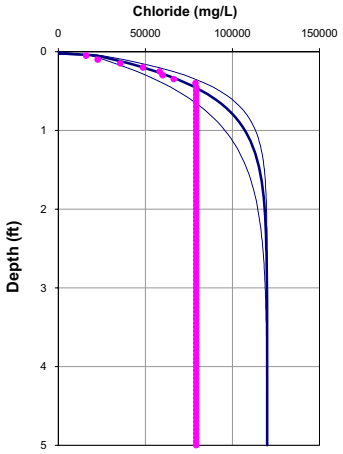
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1604	1604
Cl (mg/L)	120000	74286
L(ft)	9.35	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-0.50	-0.58
q (cm/yr)	-0.38	-0.44
dispersion length (ft)	0.28	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.28	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.80	0.79

OL-GP-40185



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -22.5 cm/year

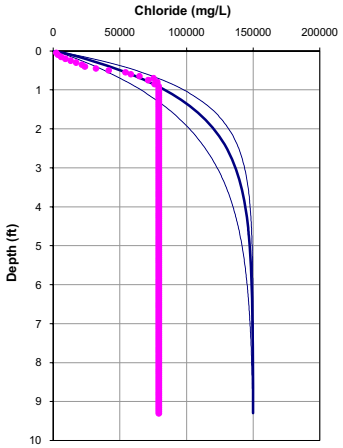
OL-GP-40185



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -19.5 cm/year

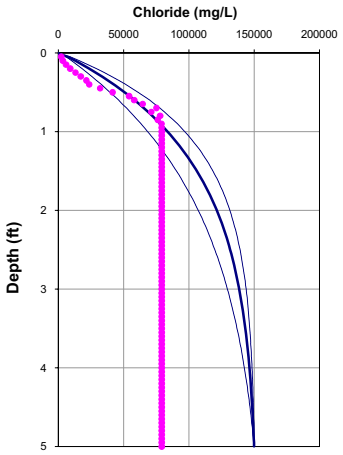
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	10701	10701
Cl (mg/L)	120000	120000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-30.00	-26.00
q (cm/yr)	-22.50	-19.50
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	1.55	1.01

OL-GP-40185.DAT



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -7.5 cm/year

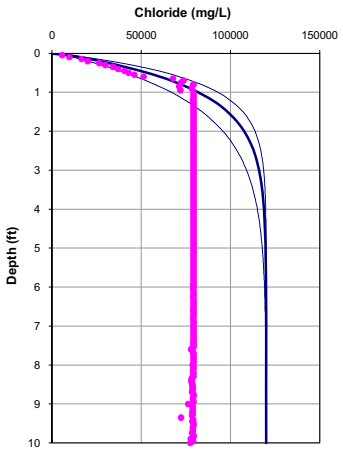
OL-GP-40185.DAT



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -6.0 cm/year

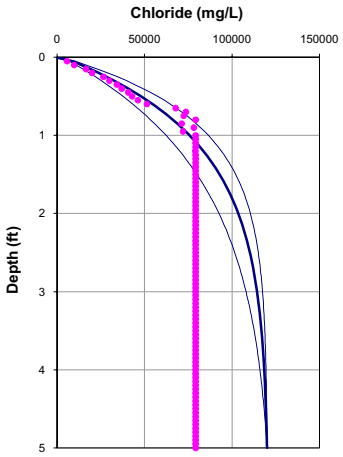
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1713	1713
Cl (mg/L)	150000	150000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-10.00	-8.00
q (cm/yr)	-7.50	-6.00
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	1.04	0.86

OL-GP-40186



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -12.0 cm/year

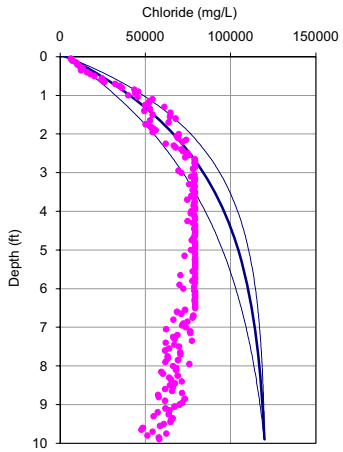
OL-GP-40186



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -7.5 cm/year

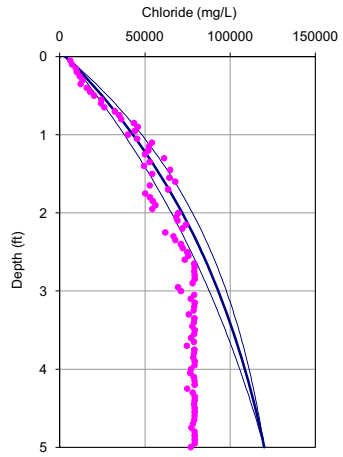
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	3178	3178
Cl (mg/L)	120000	120000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-16.00	-10.00
q (cm/yr)	-12.00	-7.50
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	1.19	0.87

OL-GP-40186.DAT



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -3.0 cm/year

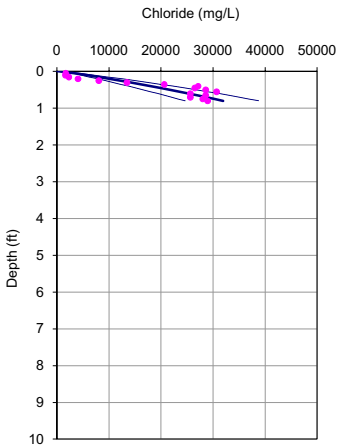
OL-GP-40186.DAT



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -2.3 cm/year

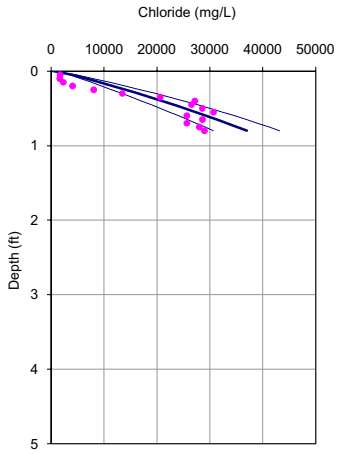
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	3672	3672
Cl (mg/L)	120000	120000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-3.97	-3.00
q (cm/yr)	-2.98	-2.25
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.89	0.81

OL-GP-40187.DAT



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -3.8 cm/year

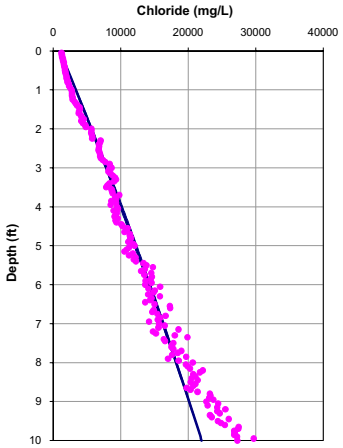
OL-GP-40187.DAT



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -3.8 cm/year

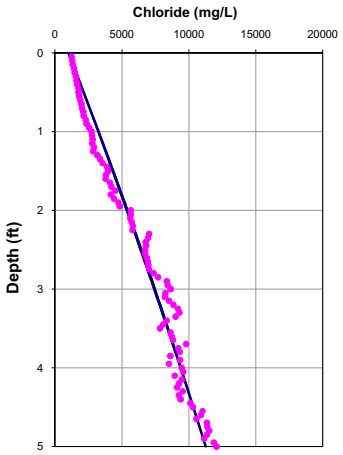
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1403	1403
Cl (mg/L)	100000	100000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-5.00	-5.00
q (cm/yr)	-3.75	-3.75
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.91	0.83

OL-GP-50026



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -0.2 cm/year

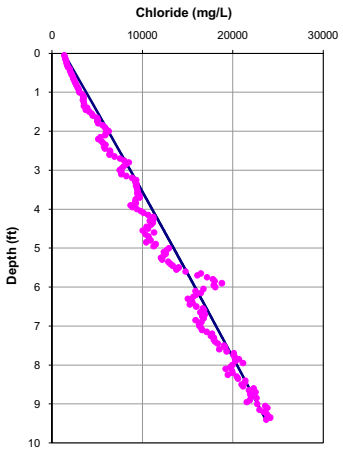
OL-GP-50026



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -0.3 cm/year

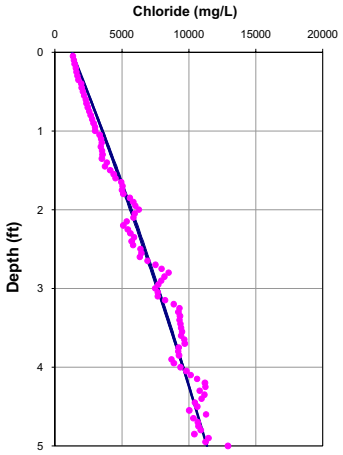
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1000	1000
Cl (mg/L)	22000	11250
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-0.25	-0.44
q (cm/yr)	-0.19	-0.33
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.79	0.79

OL-GP-50027



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = ~0 cm/year

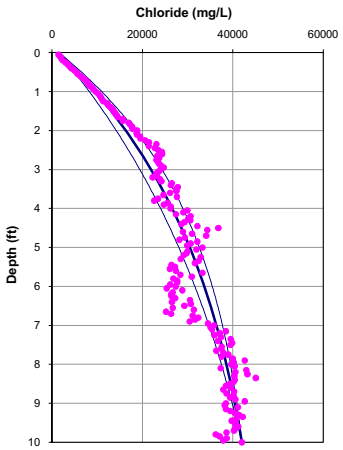
OL-GP-50027



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -0.4 cm/year

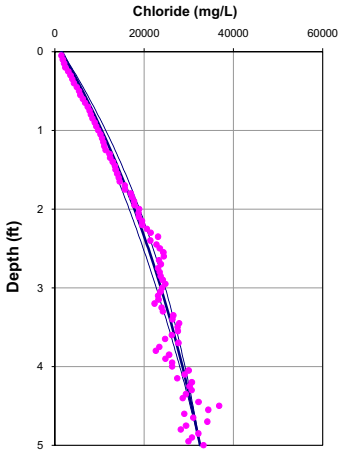
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1283	1283
Cl (mg/L)	25000	11350
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-0.10	-0.57
q (cm/yr)	-0.08	-0.43
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.79	0.79

OL-GP-50028



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -1.4 cm/year

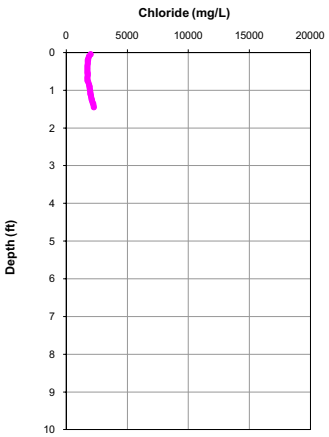
OL-GP-50028



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -1.5 cm/year

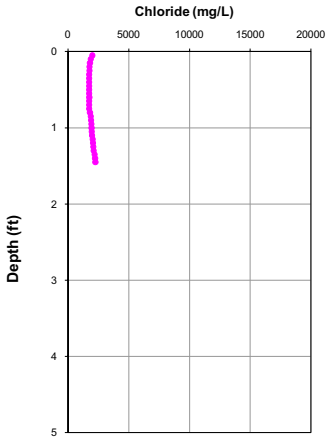
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1491	1491
Cl (mg/L)	41989	32500
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-1.84	-1.99
q (cm/yr)	-1.38	-1.49
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.83	0.80

OL-GP-50036



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = NA cm/year

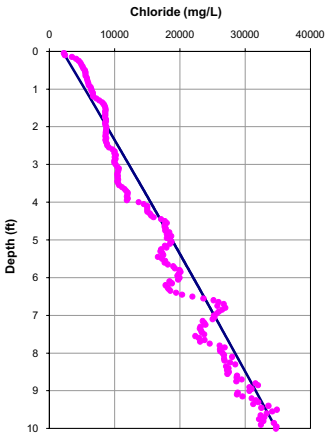
OL-GP-50036



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = NA cm/year

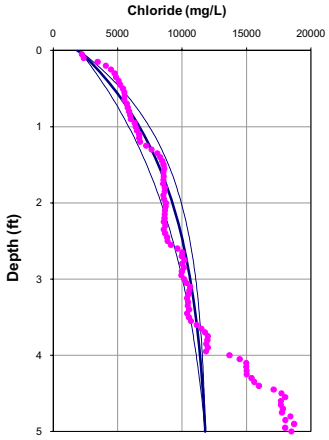
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	2240	2240
Cl (mg/L)	2258	2258
L(ft)	5	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-0.10	1983661559.34
q (cm/yr)	-0.08	1487746169.50
dispersion length (ft)	0.11	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.11	0.11
V(ft/d)	0.00	178303.45
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.79	17501987.52

OL-GP-50037



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = ~0 cm/year

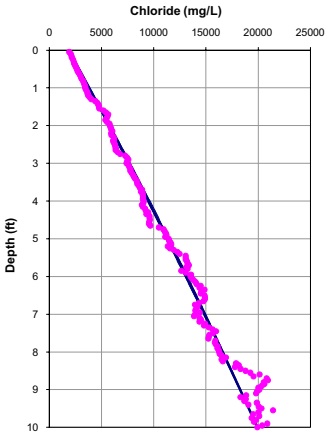
OL-GP-50037



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -4.6 cm/year

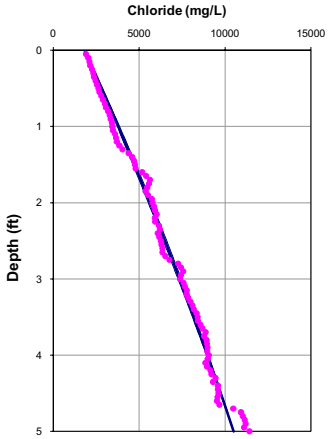
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1993	1993
Cl (mg/L)	34729	11800
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-0.10	-6.11
q (cm/yr)	-0.08	-4.58
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.79	0.84

OL-GP-50038



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -0.1 cm/year

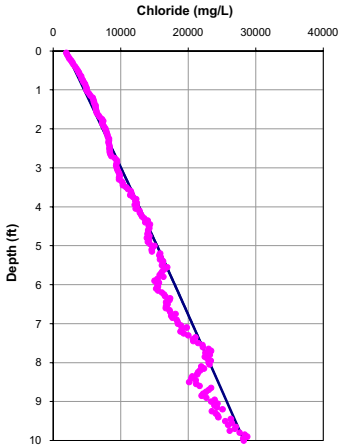
OL-GP-50038



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -0.4 cm/year

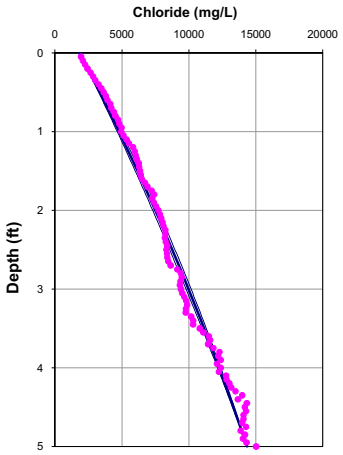
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1833	1833
Cl (mg/L)	19918	10500
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-0.19	-0.59
q (cm/yr)	-0.14	-0.44
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.79	0.79

OL-GP-50039



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = ~0 cm/year

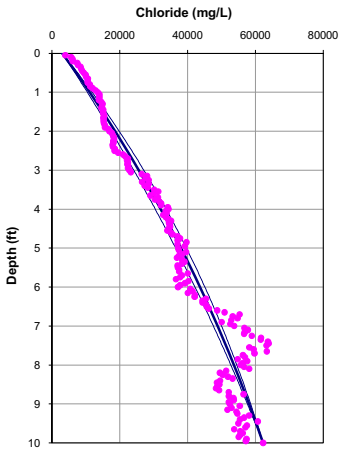
OL-GP-50039



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -0.6 cm/year

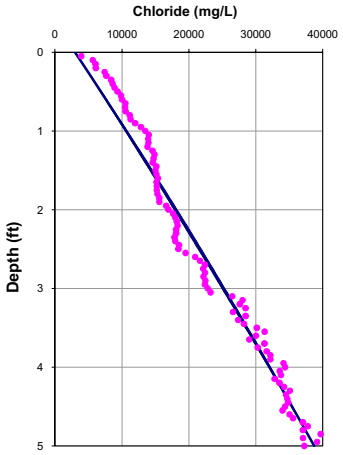
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1835	1835
Cl (mg/L)	28235	14350
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-0.10	-0.82
q (cm/yr)	-0.08	-0.61
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.79	0.79

OL-GP-50040



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -0.5 cm/year

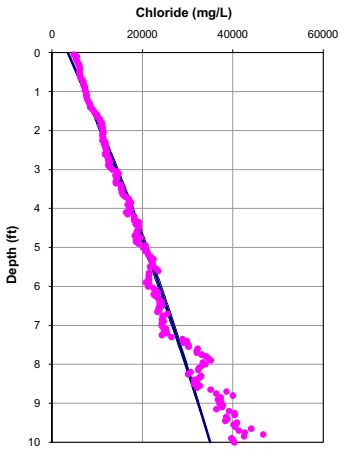
OL-GP-50040



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -0.2 cm/year

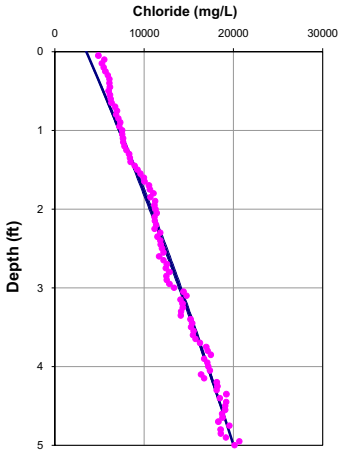
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	3000	3000
Cl (mg/L)	62289	38700
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-0.71	-0.33
q (cm/yr)	-0.54	-0.25
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.80	0.79

OL-GP-50041



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -0.3 cm/year

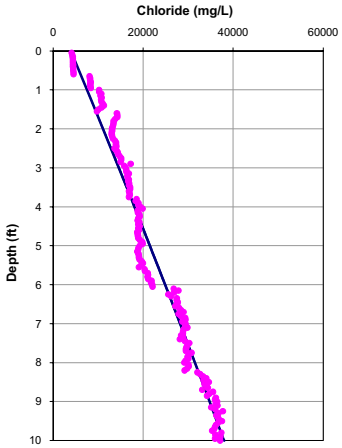
OL-GP-50041



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -0.4 cm/year

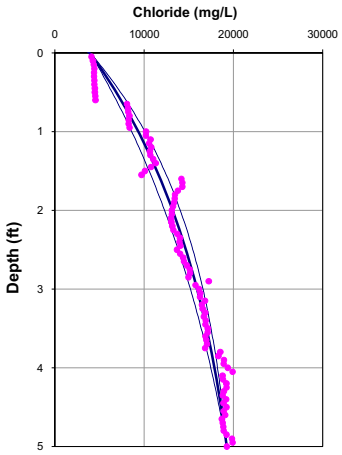
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	3500	3500
Cl (mg/L)	35000	20000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-0.37	-0.59
q (cm/yr)	-0.28	-0.45
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.79	0.79

OL-GP-50042



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = ~0 cm/year

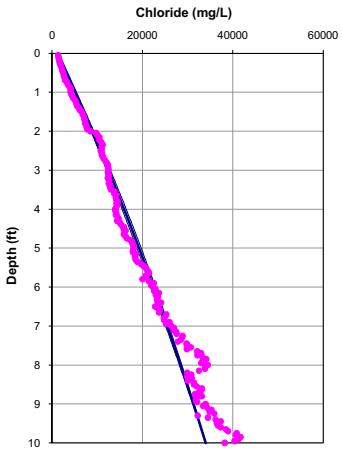
OL-GP-50042



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -2.5 cm/year

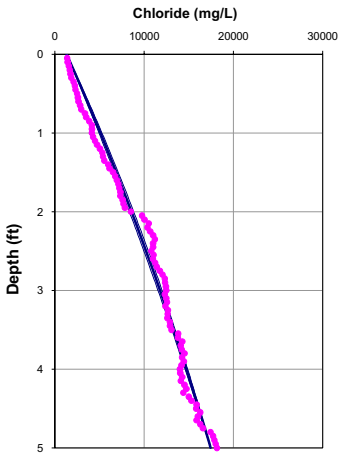
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	3932	3932
Cl (mg/L)	38000	19260
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-0.12	-3.31
q (cm/yr)	-0.09	-2.49
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.79	0.81

OL-GP-50043



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -0.3 cm/year

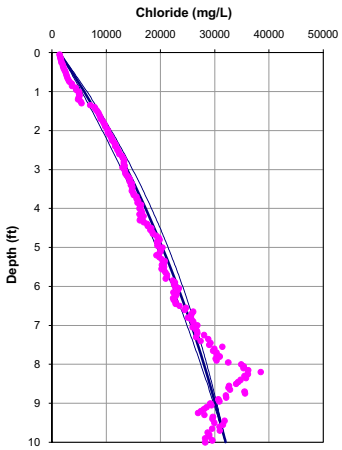
OL-GP-50043



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -0.6 cm/year

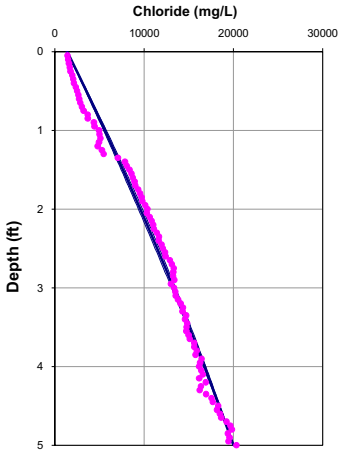
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1311	1311
Cl (mg/L)	34000	17436
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		17436
V(cm/yr)	-0.37	-0.79
q (cm/yr)	-0.28	-0.59
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.79	0.79

OL-GP-50044



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -0.7 cm/year

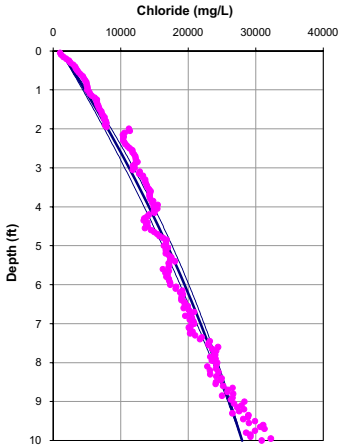
OL-GP-50044



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -0.5 cm/year

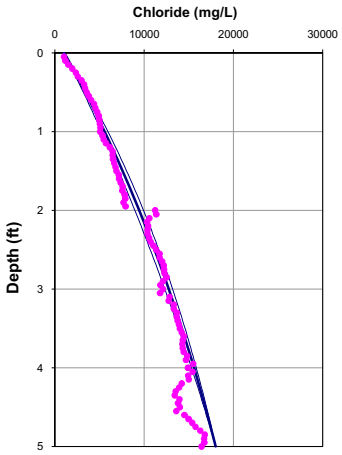
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1346	1346
Cl (mg/L)	32000	20000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-0.95	-0.64
q (cm/yr)	-0.71	-0.48
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.81	0.79

OL-GP-50045



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -0.5 cm/year

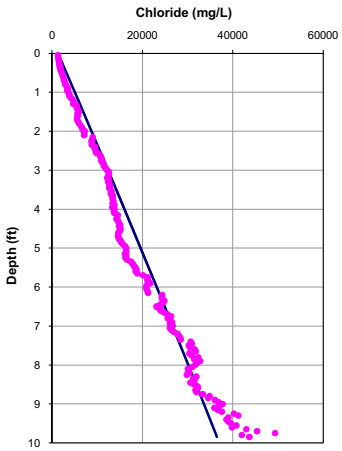
OL-GP-50045



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -1.1 cm/year

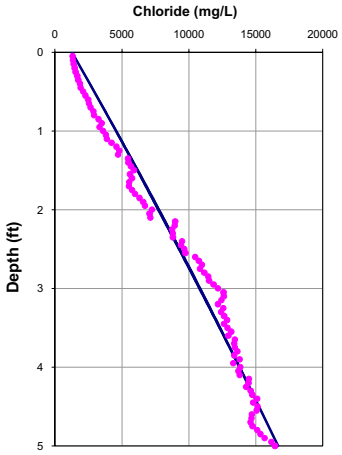
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1035	1035
Cl (mg/L)	28000	18000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-0.69	-1.50
q (cm/yr)	-0.52	-1.13
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.80	0.80

OL-GP-50046



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = ~0 cm/year

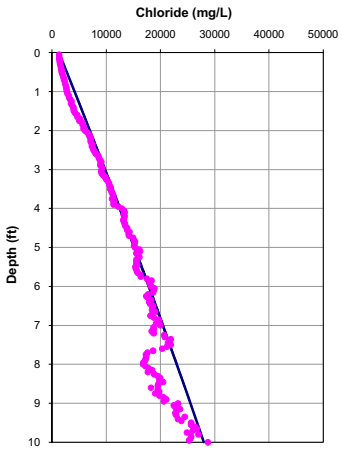
OL-GP-50046



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -0.2 cm/year

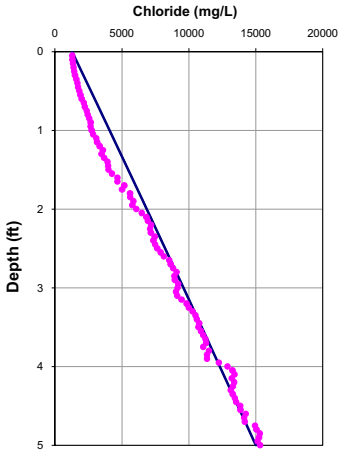
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1277	1277
Cl (mg/L)	37000	16658
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		16658
V(cm/yr)	-0.10	-0.32
q (cm/yr)	-0.08	-0.24
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.79	0.79

OL-GP-50047



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -0.1 cm/year

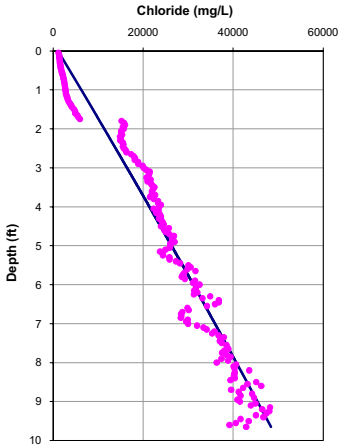
OL-GP-50047



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = ~0 cm/year

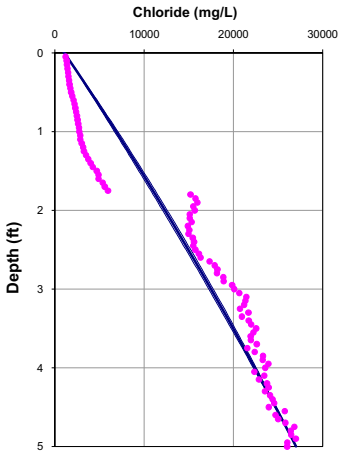
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1276	1276
Cl (mg/L)	28000	15000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		15000
V(cm/yr)	-0.16	-0.10
q (cm/yr)	-0.12	-0.08
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.79	0.79

OL-GP-50048



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = ~0 cm/year

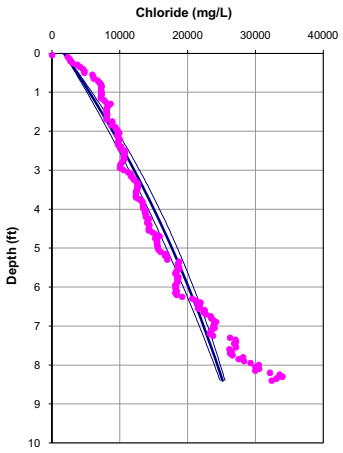
OL-GP-50048



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -0.4 cm/year

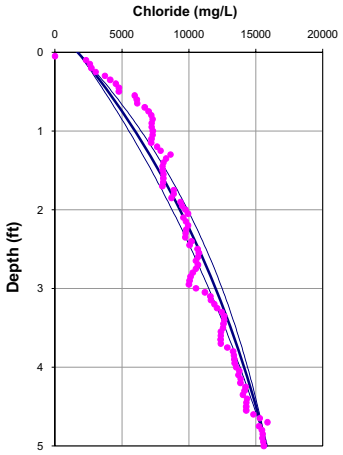
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1072	1072
Cl (mg/L)	50000	27000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-0.12	-0.53
q (cm/yr)	-0.09	-0.40
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.79	0.79

OL-GP-50049



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -0.6 cm/year

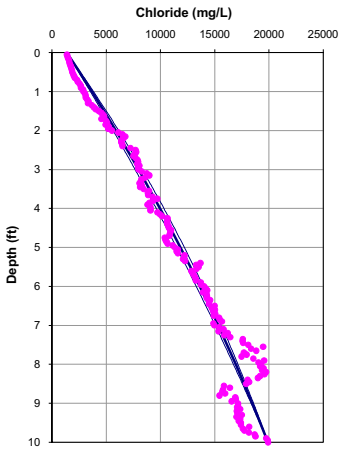
OL-GP-50049



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -1.7 cm/year

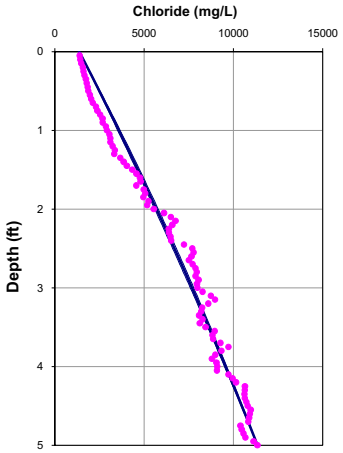
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1731	1731
Cl (mg/L)	28000	15800
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-0.84	-2.23
q (cm/yr)	-0.63	-1.67
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.81	0.80

OL-GP-50050



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -0.4 cm/year

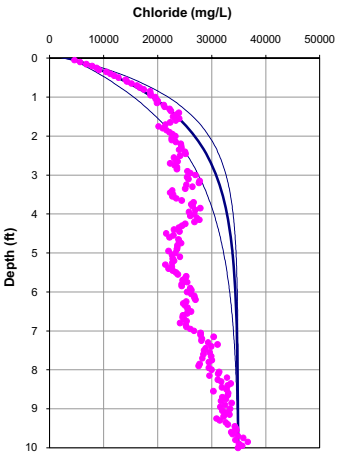
OL-GP-50050



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -0.4 cm/year

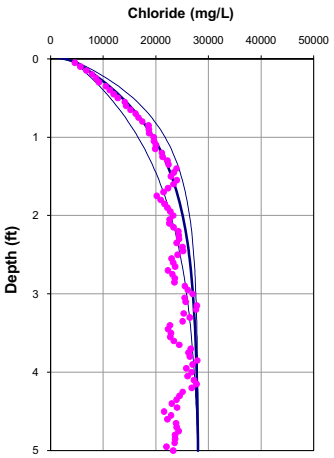
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1359	1359
Cl (mg/L)	19915	11342
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-0.50	-0.52
q (cm/yr)	-0.38	-0.39
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.80	0.79

OL-GP-50051



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -6.0 cm/year

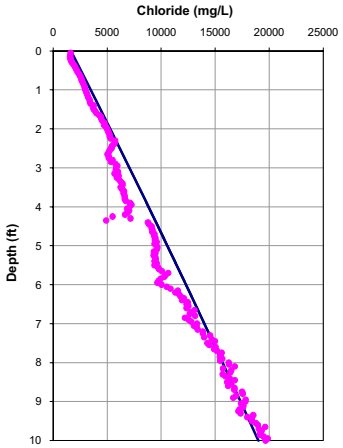
OL-GP-50051



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -8.3 cm/year

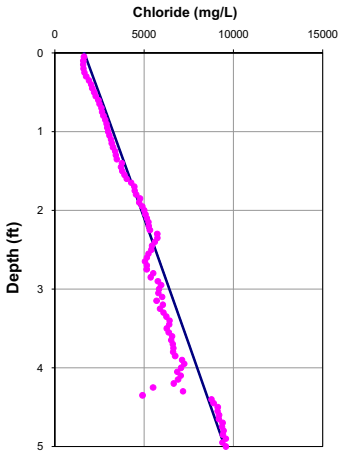
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	3689	3689
Cl (mg/L)	34888	28000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-8.00	-11.00
q (cm/yr)	-6.00	-8.25
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.99	0.88

OL-GP-60119



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = ~0 cm/year

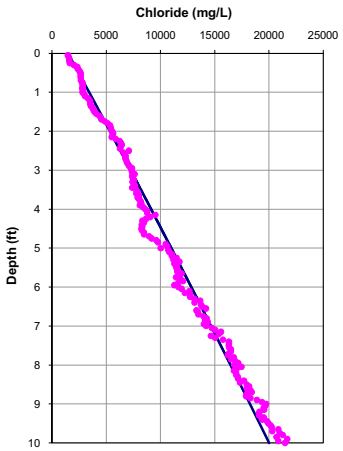
OL-GP-60119



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = ~0 cm/year

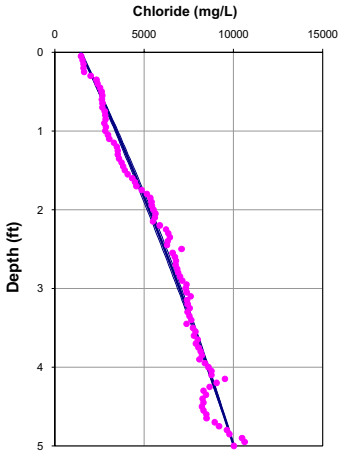
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1647	1647
Cl (mg/L)	19000	9500
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-0.10	-0.10
q (cm/yr)	-0.07	-0.07
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.72	0.72

OL-GP-60120



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = ~0 cm/year

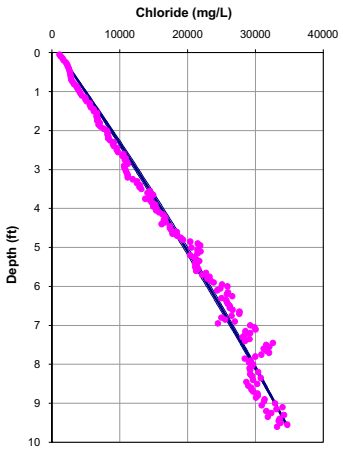
OL-GP-60120



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -0.5 cm/year

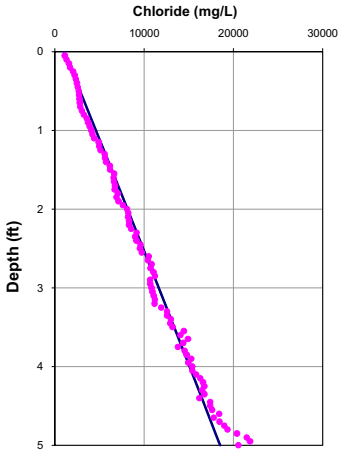
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1461	1461
Cl (mg/L)	20000	10017
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-0.10	-0.66
q (cm/yr)	-0.07	-0.46
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.72	0.73

OL-GP-60121



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -0.2 cm/year

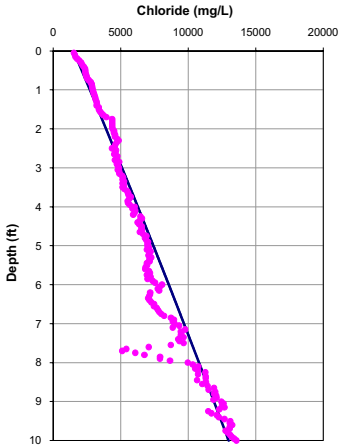
OL-GP-60121



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = ~0 cm/year

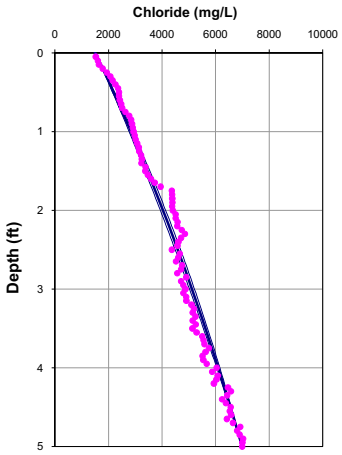
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1004	1004
Cl (mg/L)	36000	18500
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-0.23	-0.10
q (cm/yr)	-0.16	-0.07
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.73	0.72

OL-GP-60122



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = ~0 cm/year

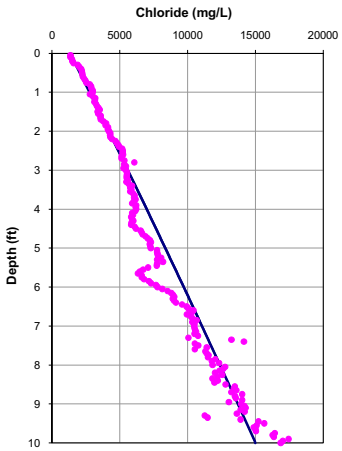
OL-GP-60122



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -0.6 cm/year

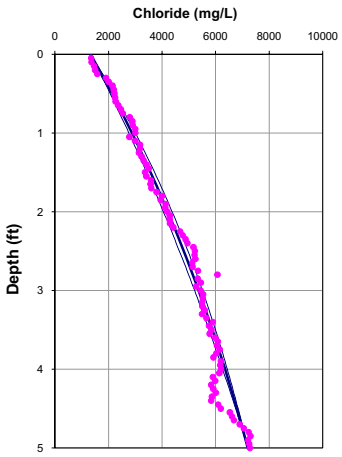
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1515	1515
Cl (mg/L)	13000	6988
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-0.10	-0.87
q (cm/yr)	-0.07	-0.61
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.72	0.73

OL-GP-60123



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = ~0 cm/year

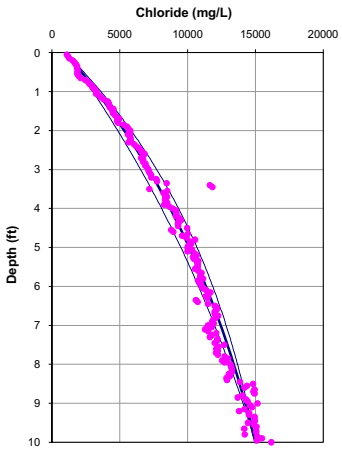
OL-GP-60123



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -0.9 cm/year

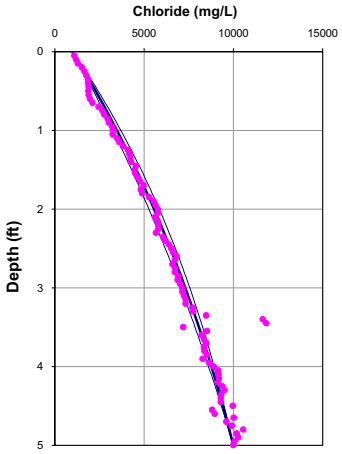
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1322	1322
Cl (mg/L)	15000	7200
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-0.10	-1.33
q (cm/yr)	-0.07	-0.93
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.72	0.73

OL-GP-60124



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -0.8 cm/year

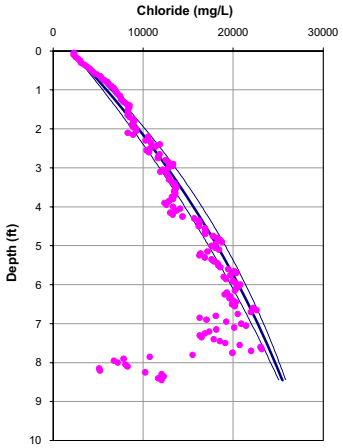
OL-GP-60124



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -1.1 cm/year

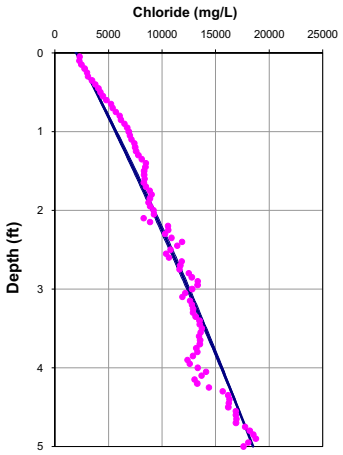
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	986	986
Cl (mg/L)	15000	9989
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-1.12	-1.55
q (cm/yr)	-0.79	-1.09
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.75	0.74

OL-GP-60125



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -0.6 cm/year

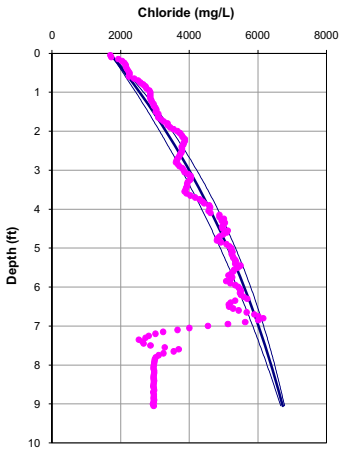
OL-GP-60125



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -0.3 cm/year

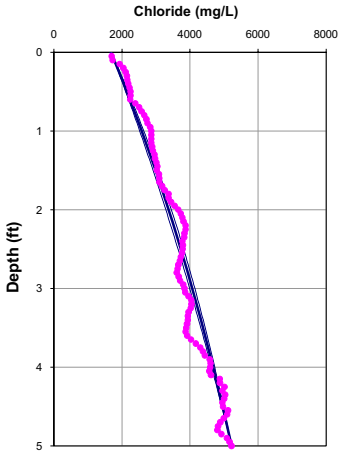
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	2000	2000
Cl (mg/L)	28000	18500
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-0.90	-0.49
q (cm/yr)	-0.63	-0.34
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.74	0.73

OL-GP-60125.DAT



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -0.8 cm/year

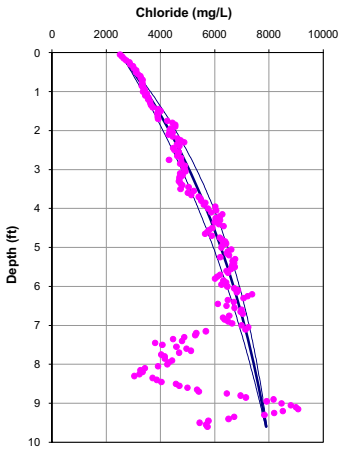
OL-GP-60125.DAT



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -0.8 cm/year

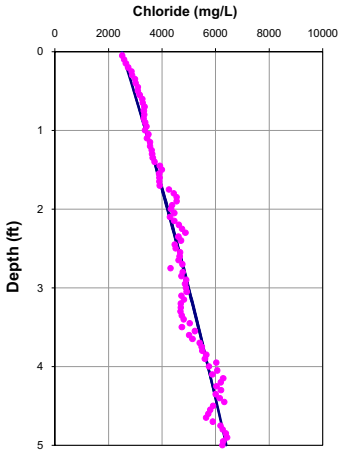
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1683	1683
Cl (mg/L)	7000	5221
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-1.10	-1.12
q (cm/yr)	-0.77	-0.78
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.75	0.73

OL-GP-60125-A



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -0.9 cm/year

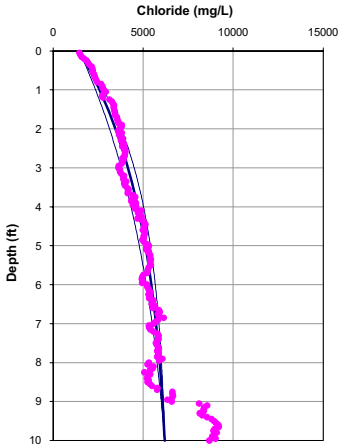
OL-GP-60125-A



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -0.4 cm/year

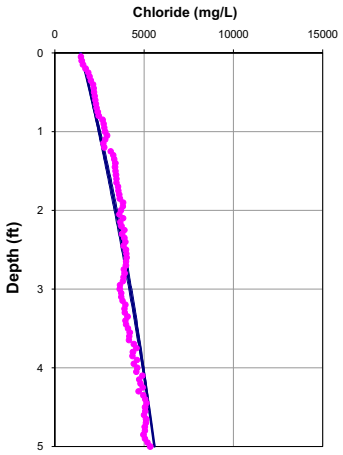
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	2497	2497
Cl (mg/L)	8000	6400
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-1.35	-0.55
q (cm/yr)	-0.94	-0.39
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.76	0.73

OL-GP-60126



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -1.6 cm/year

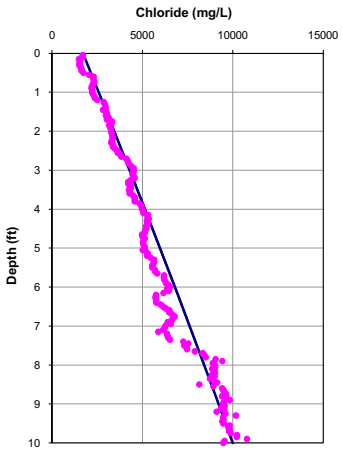
OL-GP-60126



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -0.8 cm/year

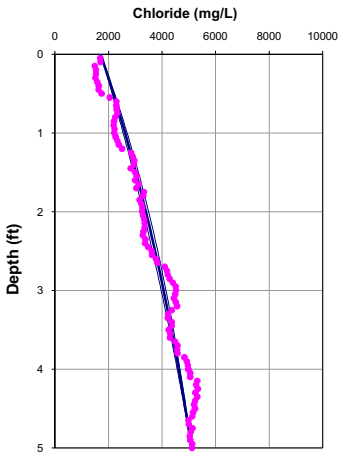
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1440	1440
Cl (mg/L)	6200	5570
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-2.30	-1.10
q (cm/yr)	-1.61	-0.77
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.78	0.73

OL-GP-60127



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = ~0 cm/year

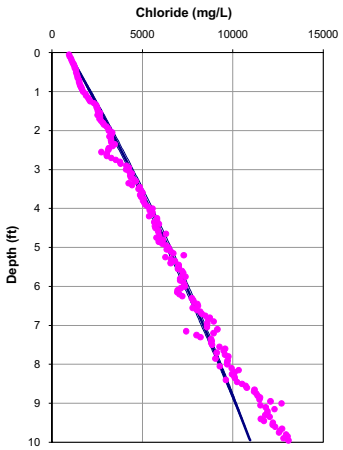
OL-GP-60127



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -1.0 cm/year

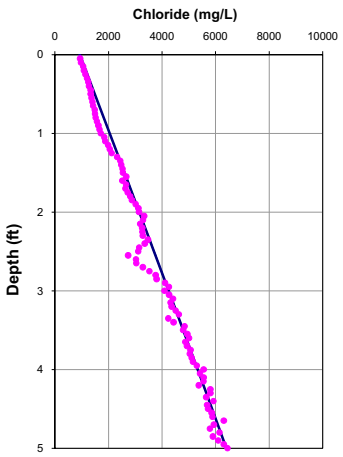
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1704	1704
Cl (mg/L)	10000	5100
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-0.10	-1.42
q (cm/yr)	-0.07	-1.00
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.72	0.73

OL-GP-60128



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -0.2 cm/year

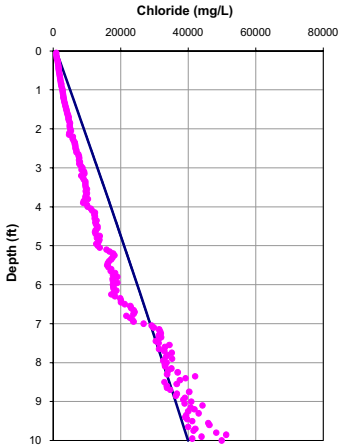
OL-GP-60128



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = ~0 cm/year

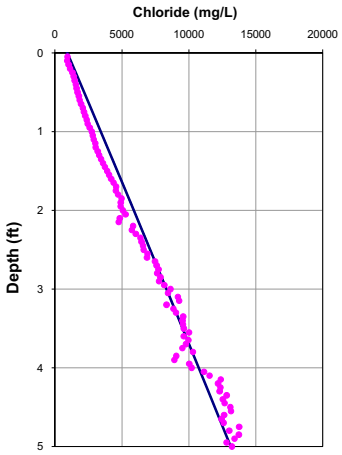
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	921	921
Cl (mg/L)	11000	6400
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-0.34	-0.10
q (cm/yr)	-0.24	-0.07
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.73	0.72

OL-GP-60129



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = ~0 cm/year

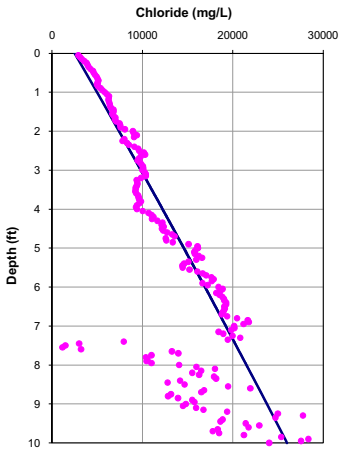
OL-GP-60129



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = ~0 cm/year

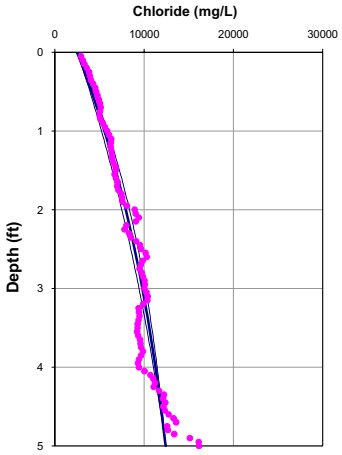
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	924	924
Cl (mg/L)	40000	13124
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		13124
V(cm/yr)	-0.10	-0.10
q (cm/yr)	-0.07	-0.07
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.72	0.72

OL-GP-60130



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = ~0 cm/year

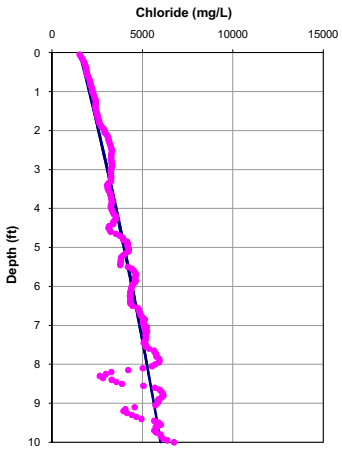
OL-GP-60130



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -1.5 cm/year

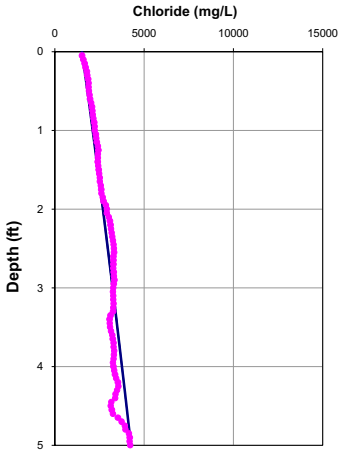
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	2500	2500
Cl (mg/L)	26000	12400
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-0.10	-2.17
q (cm/yr)	-0.07	-1.52
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.72	0.74

OL-GP-60130.DAT



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -0.3 cm/year

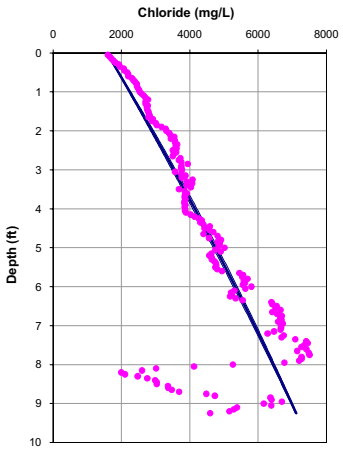
OL-GP-60130.DAT



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -0.3 cm/year

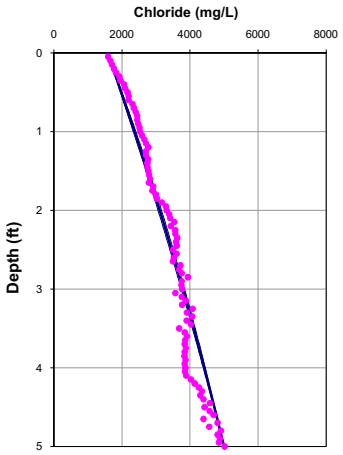
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1515	1515
Cl (mg/L)	6000	4250
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-0.36	-0.40
q (cm/yr)	-0.25	-0.28
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.73	0.72

OL-GP-60130-A



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -0.2 cm/year

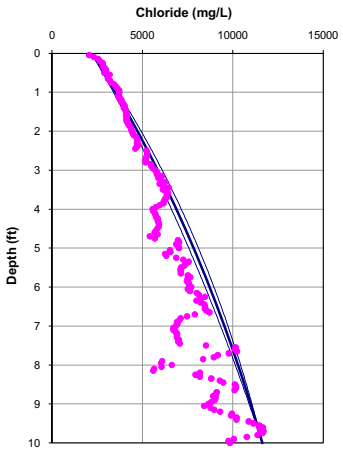
OL-GP-60130-A



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -0.5 cm/year

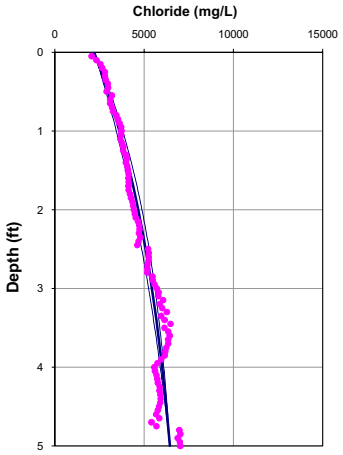
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1569	1569
Cl (mg/L)	7500	5000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-0.25	-0.71
q (cm/yr)	-0.18	-0.50
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.73	0.73

OL-GP-60131



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -0.5 cm/year

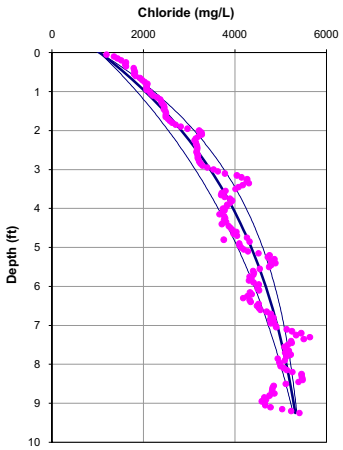
OL-GP-60131



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -1.9 cm/year

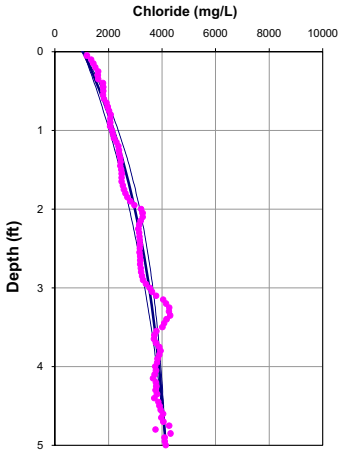
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	2200	2200
Cl (mg/L)	11629	6430
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		6429.6
V(cm/yr)	-0.70	-2.69
q (cm/yr)	-0.49	-1.88
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.74	0.75

OL-GP-60132



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -1.5 cm/year

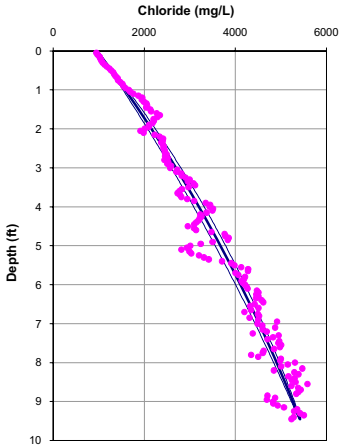
OL-GP-60132



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -2.4 cm/year

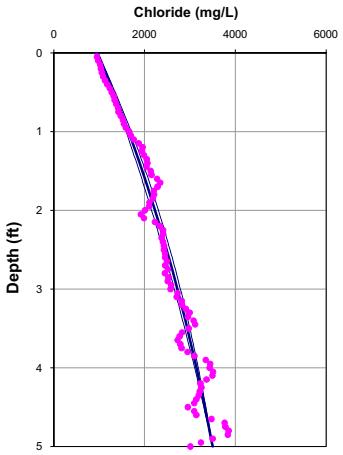
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1045	1045
Cl (mg/L)	5410	4135
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-2.13	-3.43
q (cm/yr)	-1.49	-2.40
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.78	0.75

OL-GP-60133



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -0.4 cm/year

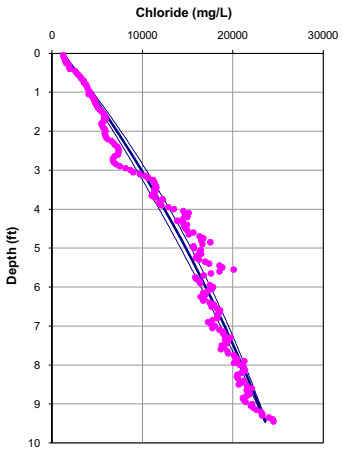
OL-GP-60133



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -1.0 cm/year

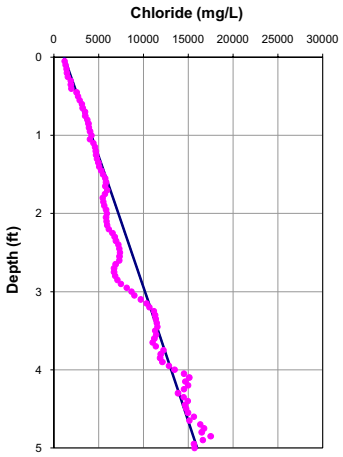
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	962	962
Cl (mg/L)	5600	3500
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-0.60	-1.44
q (cm/yr)	-0.42	-1.01
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.74	0.73

OL-GP-60134



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -0.4 cm/year

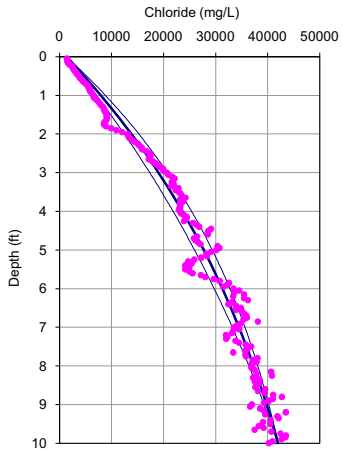
OL-GP-60134



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = ~0 cm/year

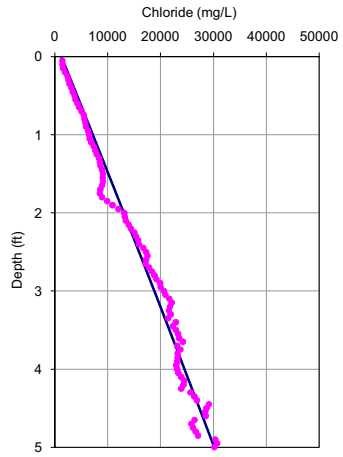
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1173	1173
Cl (mg/L)	24520	16000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-0.60	-0.10
q (cm/yr)	-0.42	-0.07
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.74	0.72

OL-GP-60135



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -0.8 cm/year

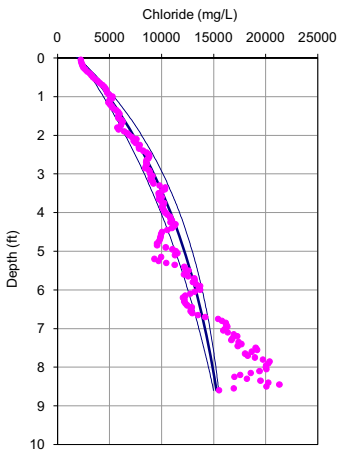
OL-GP-60135



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = ~0 cm/year

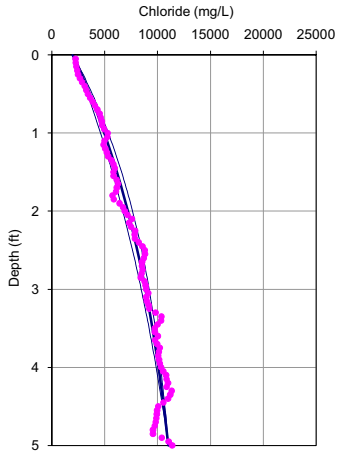
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1280	1280
Cl (mg/L)	42000	30158
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-1.10	-0.11
q (cm/yr)	-0.77	-0.07
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.75	0.72

OL-GP-60136



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -1.3 cm/year

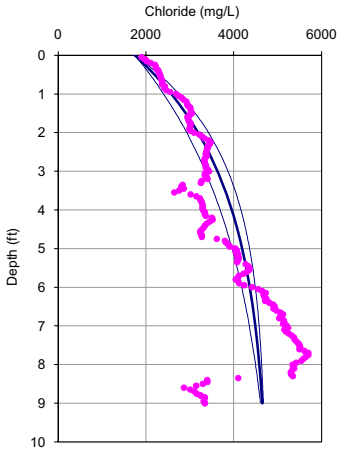
OL-GP-60136



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -1.8 cm/year

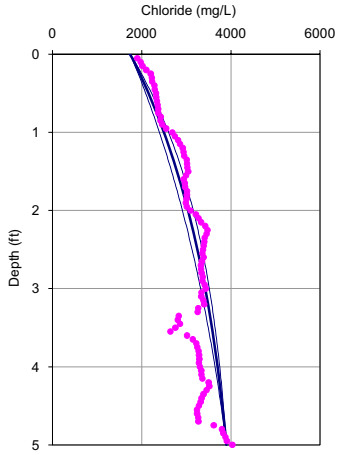
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	2000	2000
Cl (mg/L)	16000	11021
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		11021
V(cm/yr)	-1.81	-2.58
q (cm/yr)	-1.26	-1.81
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.77	0.74

OL-GP-60136.DAT



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -2.1 cm/year

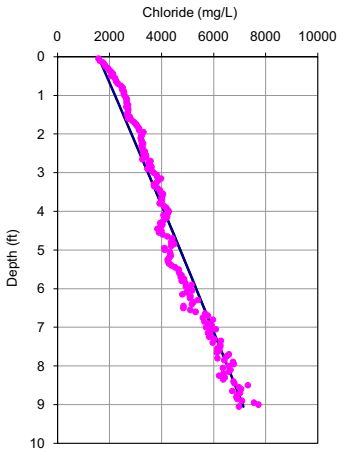
OL-GP-60136.DAT



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -2.1 cm/year

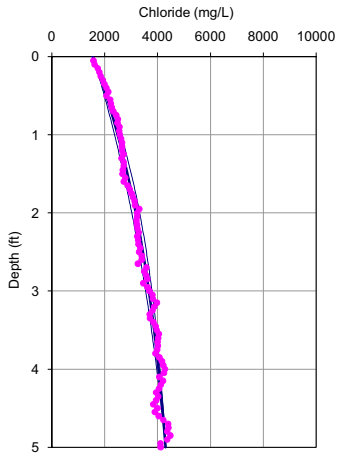
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1748	1748
Cl (mg/L)	4700	3900
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-3.00	-2.99
q (cm/yr)	-2.10	-2.09
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.80	0.75

OL-GP-60136-A



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = ~0 cm/year

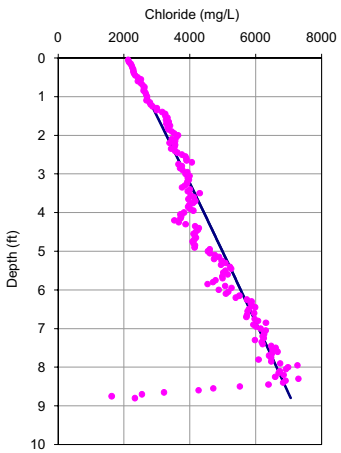
OL-GP-60136-A



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -2.0 cm/year

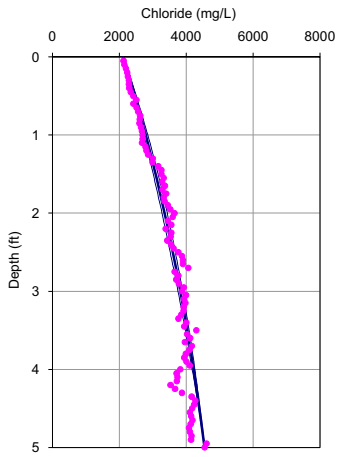
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1559	1559
Cl (mg/L)	7700	4303
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		4303
V(cm/yr)	-0.10	-2.82
q (cm/yr)	-0.07	-1.97
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.72	0.75

OL-GP-60136-B



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = ~0 cm/year

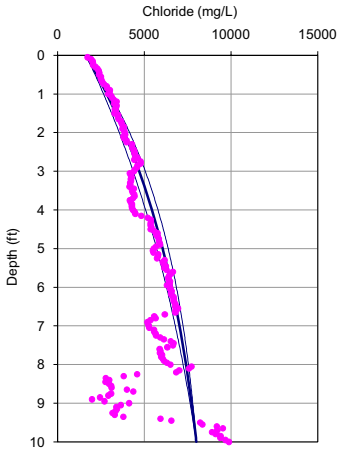
OL-GP-60136-B



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -1.1 cm/year

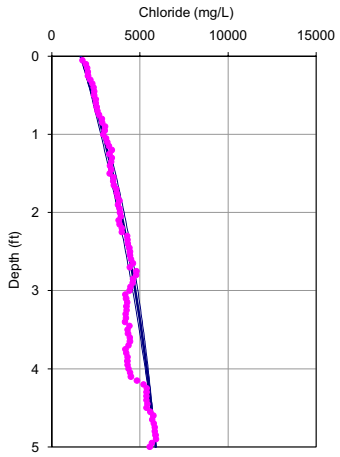
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	2120	2120
Cl (mg/L)	7700	4550
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-0.10	-1.56
q (cm/yr)	-0.07	-1.09
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.72	0.74

OL-GP-60137



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -1.1 cm/year

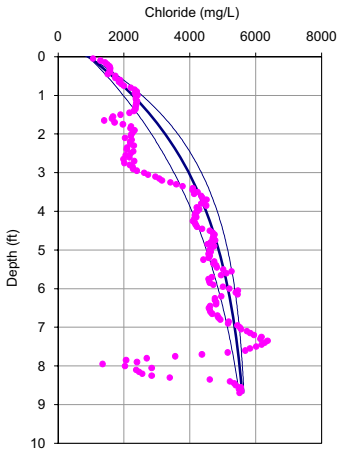
OL-GP-60137



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -1.4 cm/year

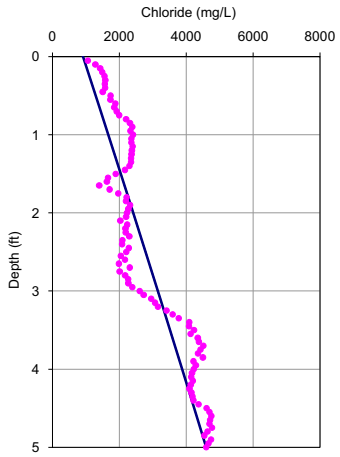
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1640	1640
Cl (mg/L)	8000	5900
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-1.50	-2.00
q (cm/yr)	-1.05	-1.40
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.76	0.74

OL-GP-60138



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -2.1 cm/year

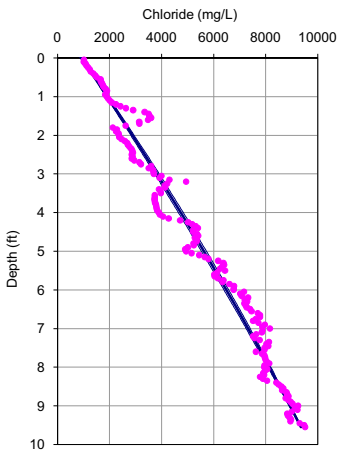
OL-GP-60138



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = ~0 cm/year

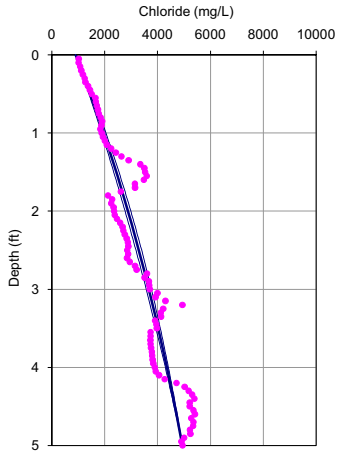
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	919	919
Cl (mg/L)	5700	4597
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-3.00	-0.10
q (cm/yr)	-2.10	-0.07
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.80	0.72

OL-GP-60139



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -0.2 cm/year

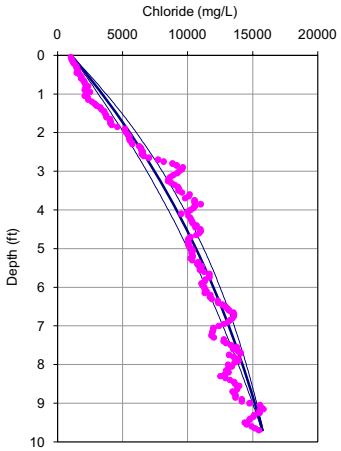
OL-GP-60139



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -0.9 cm/year

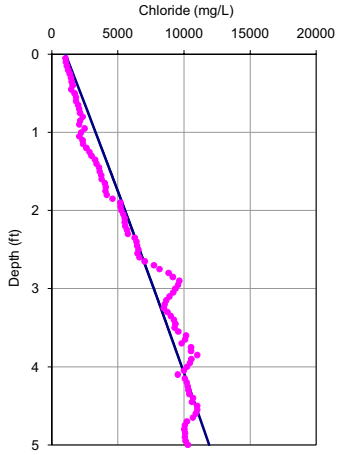
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	907	907
Cl (mg/L)	9700	4941
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-0.26	-1.29
q (cm/yr)	-0.18	-0.90
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.73	0.73

OL-GP-60140



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -0.7 cm/year

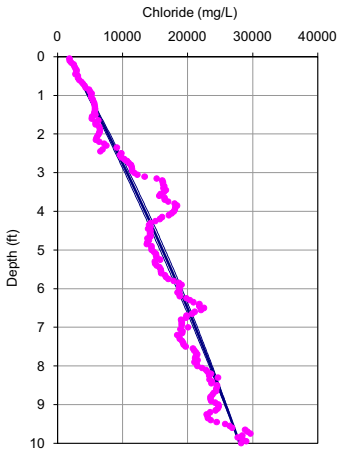
OL-GP-60140



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -0.2 cm/year

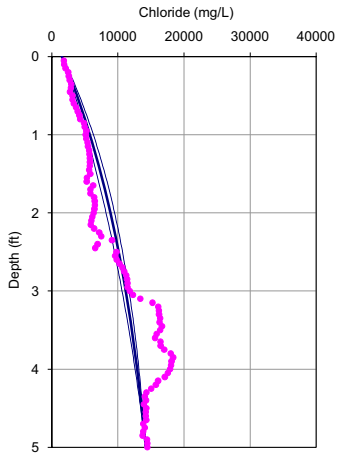
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1031	1031
Cl (mg/L)	16000	11899
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		11899
V(cm/yr)	-1.05	-0.22
q (cm/yr)	-0.73	-0.15
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.75	0.72

OL-GP-60141



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -0.3 cm/year

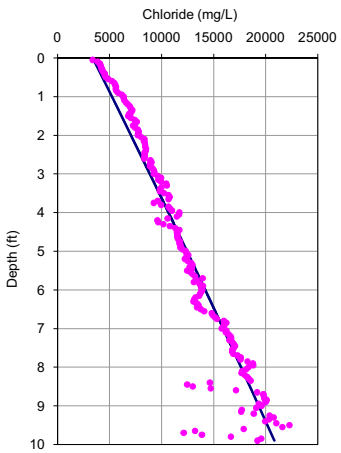
OL-GP-60141



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -1.8 cm/year

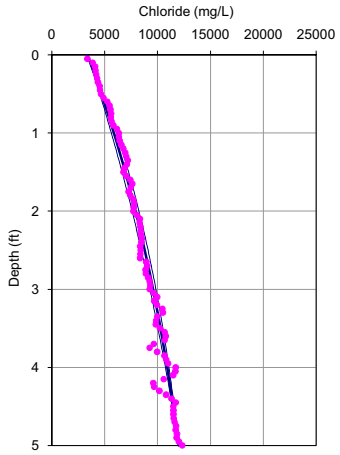
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1579	1579
Cl (mg/L)	28000	14200
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-0.36	-2.62
q (cm/yr)	-0.25	-1.84
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.73	0.74

OL-GP-60142



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = ~0 cm/year

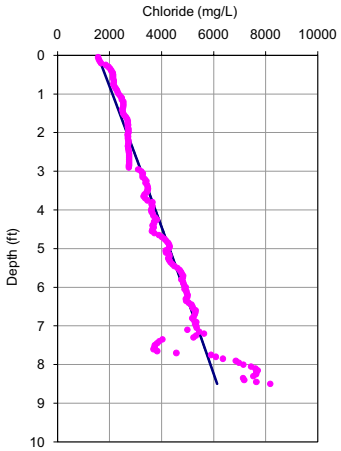
OL-GP-60142



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -1.3 cm/year

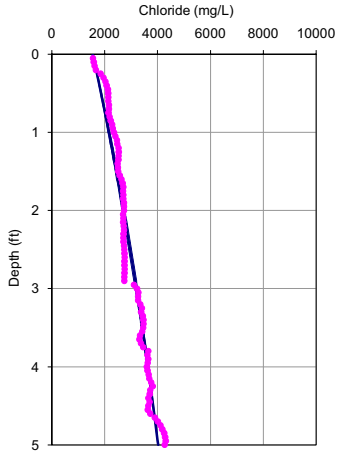
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	3360	3360
Cl (mg/L)	21000	12000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-0.10	-1.85
q (cm/yr)	-0.07	-1.30
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.72	0.74

OL-GP-60142.DAT



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = ~0 cm/year

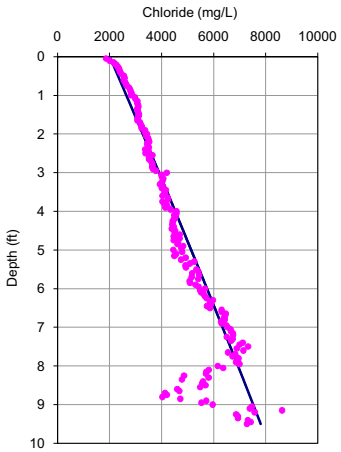
OL-GP-60142.DAT



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -0.7 cm/year

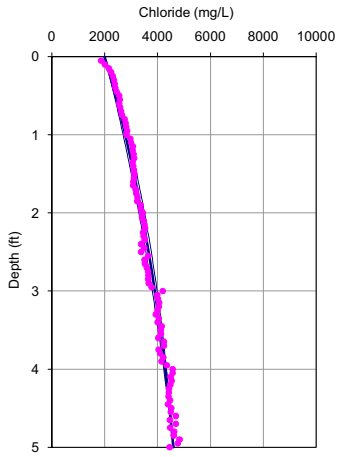
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1546	1546
Cl (mg/L)	6900	4020
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-0.10	-1.02
q (cm/yr)	-0.07	-0.72
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.72	0.73

OL-GP-60142-A



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = ~0 cm/year

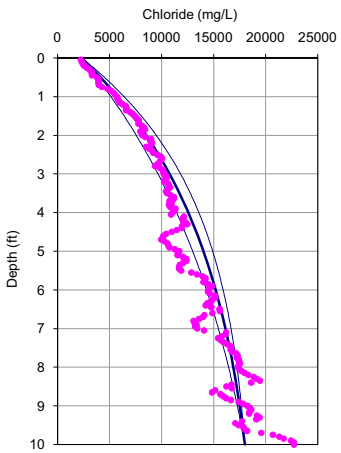
OL-GP-60142-A



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -1.4 cm/year

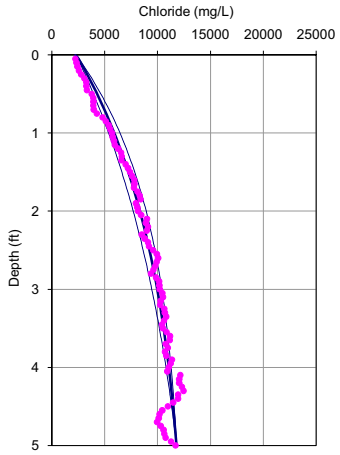
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	2000	2000
Cl (mg/L)	8100	4600
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-0.10	-2.02
q (cm/yr)	-0.07	-1.41
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.72	0.74

OL-GP-60143



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -1.4 cm/year

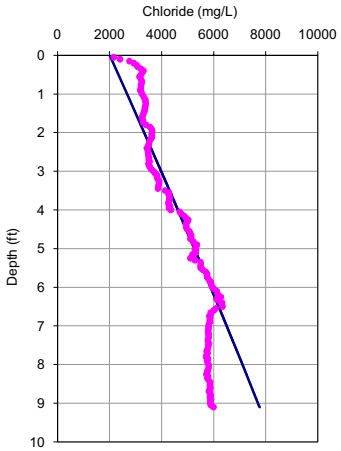
OL-GP-60143



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -2.5 cm/year

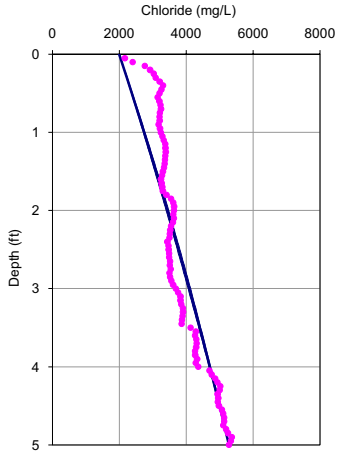
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	2300	2300
Cl (mg/L)	18000	11800
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-2.00	-3.58
q (cm/yr)	-1.40	-2.51
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.77	0.75

OL-GP-60143.DAT



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = ~0 cm/year

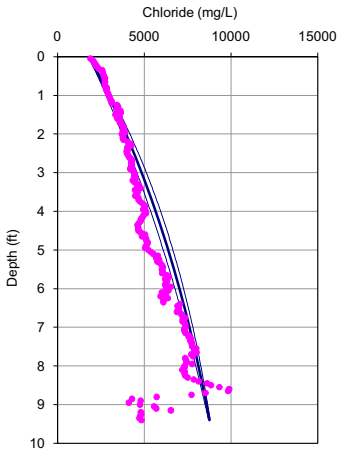
OL-GP-60143.DAT



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -0.4 cm/year

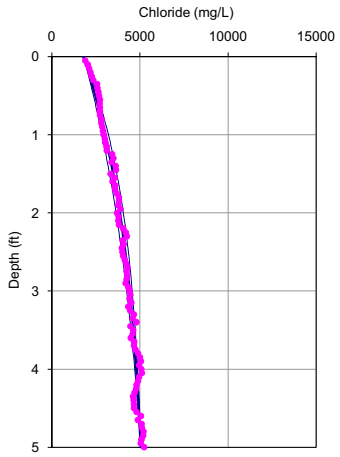
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	2000	2000
Cl (mg/L)	8300	5278
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-0.12	-0.56
q (cm/yr)	-0.09	-0.39
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.72	0.73

OL-GP-60143-A



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -0.7 cm/year

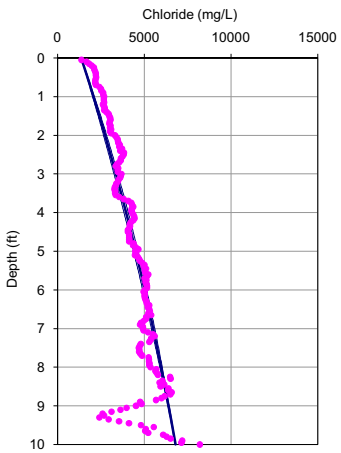
OL-GP-60143-A



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -2.5 cm/year

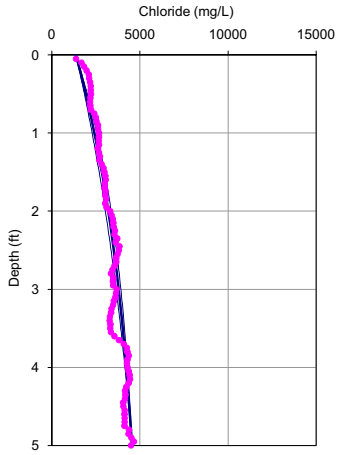
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1800	1800
Cl (mg/L)	9000	5050
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-1.00	-3.55
q (cm/yr)	-0.70	-2.49
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.75	0.75

OL-GP-60144



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -0.4 cm/year

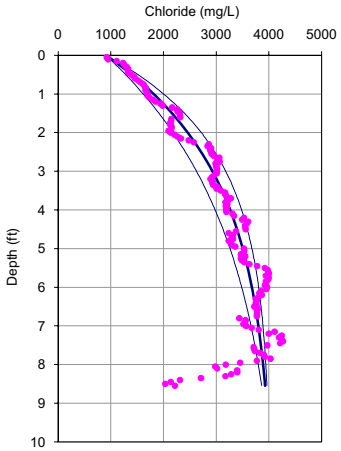
OL-GP-60144



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -1.8 cm/year

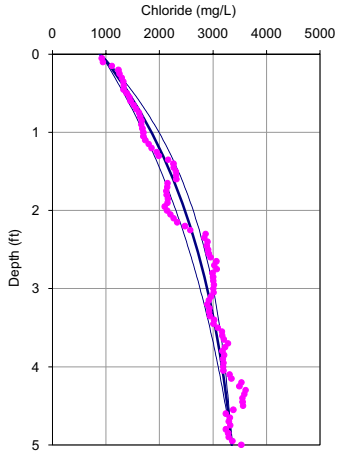
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1362	1362
Cl (mg/L)	6800	4550
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-0.55	-2.64
q (cm/yr)	-0.39	-1.85
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.74	0.74

OL-GP-60145



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -2.2 cm/year

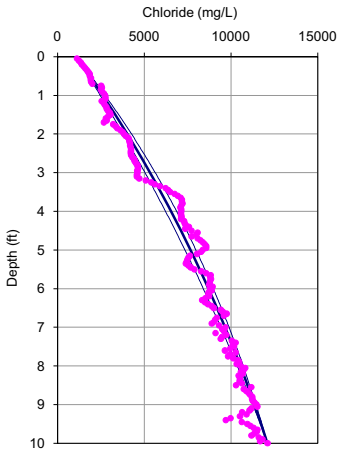
OL-GP-60145



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -2.6 cm/year

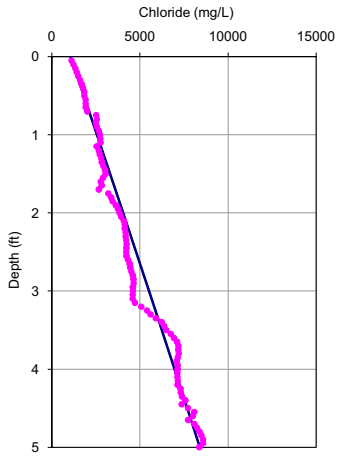
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	904	904
Cl (mg/L)	4000	3350
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-3.19	-3.71
q (cm/yr)	-2.23	-2.60
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.80	0.75

OL-GP-60146



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -0.5 cm/year

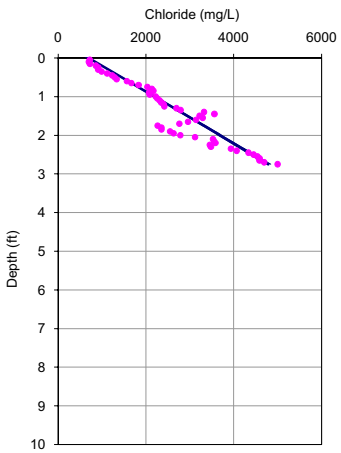
OL-GP-60146



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = ~0 cm/year

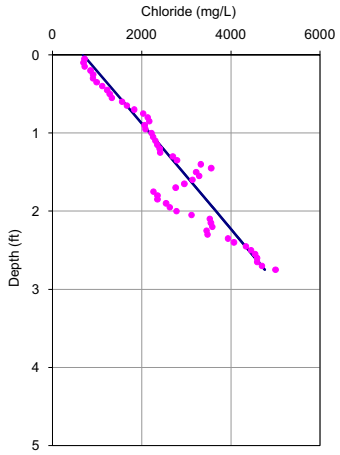
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1060	1060
Cl (mg/L)	12106	8400
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-0.70	-0.10
q (cm/yr)	-0.49	-0.07
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.74	0.72

OL-GP-60147



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = ~0 cm/year

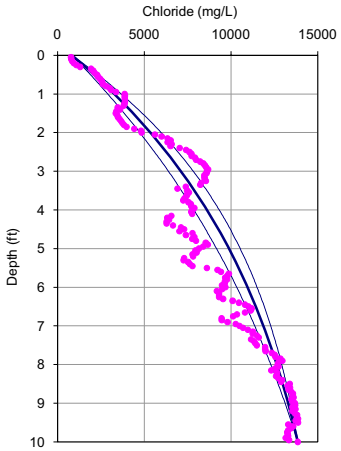
OL-GP-60147



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = ~0 cm/year

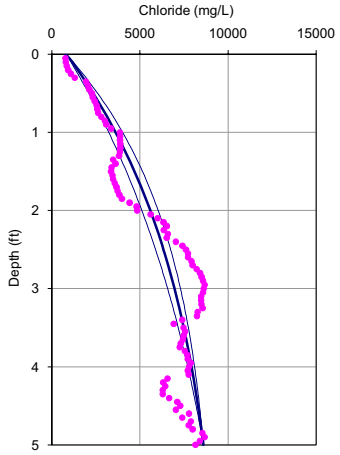
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	690	690
Cl (mg/L)	15000	8000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-0.10	-0.10
q (cm/yr)	-0.07	-0.07
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.72	0.72

OL-GP-60148



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -1.1 cm/year

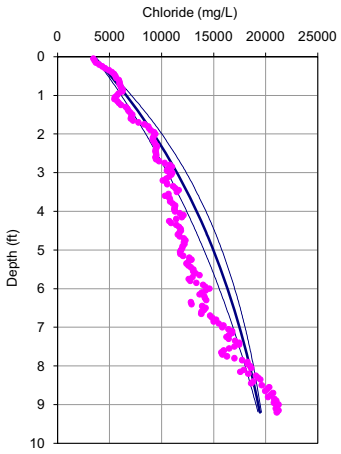
OL-GP-60148



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -2.2 cm/year

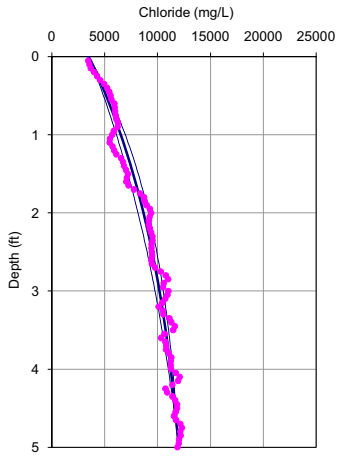
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	821	821
Cl (mg/L)	13854	8600
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-1.50	-3.19
q (cm/yr)	-1.05	-2.24
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.76	0.75

OL-GP-60149



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -1.1 cm/year

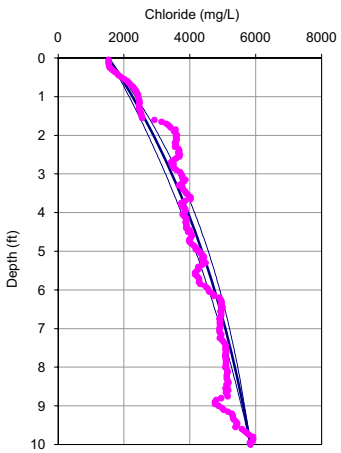
OL-GP-60149



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -2.2 cm/year

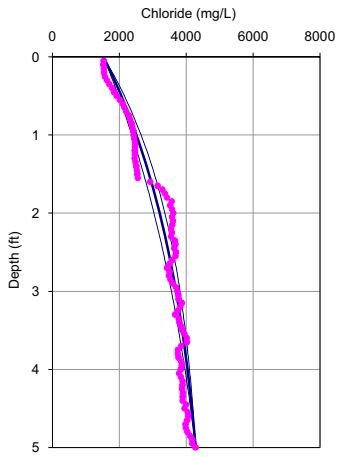
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	3500	3500
Cl (mg/L)	20000	12000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-1.50	-3.12
q (cm/yr)	-1.05	-2.18
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.76	0.75

OL-GP-60149.DAT



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -0.8 cm/year

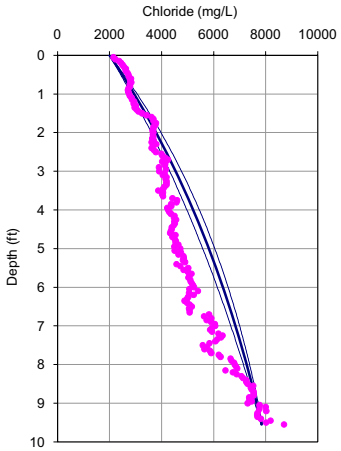
OL-GP-60149.DAT



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -2.2 cm/year

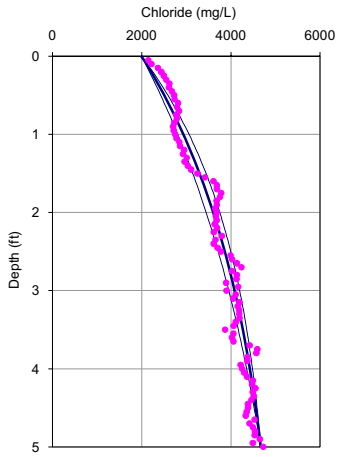
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1524	1524
Cl (mg/L)	5840	4278
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-1.20	-3.16
q (cm/yr)	-0.84	-2.21
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.75	0.75

OL-GP-60149-A



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -0.7 cm/year

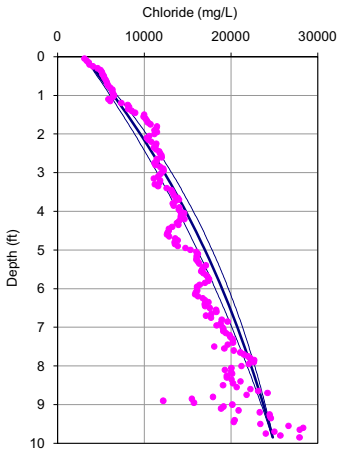
OL-GP-60149-A



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -2.1 cm/year

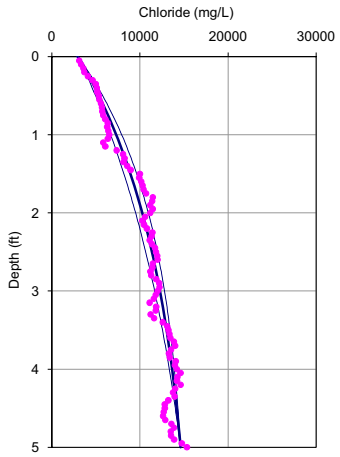
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	2000	2000
Cl (mg/L)	8000	4670
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-1.00	-3.00
q (cm/yr)	-0.70	-2.10
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.75	0.75

OL-GP-60150



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -0.7 cm/year

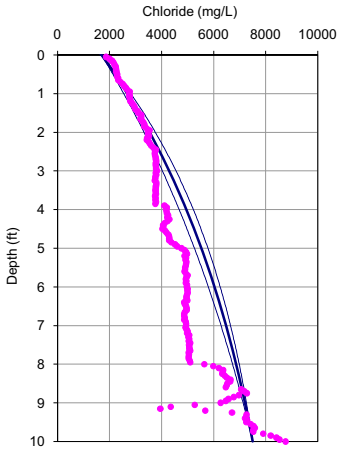
OL-GP-60150



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -2.4 cm/year

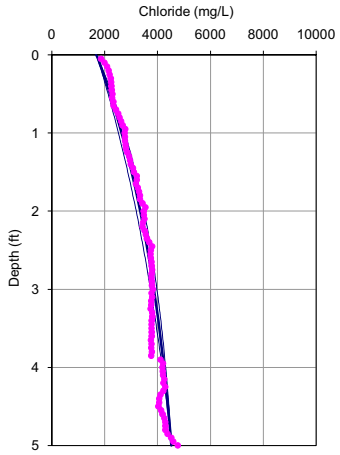
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	3000	3000
Cl (mg/L)	25000	14600
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-1.00	-3.41
q (cm/yr)	-0.70	-2.39
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.75	0.75

OL-GP-60150.DAT



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -0.8 cm/year

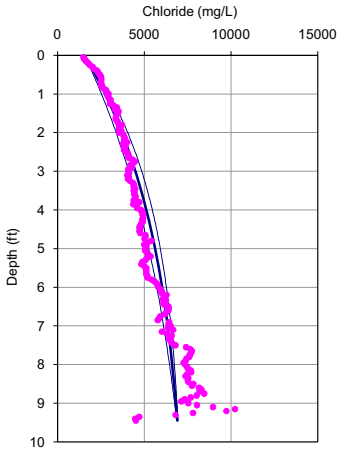
OL-GP-60150.DAT



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -1.9 cm/year

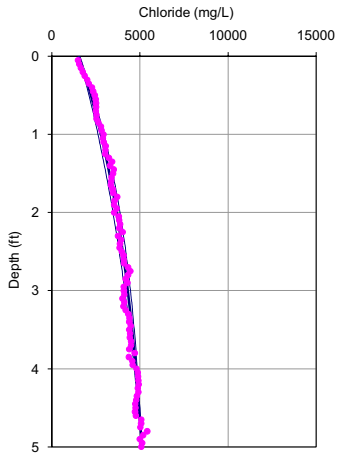
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1693	1693
Cl (mg/L)	7500	4525
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-1.20	-2.71
q (cm/yr)	-0.84	-1.90
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.75	0.75

OL-GP-60150-A



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -1.4 cm/year

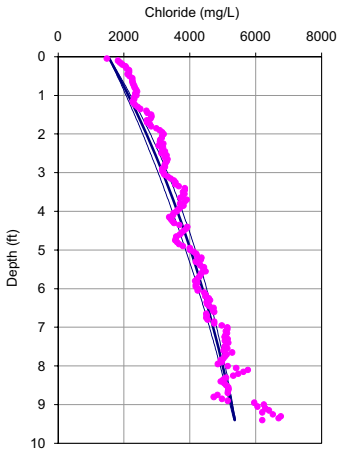
OL-GP-60150-A



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -2.1 cm/year

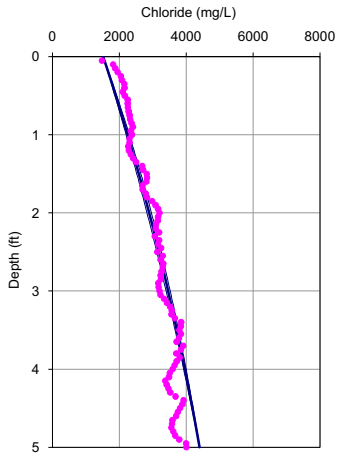
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1550	1550
Cl (mg/L)	7000	5100
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-2.00	-2.97
q (cm/yr)	-1.40	-2.08
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.77	0.75

OL-GP-60151



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -0.7 cm/year

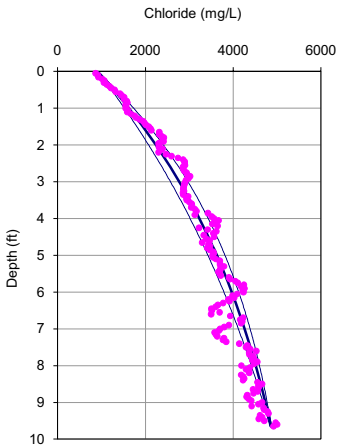
OL-GP-60151



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -0.8 cm/year

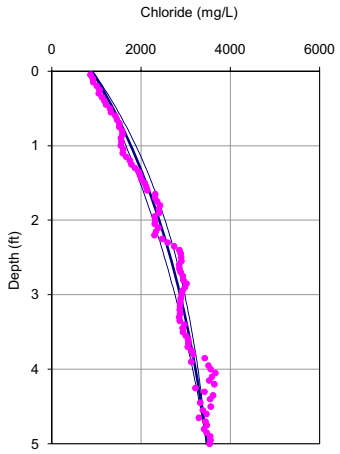
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1520	1520
Cl (mg/L)	5500	4400
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-0.94	-1.11
q (cm/yr)	-0.66	-0.78
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.75	0.73

OL-GP-60152



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -0.9 cm/year

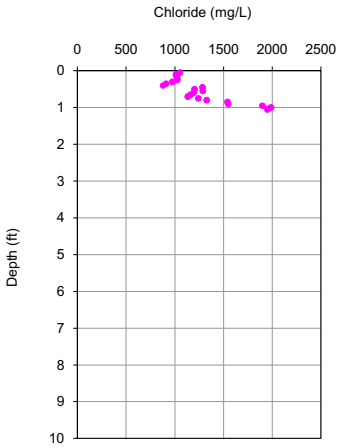
OL-GP-60152



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -1.9 cm/year

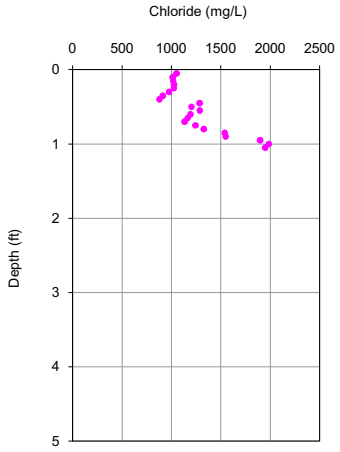
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	910	910
Cl (mg/L)	4920	3475
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-1.34	-2.71
q (cm/yr)	-0.94	-1.90
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.76	0.75

OL-GP-60153



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = NA cm/year

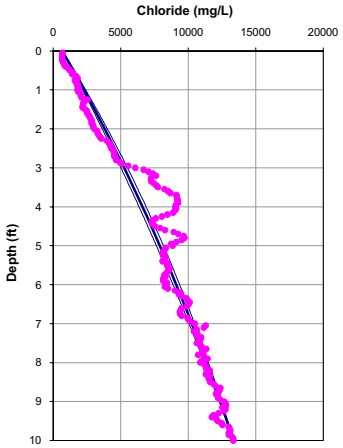
OL-GP-60153



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = NA cm/year

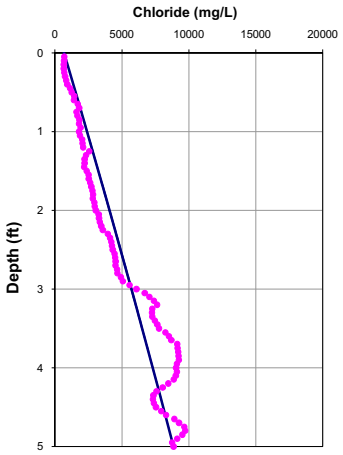
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1070	1070
Cl (mg/L)	1949	1949
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-0.10	-0.10
q (cm/yr)	-0.07	-0.07
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.72	0.72

OL-GP-60154



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -0.4 cm/year

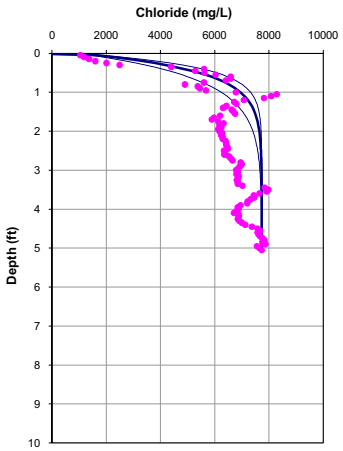
OL-GP-60154



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -0.2 cm/year

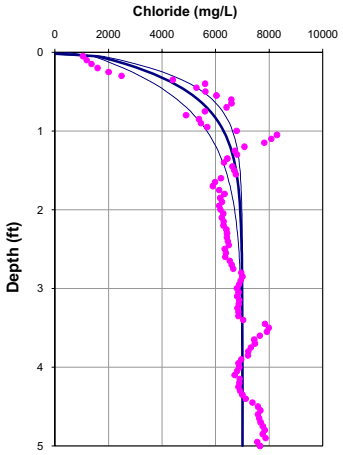
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	677	677
Cl (mg/L)	13350	8856
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-0.50	-0.22
q (cm/yr)	-0.35	-0.16
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.73	0.72

OL-GP-60155



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -16.8 cm/year

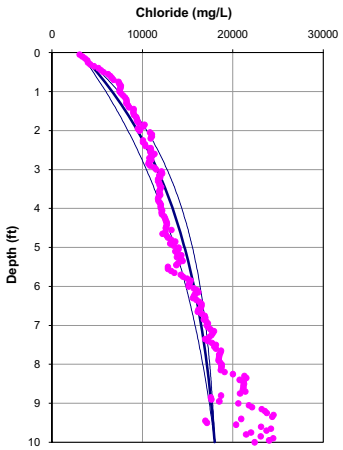
OL-GP-60155



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -16.8 cm/year

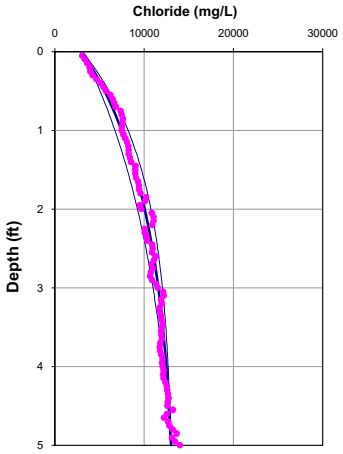
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	982	982
Cl (mg/L)	7736	7000
L(ft)	5	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-24.00	-24.06
q (cm/yr)	-16.80	-16.84
dispersion length (ft)	0.11	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.11	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.93	0.93

OL-GP-60156



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -1.6 cm/year

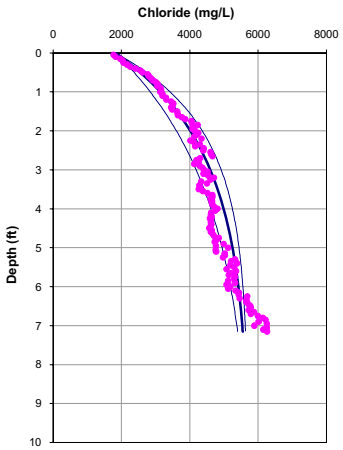
OL-GP-60156



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -3.4 cm/year

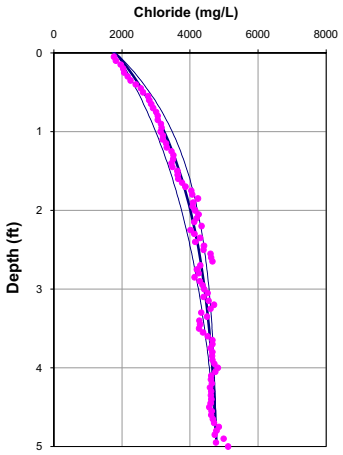
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	3049	3049
Cl (mg/L)	18000	13000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-2.34	-4.88
q (cm/yr)	-1.64	-3.42
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.78	0.76

OL-GP-60156-A



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -2.8 cm/year

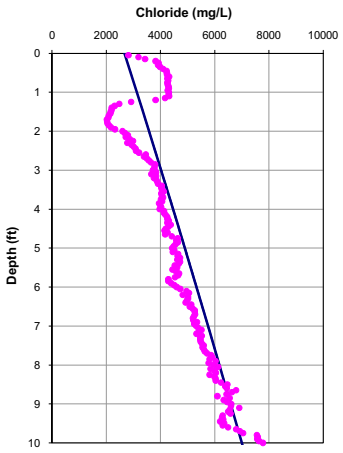
OL-GP-60156-A



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -4.0 cm/year

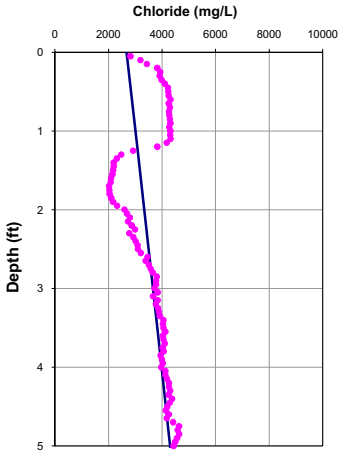
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1824	1824
Cl (mg/L)	5700	4780
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-4.00	-5.66
q (cm/yr)	-2.80	-3.96
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.82	0.77

OL-GP-60157



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = ~0 cm/year

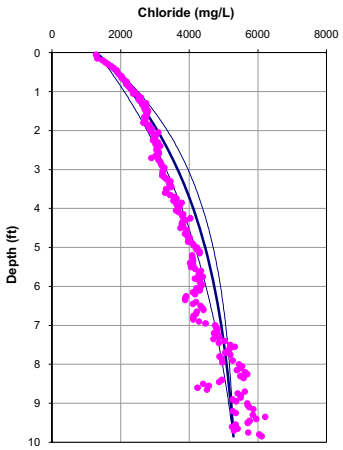
OL-GP-60157



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = ~0 cm/year

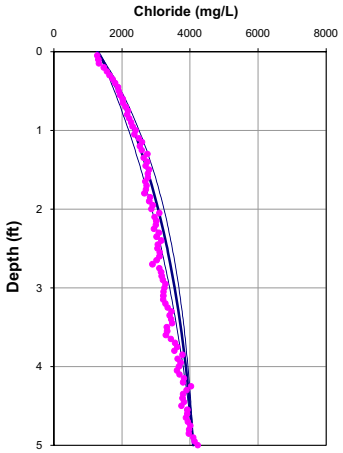
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	2673	2673
Cl (mg/L)	7000	4300
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-0.10	-0.10
q (cm/yr)	-0.07	-0.07
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.72	0.72

OL-GP-60158



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -1.8 cm/year

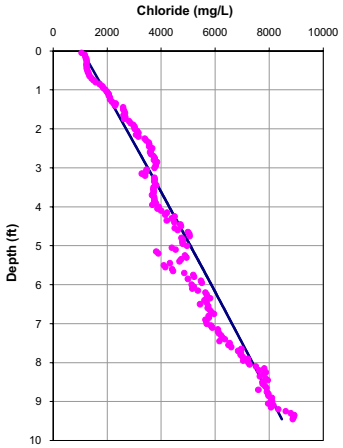
OL-GP-60158



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -2.5 cm/year

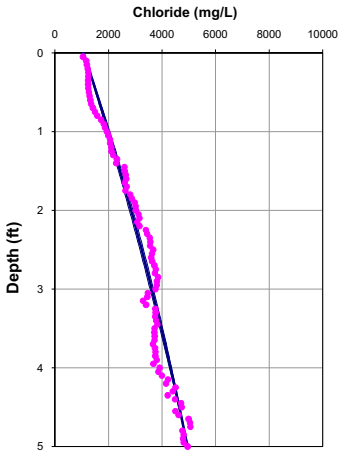
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1300	1300
Cl (mg/L)	5300	4100
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-2.50	-3.50
q (cm/yr)	-1.75	-2.45
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.79	0.75

OL-GP-60159



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = ~0 cm/year

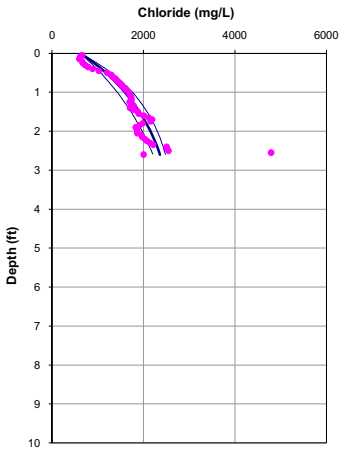
OL-GP-60159



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -0.6 cm/year

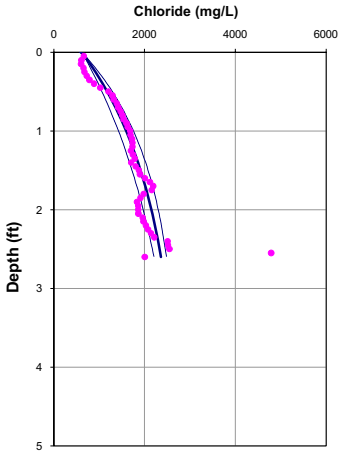
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1070	1070
Cl (mg/L)	8872	4955
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-0.10	-0.82
q (cm/yr)	-0.07	-0.57
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.72	0.73

OL-GP-60160



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -3.6 cm/year

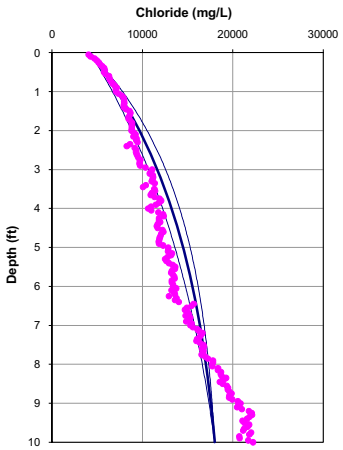
OL-GP-60160



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -3.6 cm/year

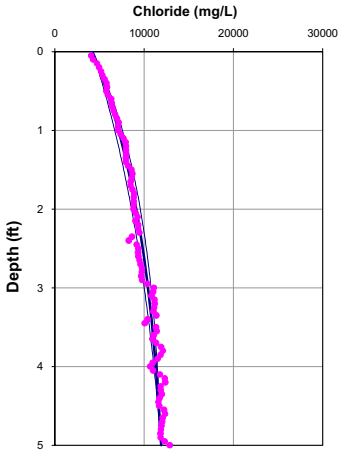
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	617	617
Cl (mg/L)	2750	2750
L(ft)	5	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-5.18	-5.18
q (cm/yr)	-3.62	-3.62
dispersion length (ft)	0.11	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.11	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.77	0.77

OL-GP-60161



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -1.4 cm/year

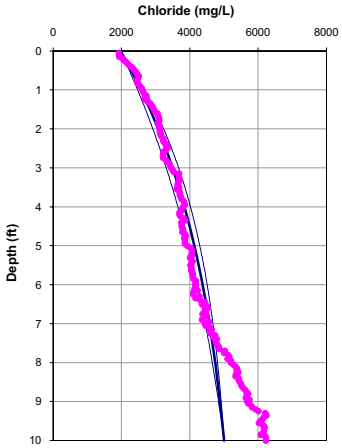
OL-GP-60161



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -2.5 cm/year

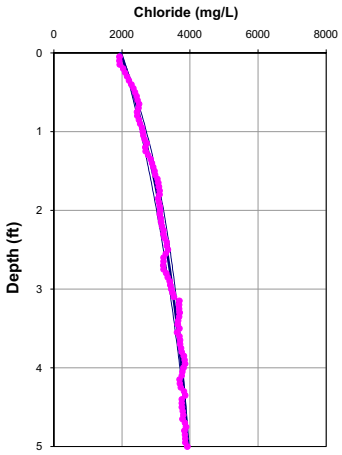
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	4200	4200
Cl (mg/L)	18000	11900
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-2.00	-3.59
q (cm/yr)	-1.40	-2.51
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.77	0.75

OL-GP-60161.DAT



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -1.2 cm/year

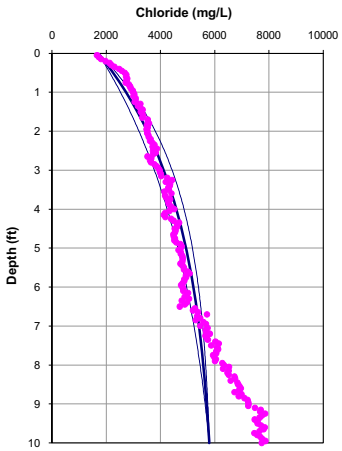
OL-GP-60161.DAT



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -1.9 cm/year

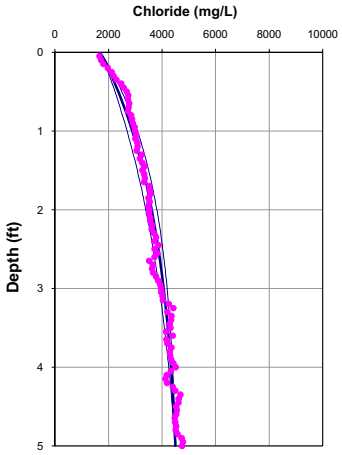
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1969	1969
Cl (mg/L)	5000	3950
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-1.67	-2.72
q (cm/yr)	-1.17	-1.90
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.76	0.75

OL-GP-60161-A



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -1.7 cm/year

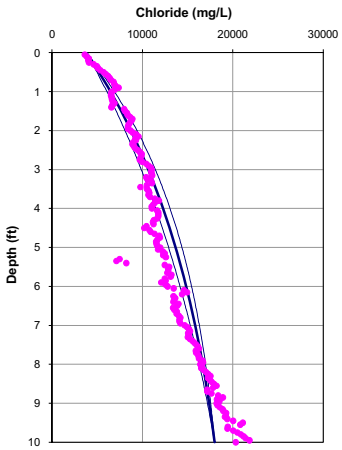
OL-GP-60161-A



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -3.1 cm/year

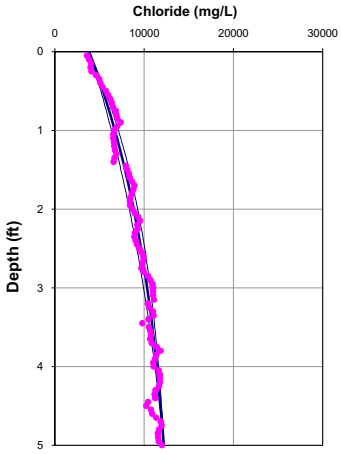
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1700	1700
Cl (mg/L)	5800	4500
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-2.49	-4.46
q (cm/yr)	-1.74	-3.12
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.78	0.76

OL-GP-60162



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -1.1 cm/year

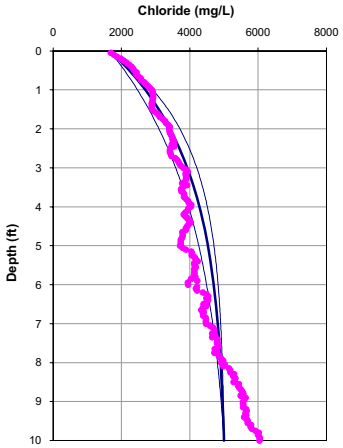
OL-GP-60162



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -2.1 cm/year

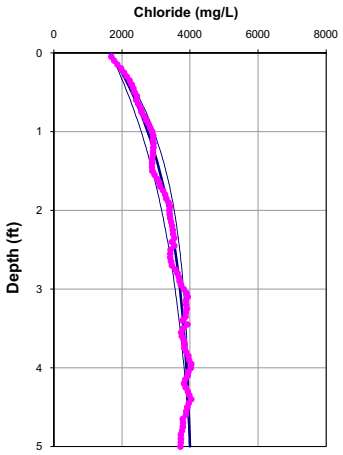
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	3800	3800
Cl (mg/L)	18000	12200
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-1.50	-2.94
q (cm/yr)	-1.05	-2.05
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.76	0.75

OL-GP-60162.DAT



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -2.5 cm/year

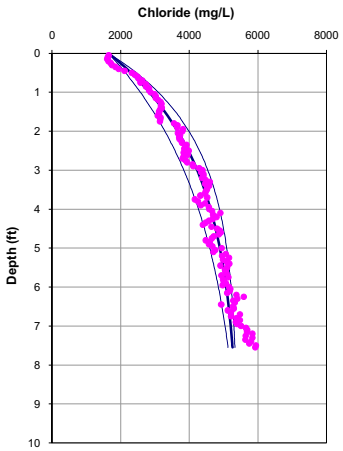
OL-GP-60162.DAT



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -3.8 cm/year

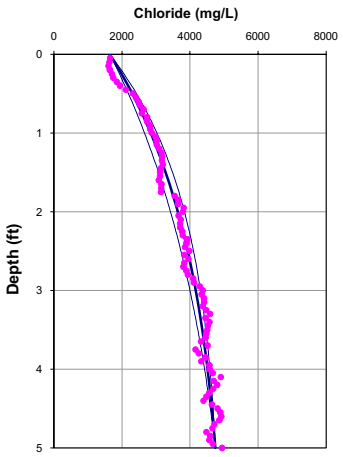
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1656	1656
Cl (mg/L)	5000	4000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-3.50	-5.44
q (cm/yr)	-2.45	-3.81
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.81	0.77

OL-GP-60162-A



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -2.5 cm/year

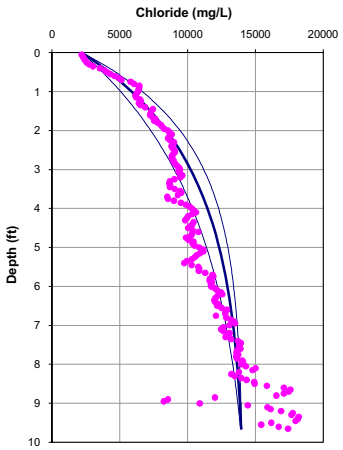
OL-GP-60162-A



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -2.6 cm/year

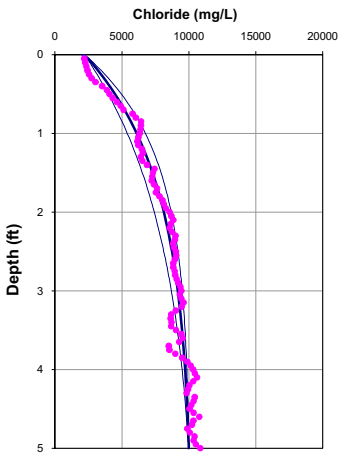
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1645	1645
Cl (mg/L)	5400	4750
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-3.62	-3.72
q (cm/yr)	-2.53	-2.61
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.81	0.75

OL-GP-60163



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -2.5 cm/year

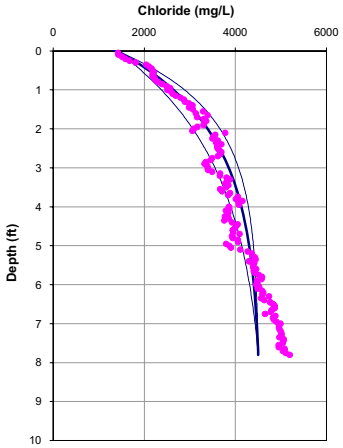
OL-GP-60163



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -4.3 cm/year

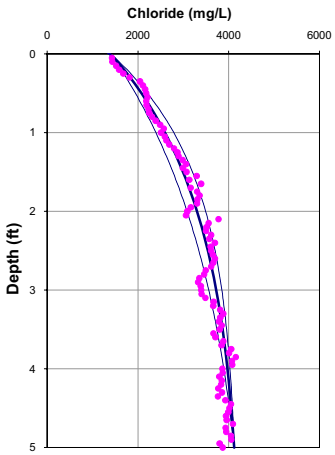
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	2200	2200
Cl (mg/L)	14000	10000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-3.50	-6.11
q (cm/yr)	-2.45	-4.28
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.81	0.78

OL-GP-60163-A



Porosity = 0.70
Dispersion length = 0.2 feet
Upwelling Velocity = -3.3 cm/year

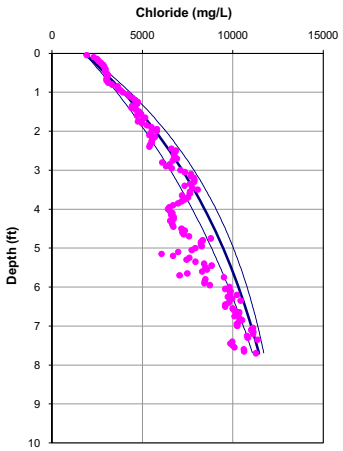
OL-GP-60163-A



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -3.3 cm/year

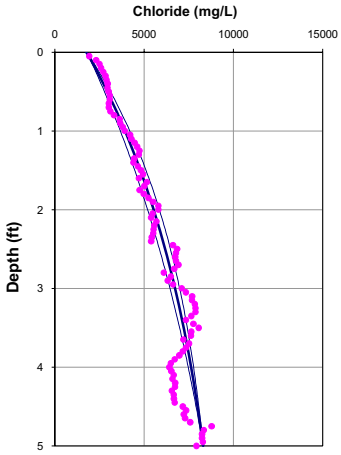
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1400	1400
Cl (mg/L)	4500	4120
L(ft)	7.75	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-4.78	-4.78
q (cm/yr)	-3.35	-3.34
dispersion length (ft)	0.21	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.21	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.80	0.76

OL-GP-60164



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -1.2 cm/year

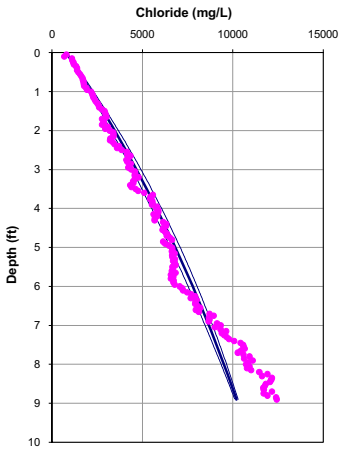
OL-GP-60164



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -1.8 cm/year

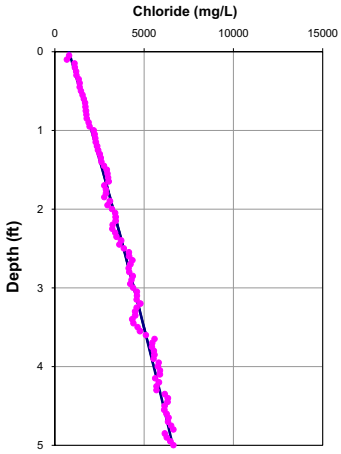
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1786	1786
Cl (mg/L)	12500	8300
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-1.70	-2.58
q (cm/yr)	-1.19	-1.80
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.76	0.74

OL-GP-60165



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -0.5 cm/year

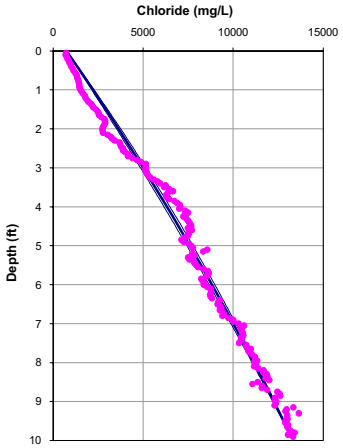
OL-GP-60165



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -0.3 cm/year

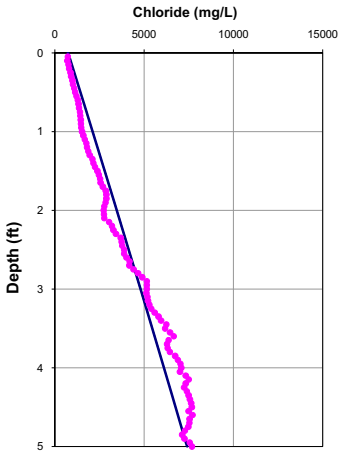
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	783	783
Cl (mg/L)	11000	6600
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-0.65	-0.37
q (cm/yr)	-0.45	-0.26
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.74	0.72

OL-GP-60166



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -0.2 cm/year

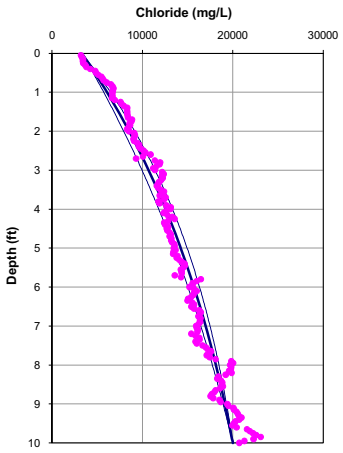
OL-GP-60166



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = ~0 cm/year

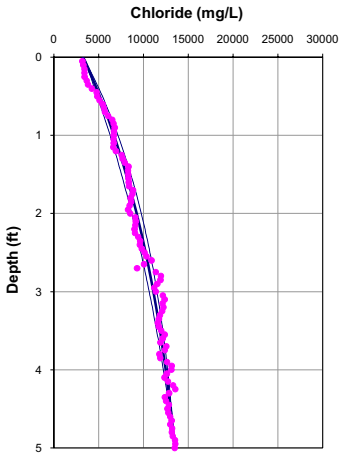
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	742	742
Cl (mg/L)	13324	7400
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-0.31	-0.12
q (cm/yr)	-0.22	-0.09
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.73	0.72

OL-GP-60167



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -0.8 cm/year

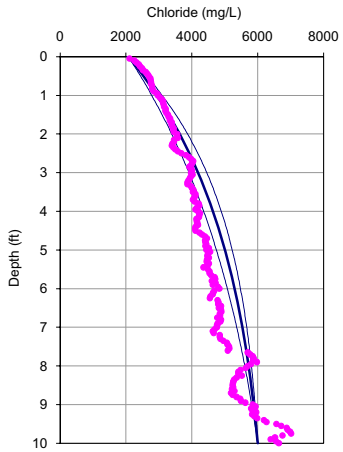
OL-GP-60167



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -1.9 cm/year

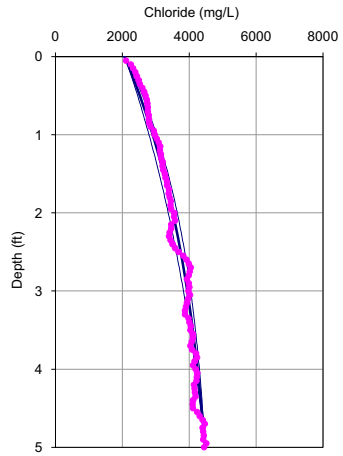
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	3300	3300
Cl (mg/L)	20000	13500
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-1.15	-2.71
q (cm/yr)	-0.81	-1.90
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.75	0.75

OL-GP-60167.DAT



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -1.4 cm/year

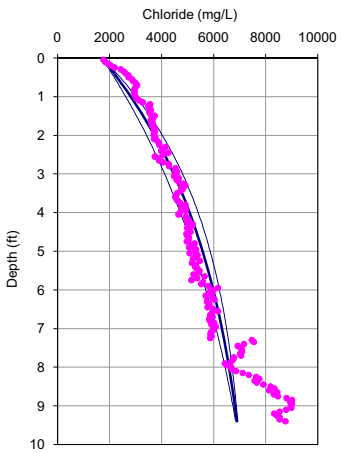
OL-GP-60167.DAT



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -2.1 cm/year

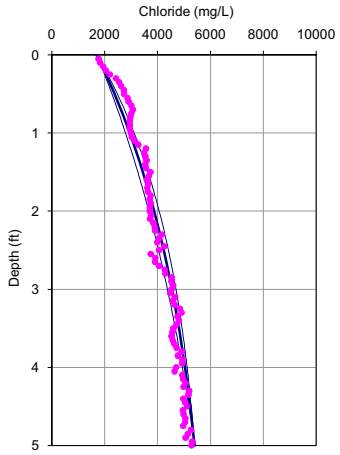
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	2073	2073
Cl (mg/L)	6000	4470
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-2.00	-2.99
q (cm/yr)	-1.40	-2.09
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.77	0.75

OL-GP-60167-A



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -1.3 cm/year

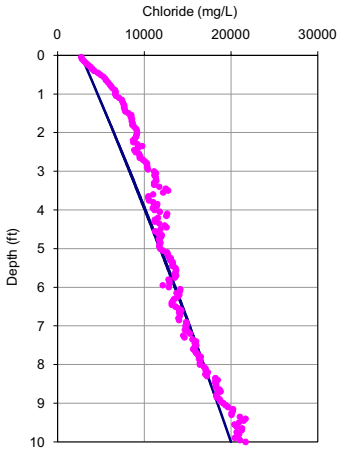
OL-GP-60167-A



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -1.9 cm/year

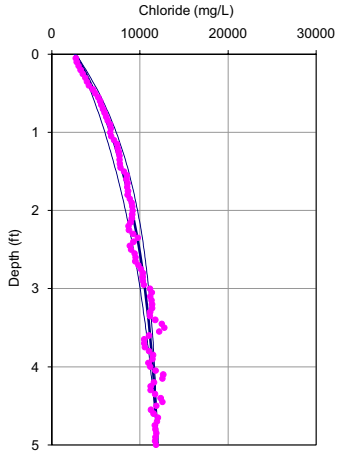
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1700	1700
Cl (mg/L)	7000	5400
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-1.84	-2.76
q (cm/yr)	-1.29	-1.93
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.77	0.75

OL-GP-60168



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -0.1 cm/year

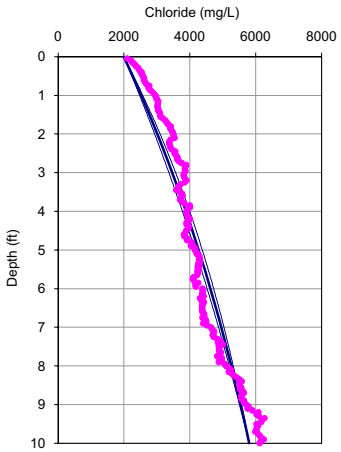
OL-GP-60168



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -3.2 cm/year

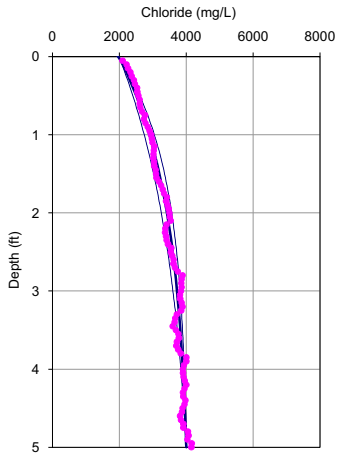
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	2700	2700
Cl (mg/L)	20000	12000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-0.20	-4.54
q (cm/yr)	-0.14	-3.18
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.73	0.76

OL-GP-60168.DAT



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -0.5 cm/year

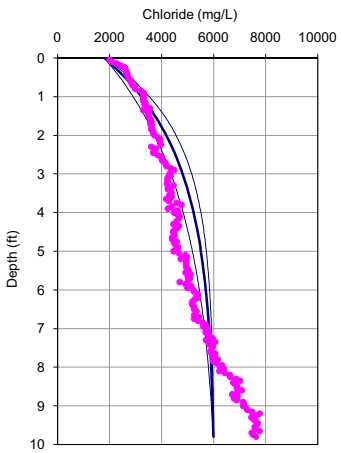
OL-GP-60168.DAT



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -3.5 cm/year

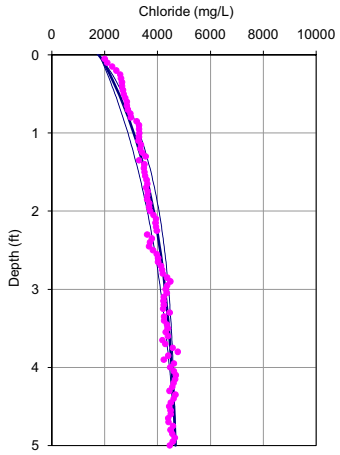
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1990	1990
Cl (mg/L)	5800	4000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-0.71	-5.06
q (cm/yr)	-0.49	-3.54
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.74	0.77

OL-GP-60168-A



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -2.8 cm/year

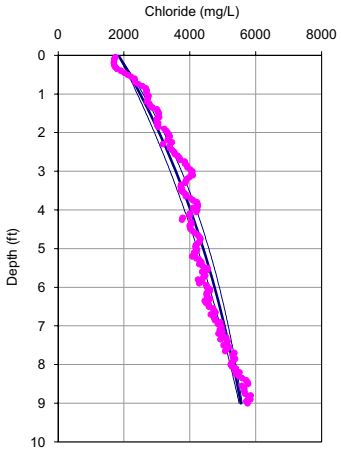
OL-GP-60168-A



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -3.5 cm/year

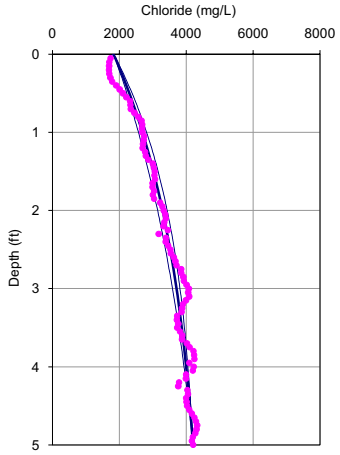
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1800	1800
Cl (mg/L)	6000	4680
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-4.00	-5.03
q (cm/yr)	-2.80	-3.52
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.82	0.77

OL-GP-60169



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -0.8 cm/year

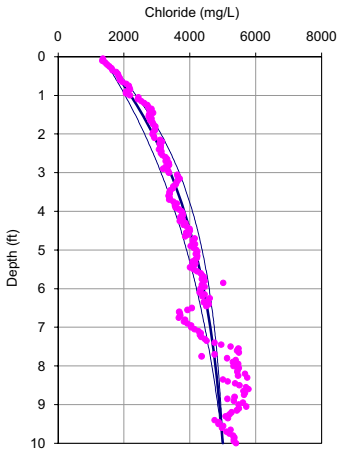
OL-GP-60169



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -2.3 cm/year

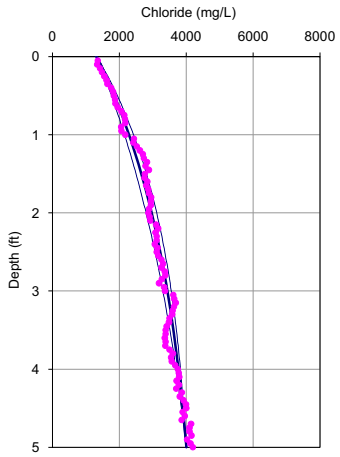
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1833	1833
Cl (mg/L)	5750	4200
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-1.18	-3.27
q (cm/yr)	-0.82	-2.29
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.75	0.75

OL-GP-60170



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -1.6 cm/year

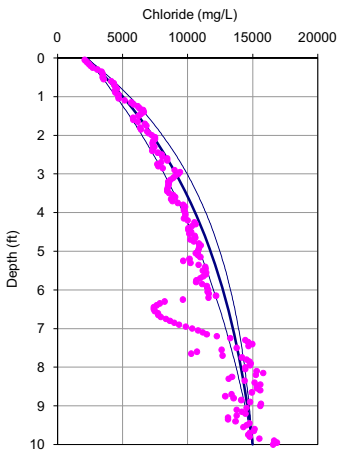
OL-GP-60170



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -2.2 cm/year

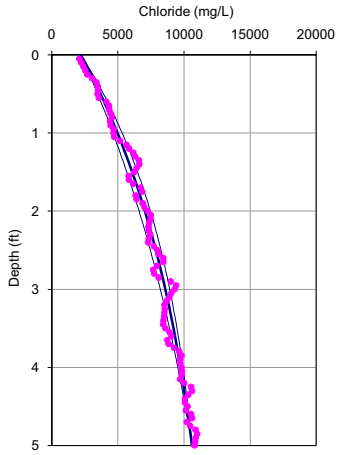
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1330	1330
Cl (mg/L)	5000	4000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-2.27	-3.19
q (cm/yr)	-1.59	-2.23
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.78	0.75

OL-GP-60170-200



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -1.4 cm/year

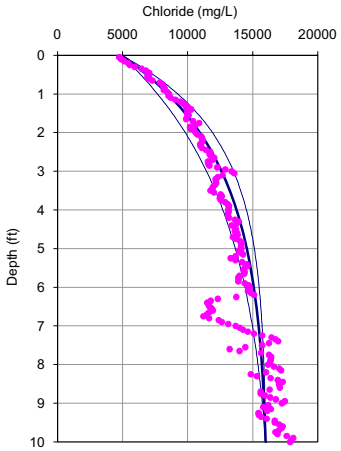
OL-GP-60170-200



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -1.8 cm/year

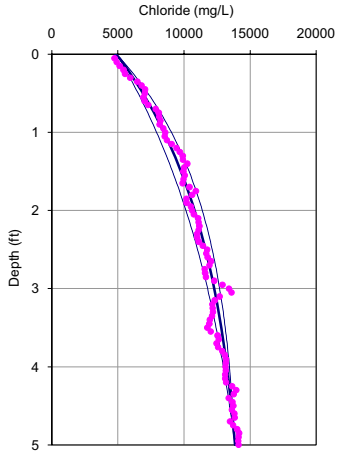
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	2200	2200
Cl (mg/L)	15000	10600
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-2.00	-2.60
q (cm/yr)	-1.40	-1.82
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.77	0.74

OL-GP-60170-400



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -2.6 cm/year

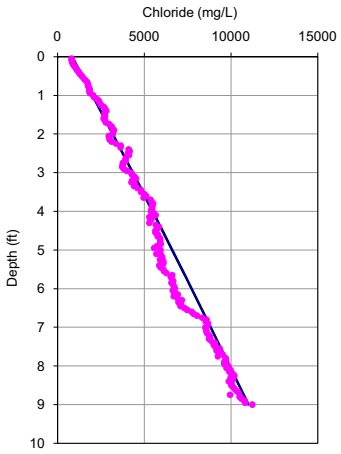
OL-GP-60170-400



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -2.8 cm/year

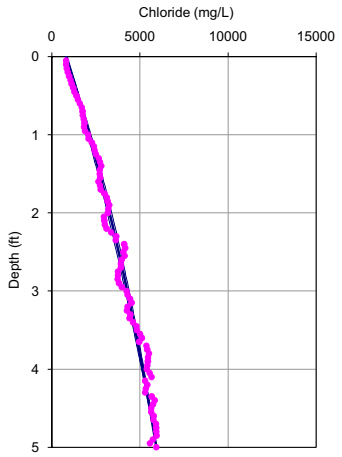
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	4900	4900
Cl (mg/L)	16000	13850
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-3.70	-4.01
q (cm/yr)	-2.59	-2.80
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.82	0.76

OL-GP-60171



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = ~0 cm/year

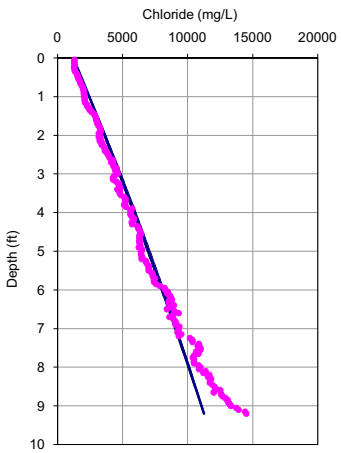
OL-GP-60171



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -0.8 cm/year

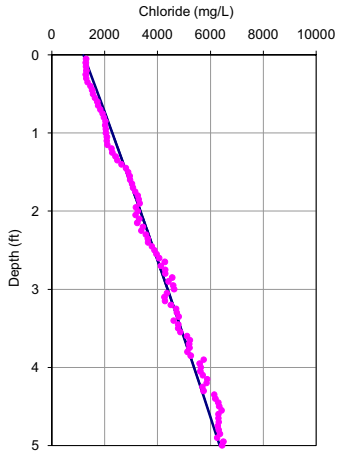
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	829	829
Cl (mg/L)	11000	5933
L(ft)	9	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-0.10	-1.14
q (cm/yr)	-0.07	-0.80
dispersion length (ft)	0.26	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.26	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.72	0.73

OL-GP-60172



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -0.2 cm/year

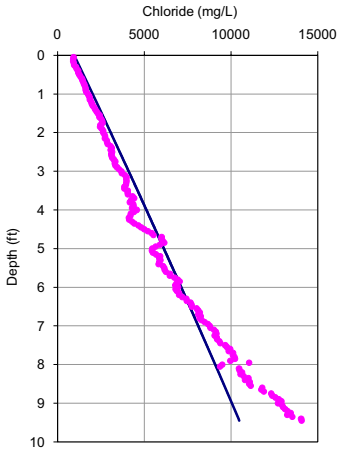
OL-GP-60172



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -0.2 cm/year

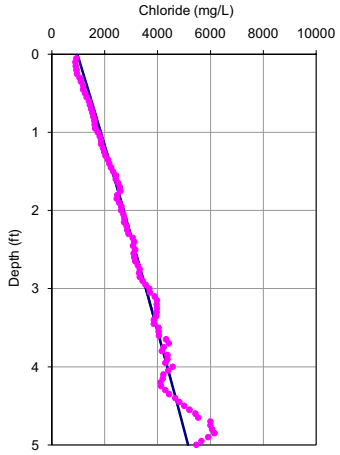
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1200	1200
Cl (mg/L)	12000	6350
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-0.26	-0.25
q (cm/yr)	-0.18	-0.18
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.73	0.72

OL-GP-60173



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = ~0 cm/year

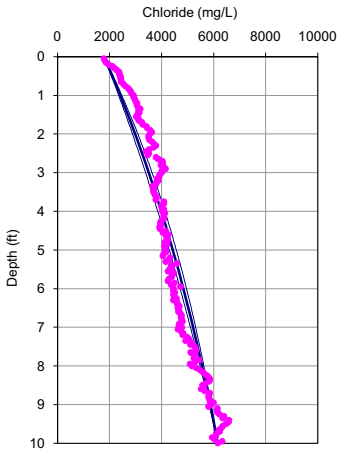
OL-GP-60173



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -0.2 cm/year

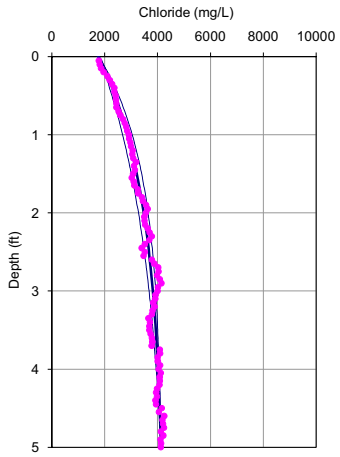
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	961	961
Cl (mg/L)	11000	5150
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-0.11	-0.29
q (cm/yr)	-0.07	-0.20
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.72	0.72

OL-GP-60174



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -0.5 cm/year

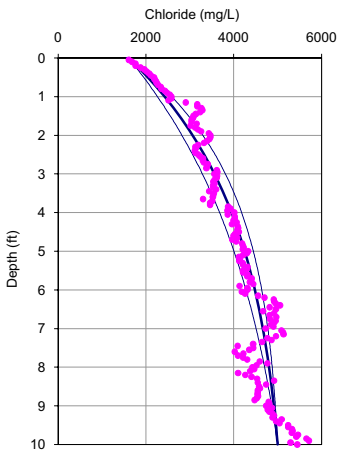
OL-GP-60174



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -3.7 cm/year

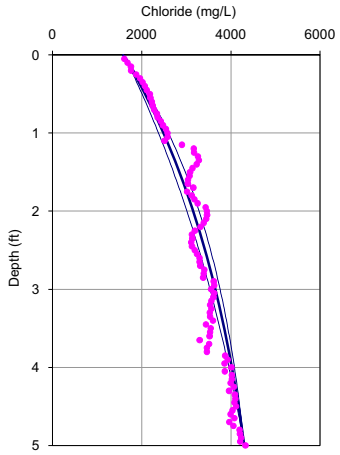
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1784	1784
Cl (mg/L)	6155	4125
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-0.76	-5.26
q (cm/yr)	-0.53	-3.68
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.74	0.77

OL-GP-60175



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -1.7 cm/year

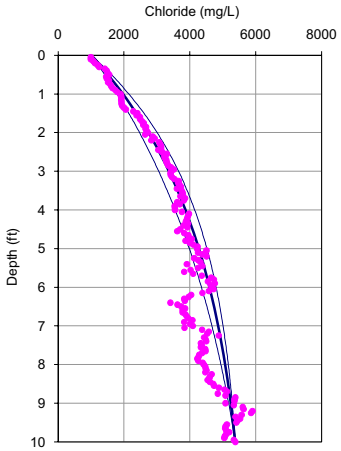
OL-GP-60175



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -1.8 cm/year

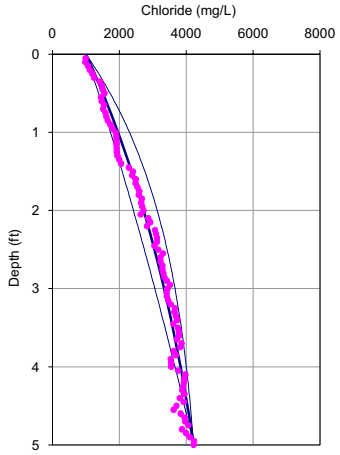
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1600	1600
Cl (mg/L)	5000	4300
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-2.36	-2.60
q (cm/yr)	-1.65	-1.82
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.78	0.74

OL-GP-60176



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -1.4 cm/year

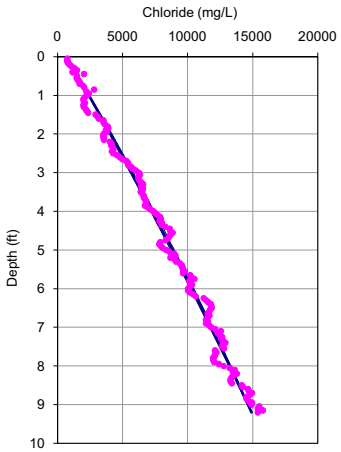
OL-GP-60176



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -1.4 cm/year

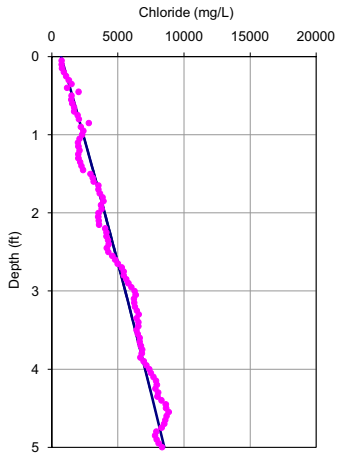
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1007	1007
Cl (mg/L)	5380	4220
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-2.00	-1.98
q (cm/yr)	-1.40	-1.38
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.77	0.74

OL-GP-60177



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -0.2 cm/year

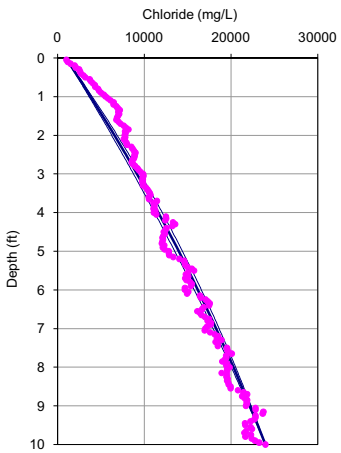
OL-GP-60177



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -0.2 cm/year

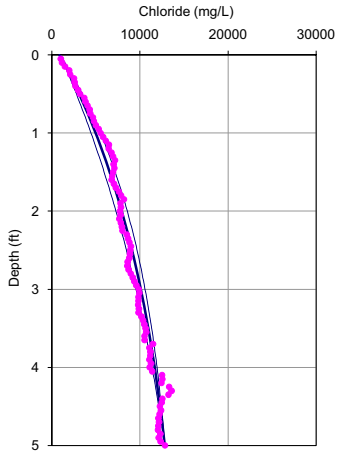
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	704	704
Cl (mg/L)	16000	8500
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-0.22	-0.33
q (cm/yr)	-0.15	-0.23
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.73	0.72

OL-GP-60178



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -0.3 cm/year

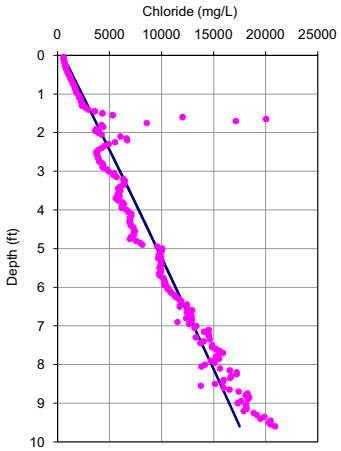
OL-GP-60178



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -2.0 cm/year

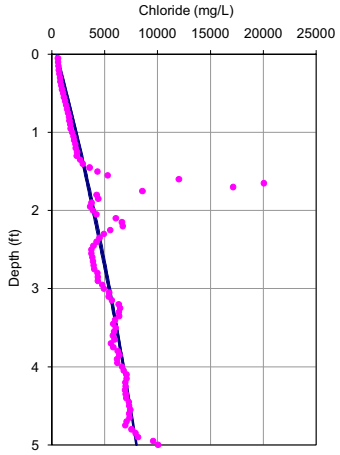
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	928	928
Cl (mg/L)	23981	12830
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-0.46	-2.80
q (cm/yr)	-0.32	-1.96
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.73	0.75

OL-GP-60179



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = ~0 cm/year

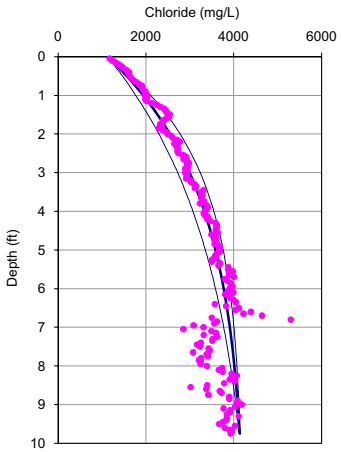
OL-GP-60179



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -0.6 cm/year

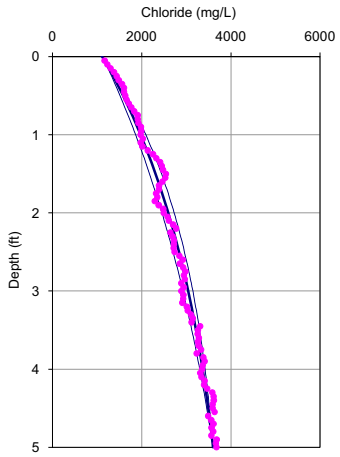
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	480	480
Cl (mg/L)	17500	8000
L(ft)	9.6	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-0.10	-0.87
q (cm/yr)	-0.07	-0.61
dispersion length (ft)	0.29	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.29	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.72	0.73

OL-GP-60180



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -2.0 cm/year

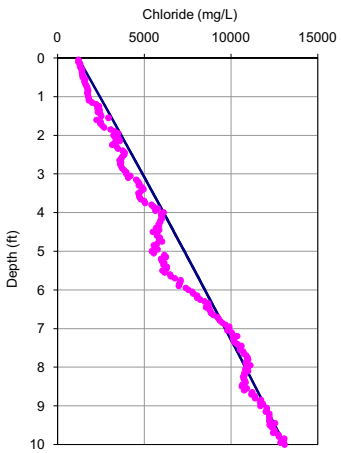
OL-GP-60180



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -2.0 cm/year

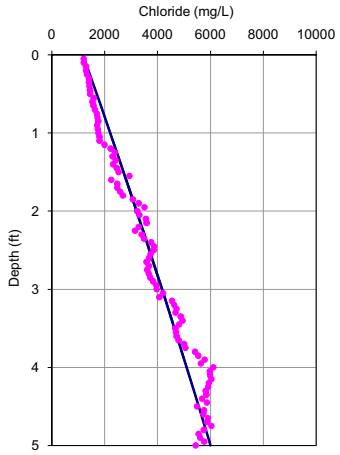
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1125	1125
Cl (mg/L)	4150	3600
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-2.79	-2.90
q (cm/yr)	-1.95	-2.03
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.79	0.75

OL-GP-60181



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = ~0 cm/year

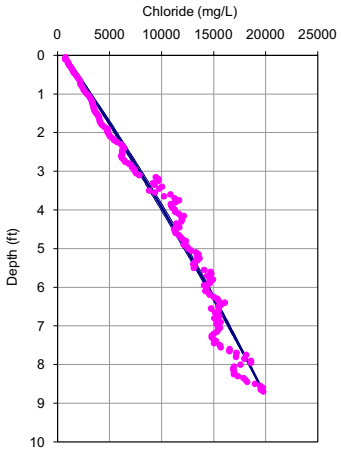
OL-GP-60181



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -0.2 cm/year

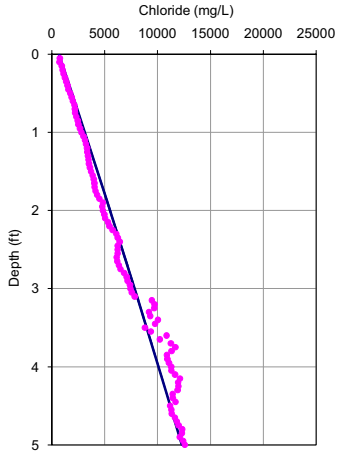
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1181	1181
Cl (mg/L)	13098	6000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-0.10	-0.29
q (cm/yr)	-0.07	-0.20
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.72	0.72

OL-GP-60182



Porosity = 0.70
Dispersion length = 0.2 feet
Upwelling Velocity = -0.2 cm/year

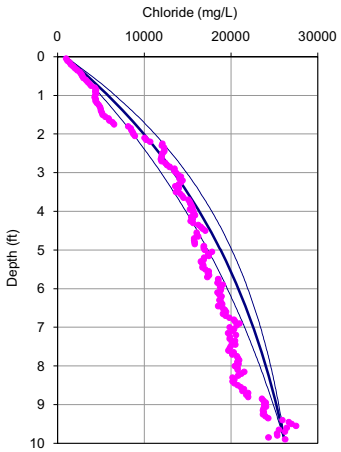
OL-GP-60182



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -0.2 cm/year

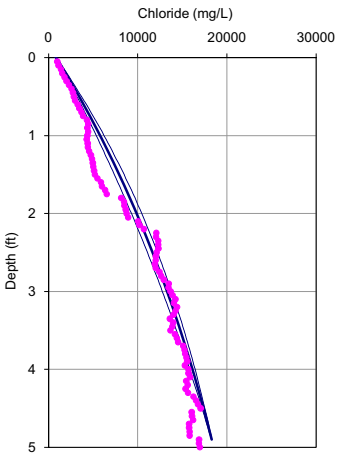
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	683	683
Cl (mg/L)	19762	12300
L(ft)	8.7	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-0.29	-0.22
q (cm/yr)	-0.21	-0.15
dispersion length (ft)	0.25	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.25	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.73	0.72

OL-GP-60183



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -1.1 cm/year

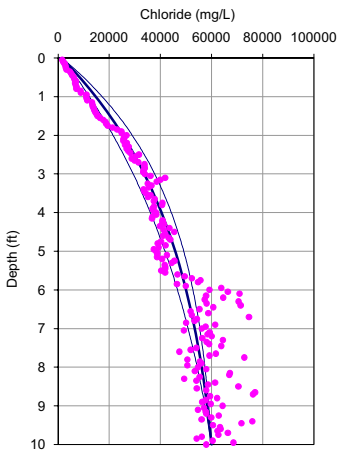
OL-GP-60183



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -1.1 cm/year

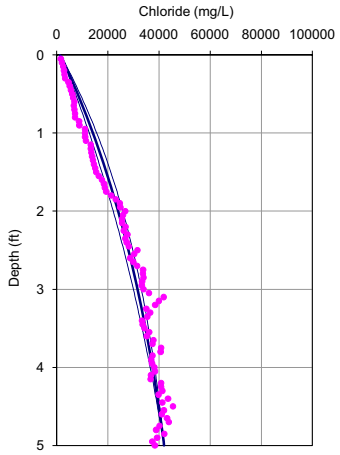
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	874	874
Cl (mg/L)	26249	18500
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-1.60	-1.60
q (cm/yr)	-1.12	-1.12
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.76	0.74

OL-GP-60184



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -1.5 cm/year

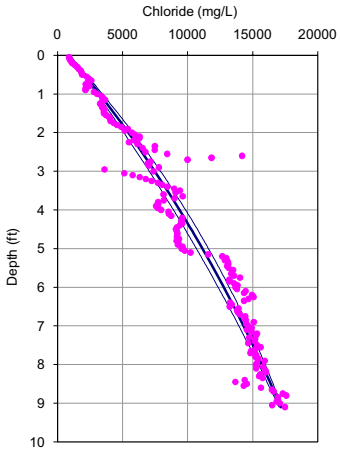
OL-GP-60184



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -1.6 cm/year

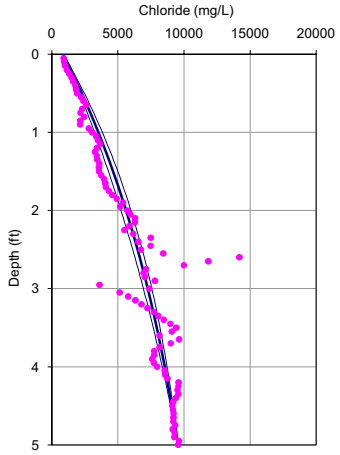
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1404	1404
Cl (mg/L)	60000	42000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-2.11	-2.30
q (cm/yr)	-1.48	-1.61
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.78	0.74

OL-GP-60185



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -0.5 cm/year

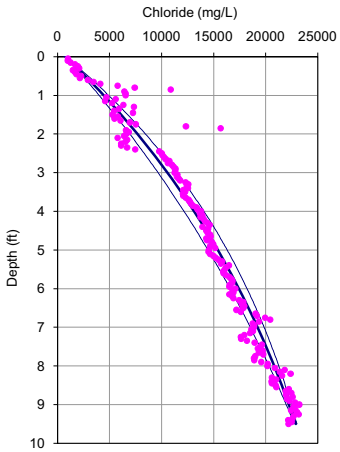
OL-GP-60185



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -1.5 cm/year

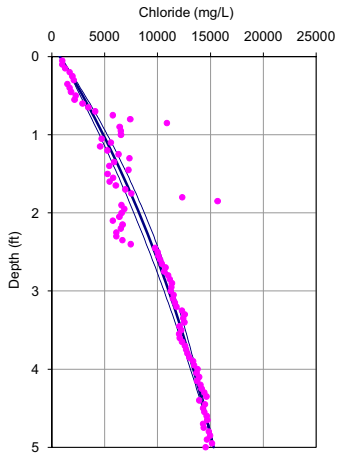
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	866	866
Cl (mg/L)	18250	9553
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-0.65	-2.15
q (cm/yr)	-0.46	-1.50
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.74	0.74

OL-GP-60186



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -0.7 cm/year

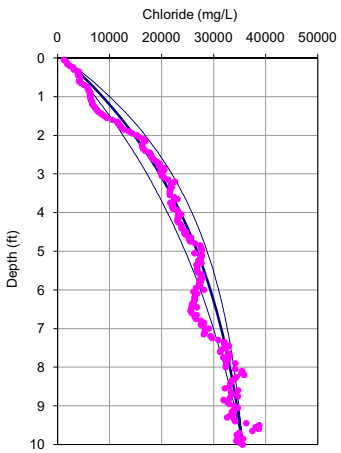
OL-GP-60186



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -1.2 cm/year

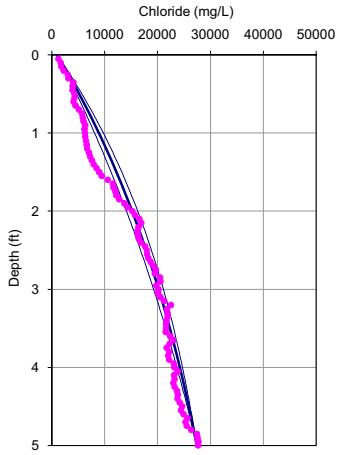
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	783	783
Cl (mg/L)	23500	15300
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-1.06	-1.66
q (cm/yr)	-0.74	-1.16
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.75	0.74

OL-GP-60187



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -1.4 cm/year

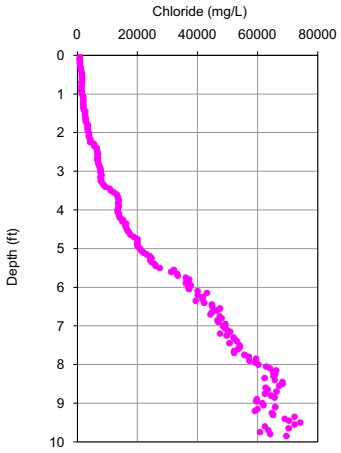
OL-GP-60187



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -1.4 cm/year

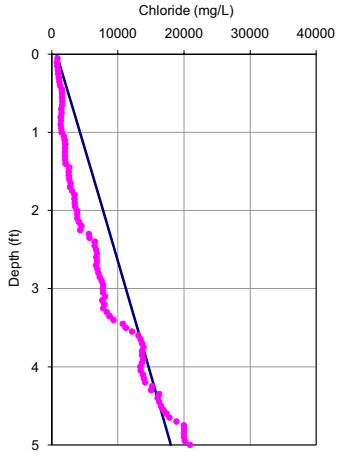
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1016	1016
Cl (mg/L)	35555	27400
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-2.00	-2.00
q (cm/yr)	-1.40	-1.40
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.77	0.74

OL-GP-60188



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = NA cm/year

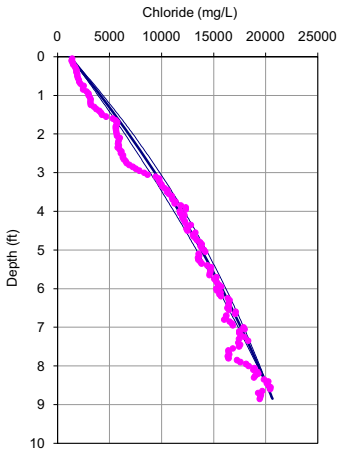
OL-GP-60188



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = NA cm/year

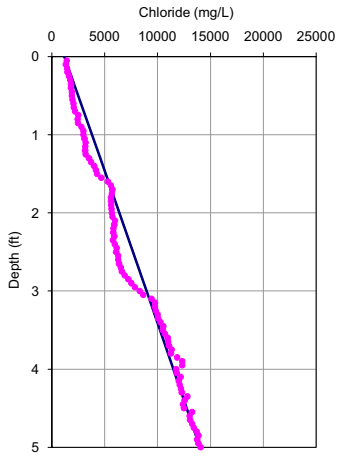
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	738	738
Cl (mg/L)	45000	18000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-0.66	-0.10
q (cm/yr)	-0.46	-0.07
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.74	0.72

OL-GP-60189



Porosity = 0.70
Dispersion length = 0.2 feet
Upwelling Velocity = -0.5 cm/year

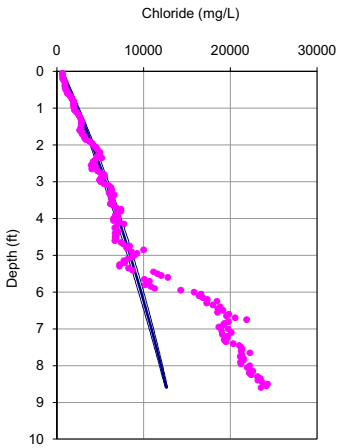
OL-GP-60189



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = ~0 cm/year

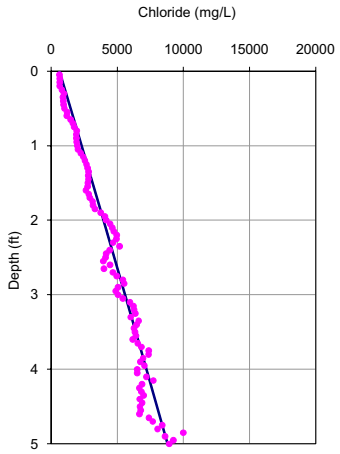
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1176	1176
Cl (mg/L)	20500	14000
L(ft)	8.75	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-0.70	-0.10
q (cm/yr)	-0.49	-0.07
dispersion length (ft)	0.25	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.25	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.74	0.72

OL-GP-60190



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -0.4 cm/year

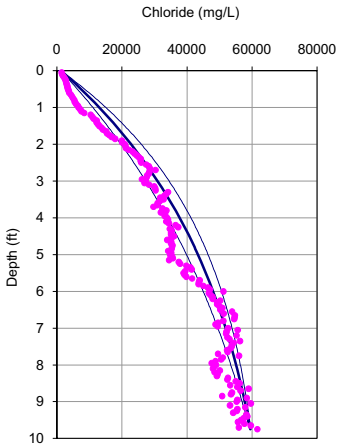
OL-GP-60190



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = ~0 cm/year

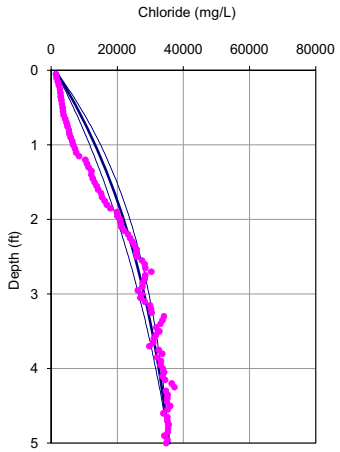
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	631	631
Cl (mg/L)	14000	8800
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-0.60	-0.10
q (cm/yr)	-0.42	-0.07
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.74	0.72

OL-GP-60191



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -1.2 cm/year

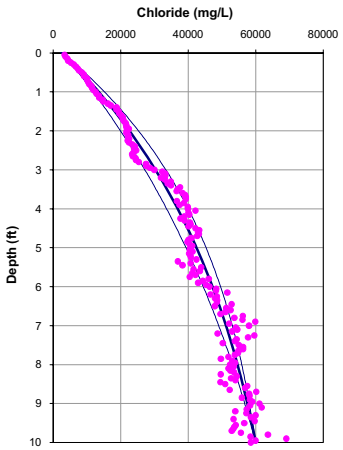
OL-GP-60191



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -2.1 cm/year

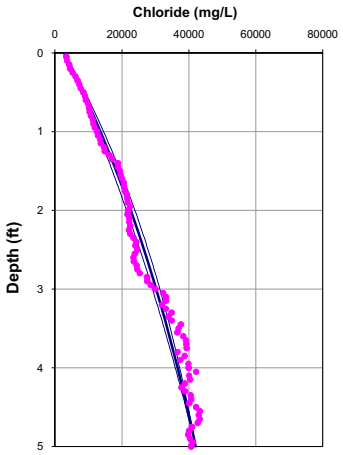
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1227	1227
Cl (mg/L)	60000	35700
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-1.70	-3.00
q (cm/yr)	-1.19	-2.10
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.76	0.75

OL-GP-60192



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -1.0 cm/year

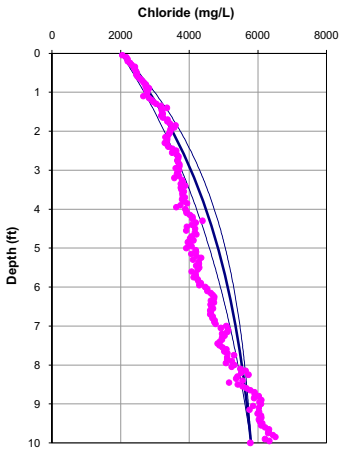
OL-GP-60192



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -1.1 cm/year

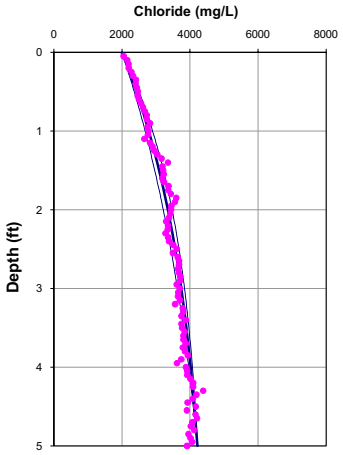
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	2783	2783
Cl (mg/L)	60000	42000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-1.49	-1.54
q (cm/yr)	-1.04	-1.08
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.76	0.73

OL-GP-60193



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -1.4 cm/year

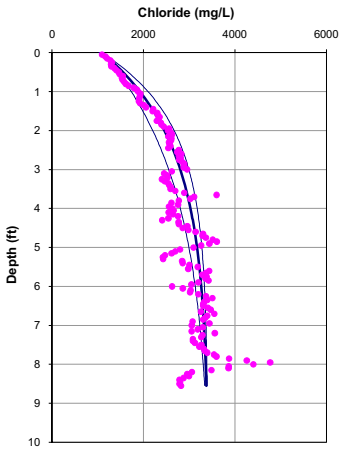
OL-GP-60193



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -2.2 cm/year

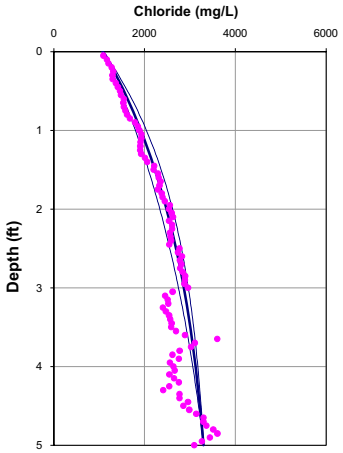
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	2000	2000
Cl (mg/L)	5800	4220
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-2.00	-3.12
q (cm/yr)	-1.40	-2.18
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.77	0.75

OL-GP-60194



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -3.1 cm/year

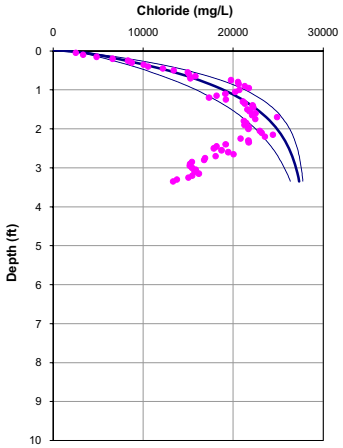
OL-GP-60194



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -2.5 cm/year

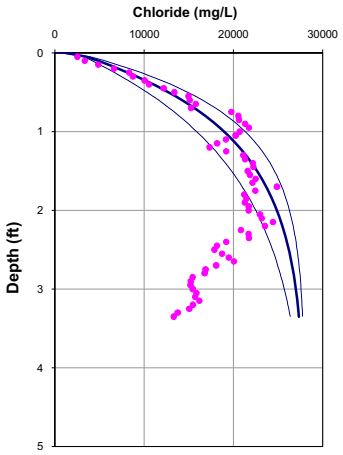
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1088	1088
Cl (mg/L)	3400	3300
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-4.40	-3.50
q (cm/yr)	-3.08	-2.45
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.83	0.75

OL-GP-70051



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -7.0 cm/year

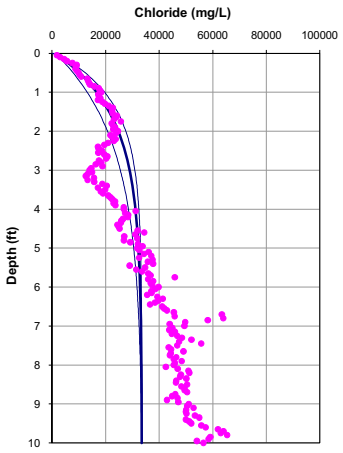
OL-GP-70051



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -7.0 cm/year

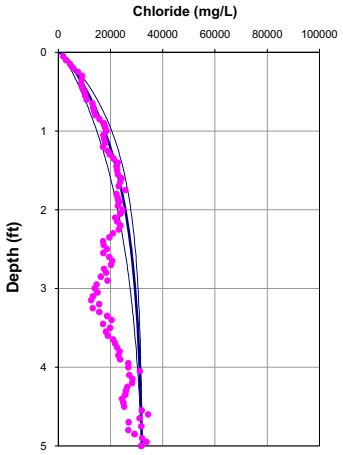
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	2305	2305
Cl (mg/L)	28000	28000
L(ft)	5	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-10.00	-10.00
q (cm/yr)	-7.00	-7.00
dispersion length (ft)	0.11	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.11	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.81	0.81

OL-GP-70051A



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -4.9 cm/year

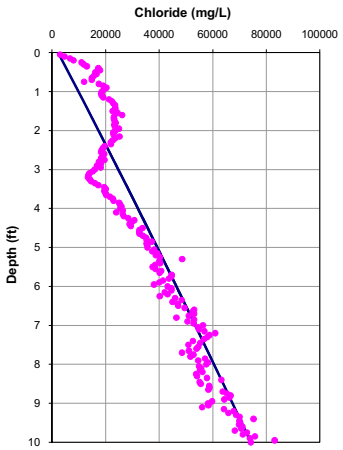
OL-GP-70051A



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -4.9 cm/year

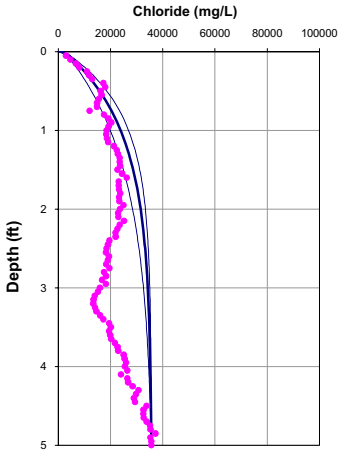
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1200	1200
Cl (mg/L)	33500	32000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-7.00	-7.00
q (cm/yr)	-4.90	-4.90
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.90	0.78

OL-GP-70052



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = ~0 cm/year

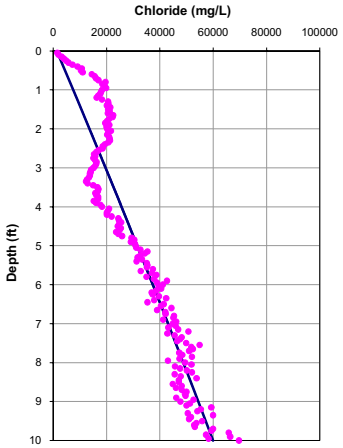
OL-GP-70052



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -7.0 cm/year

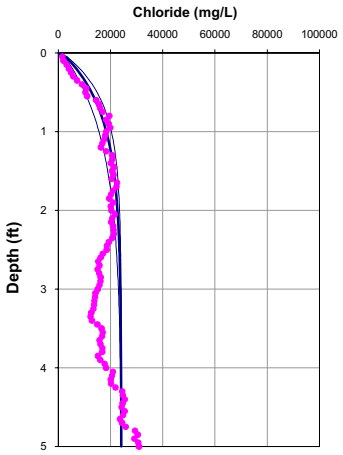
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	2316	2316
Cl (mg/L)	74194	35600
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-0.10	-10.00
q (cm/yr)	-0.07	-7.00
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.72	0.81

OL-GP-70053



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = ~0 cm/year

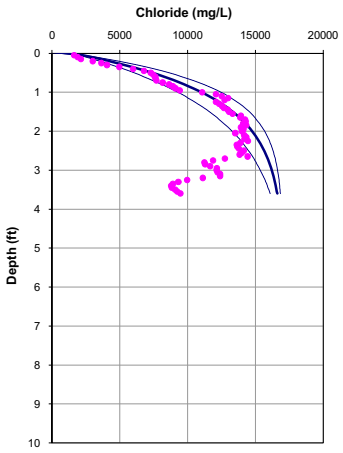
OL-GP-70053



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -9.8 cm/year

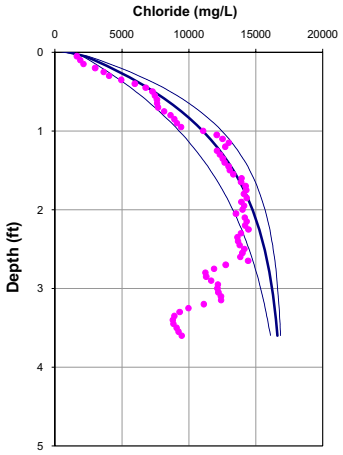
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1357	1357
Cl (mg/L)	60000	24100
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-0.10	-14.00
q (cm/yr)	-0.07	-9.80
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.72	0.84

OL-GP-70053-1



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -6.3 cm/year

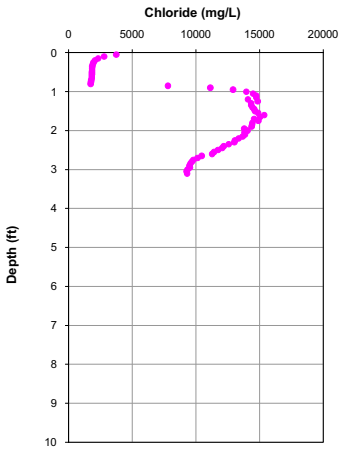
OL-GP-70053-1



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -6.3 cm/year

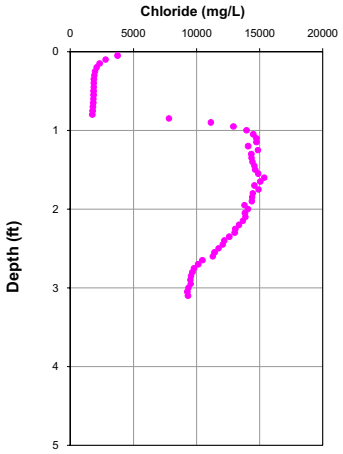
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1537	1537
Cl (mg/L)	17000	17000
L(ft)	5	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-9.00	-9.00
q (cm/yr)	-6.30	-6.30
dispersion length (ft)	0.11	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.11	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.80	0.80

OL-GP-70053-2



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = NA cm/year

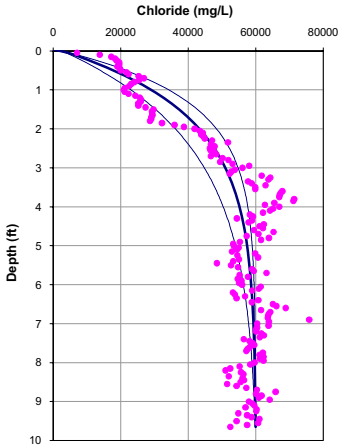
OL-GP-70053-2



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = NA cm/year

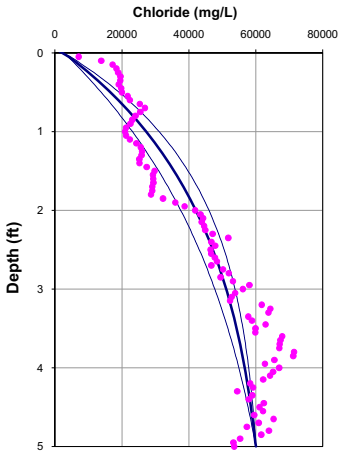
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	9323	9323
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-50.00	-25.27
q (cm/yr)	-35.00	-17.69
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	2.00	0.94

OL-GP-70054



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -4.6 cm/year

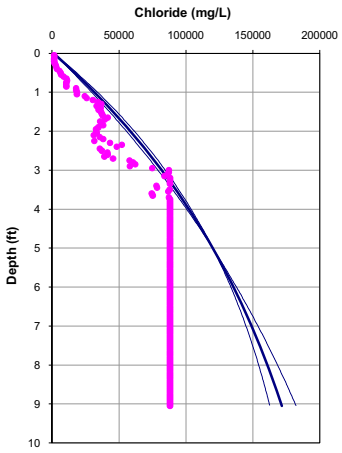
OL-GP-70054



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -3.2 cm/year

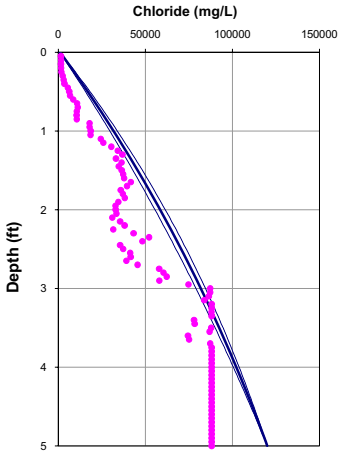
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	2707	2707
Cl (mg/L)	60000	60000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-6.53	-4.54
q (cm/yr)	-4.57	-3.18
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.89	0.76

OL-GP-70054A



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -0.8 cm/year

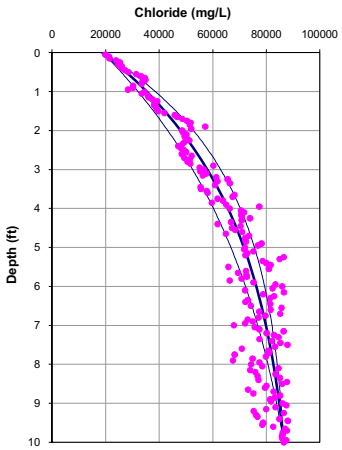
OL-GP-70054A



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -0.8 cm/year

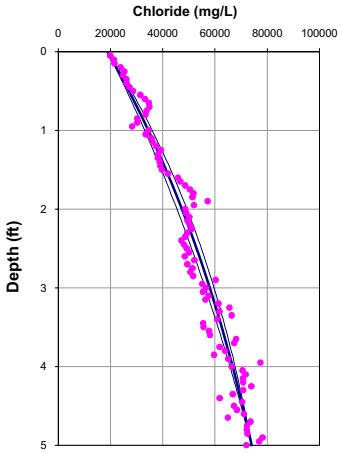
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1000	1000
Cl (mg/L)	120000	120000
L(ft)	5	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-1.20	-1.20
q (cm/yr)	-0.84	-0.84
dispersion length (ft)	0.11	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.11	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.73	0.73

OL-GP-70055



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -1.7 cm/year

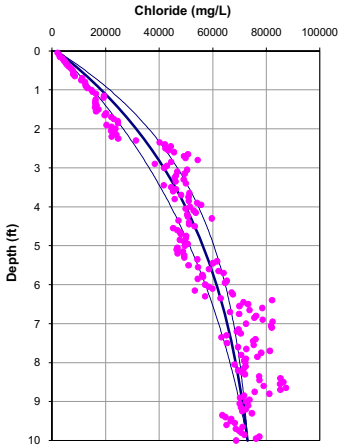
OL-GP-70055



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -1.2 cm/year

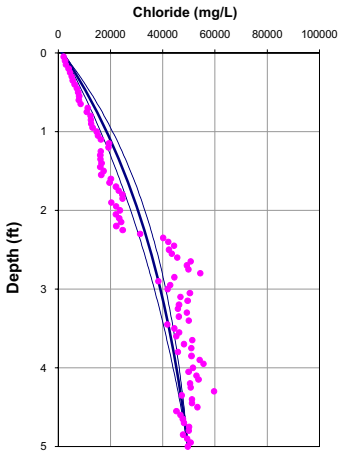
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	18893	18893
Cl (mg/L)	86514	74000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-2.37	-1.69
q (cm/yr)	-1.66	-1.19
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.78	0.74

OL-GP-70056



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -1.5 cm/year

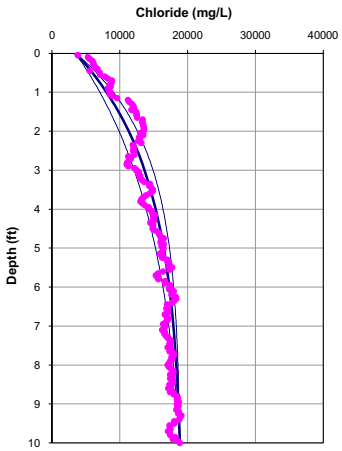
OL-GP-70056



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -2.1 cm/year

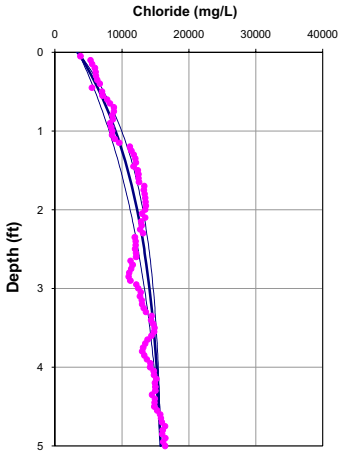
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1692	1692
Cl (mg/L)	73000	49627
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-2.21	-3.01
q (cm/yr)	-1.55	-2.11
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.78	0.75

OL-GP-70075



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -2.3 cm/year

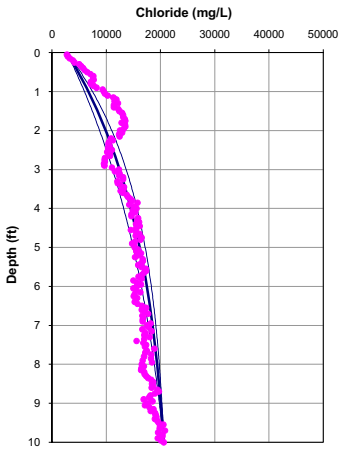
OL-GP-70075



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -3.5 cm/year

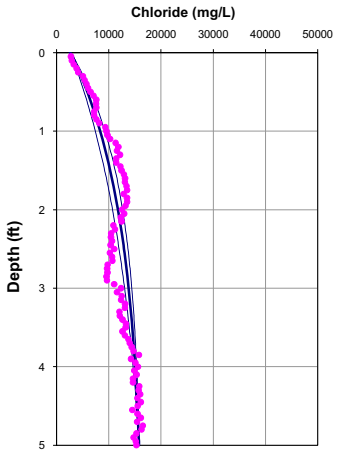
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	3463	3463
Cl (mg/L)	18846	15800
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-3.28	-5.06
q (cm/yr)	-2.29	-3.55
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.80	0.77

OL-GP-70076



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -1.4 cm/year

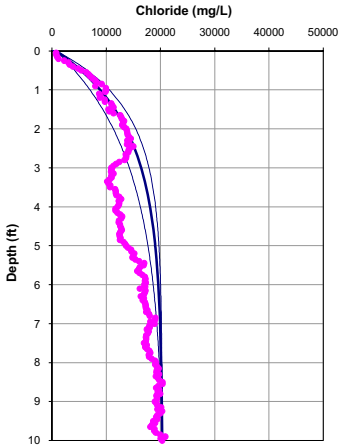
OL-GP-70076



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -3.2 cm/year

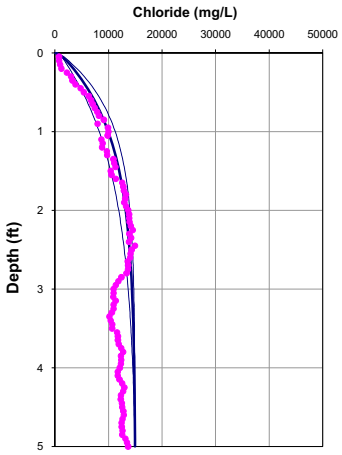
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	2725	2725
Cl (mg/L)	20611	15800
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-2.05	-4.60
q (cm/yr)	-1.43	-3.22
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.77	0.76

OL-GP-70077



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -3.9 cm/year

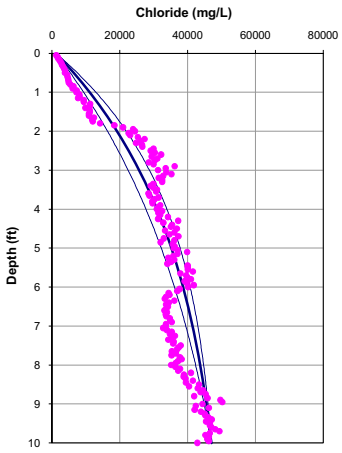
OL-GP-70077



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -7.0 cm/year

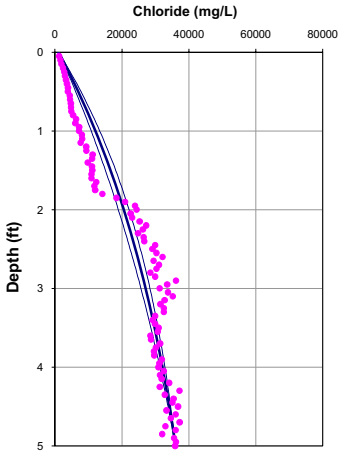
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	750	750
Cl (mg/L)	20304	14950
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-5.50	-10.00
q (cm/yr)	-3.85	-7.00
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.86	0.81

OL-GP-70078



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -1.4 cm/year

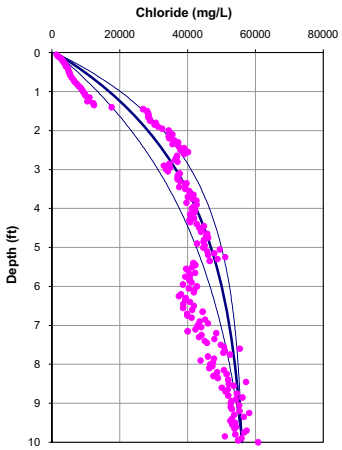
OL-GP-70078



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -1.6 cm/year

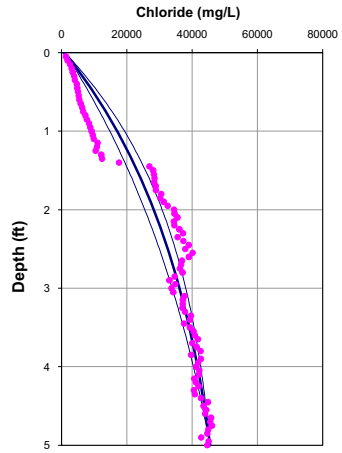
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1110	1110
Cl (mg/L)	47000	36000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-1.97	-2.31
q (cm/yr)	-1.38	-1.62
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.77	0.74

OL-GP-70079



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -2.2 cm/year

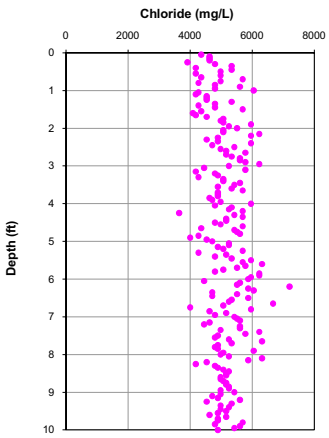
OL-GP-70079



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -2.2 cm/year

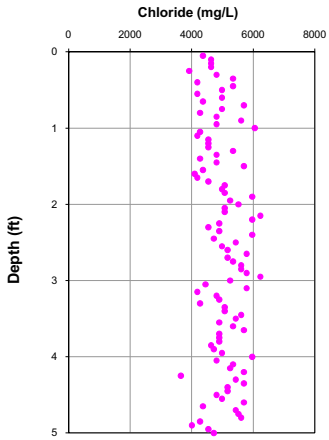
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	993	993
Cl (mg/L)	56000	45500
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-3.10	-3.19
q (cm/yr)	-2.17	-2.23
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.80	0.75

OL-GP-70080



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = NA cm/year

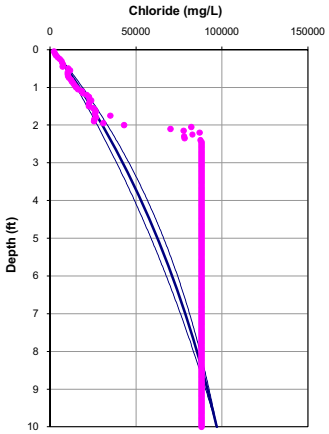
OL-GP-70080



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = NA cm/year

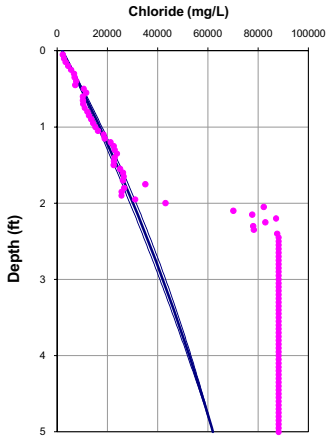
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	4806	4806
Cl (mg/L)	4895	4717
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-30.30	53687090.93
q (cm/yr)	-21.21	37580963.65
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	4825.72
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	1.49	473685.74

OL-GP-70081



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -0.7 cm/year

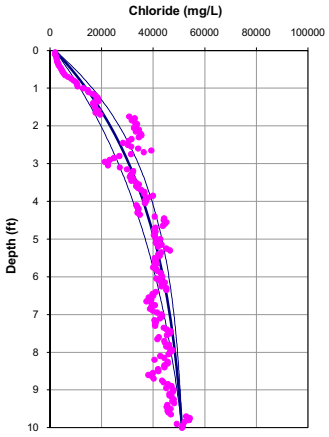
OL-GP-70081



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -0.7 cm/year

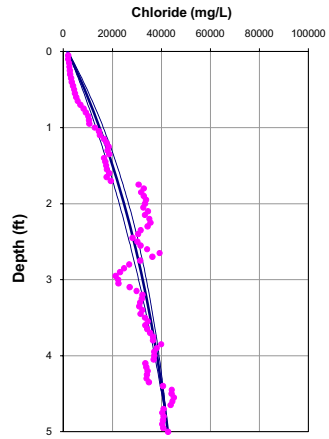
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	2112	2112
Cl (mg/L)	97000	62000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-1.00	-1.00
q (cm/yr)	-0.70	-0.70
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.75	0.73

OL-GP-70082



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -1.7 cm/year

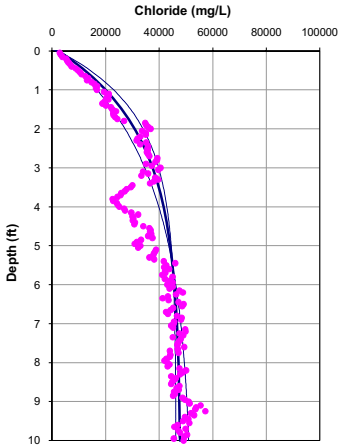
OL-GP-70082



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -1.6 cm/year

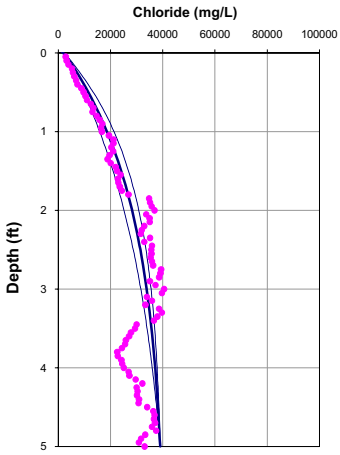
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1840	1840
Cl (mg/L)	51155	42701
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-2.41	-2.35
q (cm/yr)	-1.69	-1.64
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.78	0.74

OL-GP-70083



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -3.2 cm/year

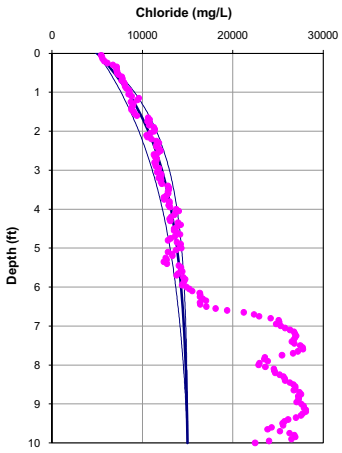
OL-GP-70083



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -3.5 cm/year

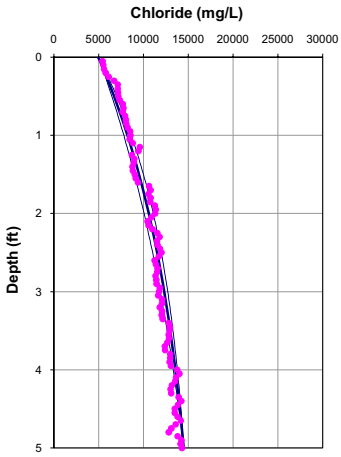
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	2193	2193
Cl (mg/L)	45000	39000
L(ft)	5.5	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-4.50	-4.95
q (cm/yr)	-3.15	-3.46
dispersion length (ft)	0.12	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.12	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.77	0.77

OL-GP-70088



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -2.8 cm/year

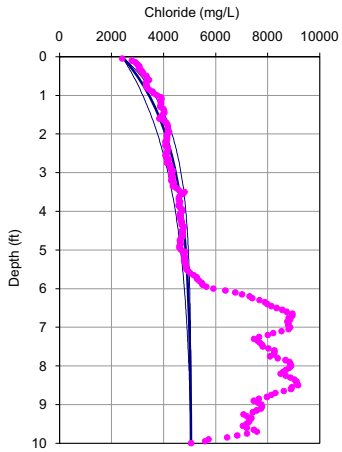
OL-GP-70088



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -2.0 cm/year

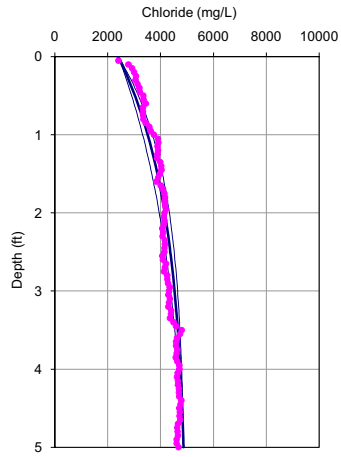
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	5000	5000
Cl (mg/L)	15000	14500
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-4.00	-2.81
q (cm/yr)	-2.80	-1.97
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.82	0.75

OL-GP-70088.DAT



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -3.5 cm/year

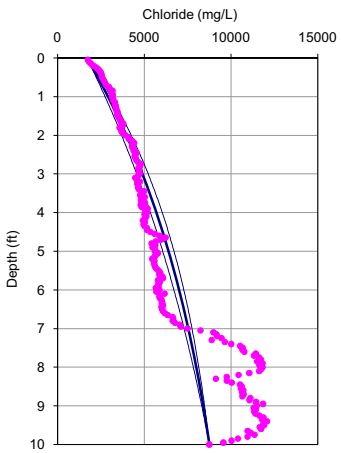
OL-GP-70088.DAT



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -3.5 cm/year

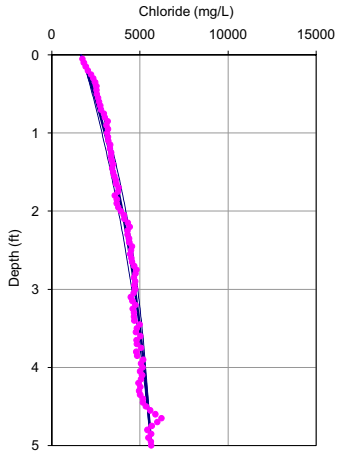
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	2400	2400
Cl (mg/L)	5056	4870
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-5.00	-5.02
q (cm/yr)	-3.50	-3.51
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.85	0.77

OL-GP-70088-A



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -0.9 cm/year

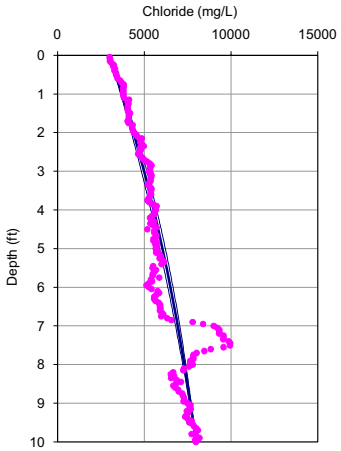
OL-GP-70088-A



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -1.9 cm/year

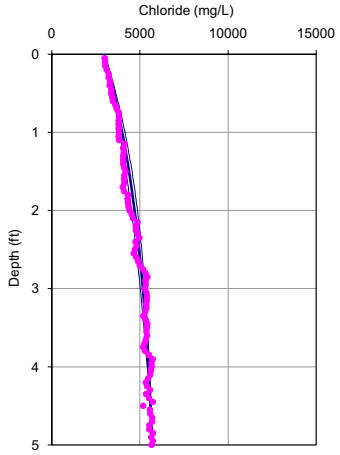
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1686	1686
Cl (mg/L)	8750	5633
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-1.26	-2.75
q (cm/yr)	-0.88	-1.92
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.75	0.75

OL-GP-70089-A



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -0.6 cm/year

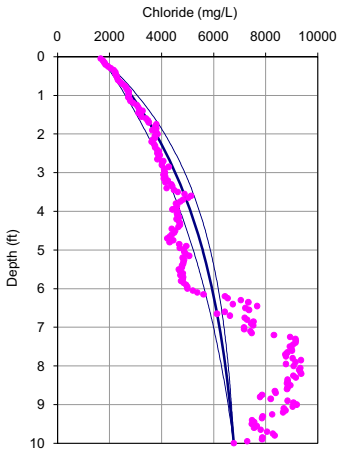
OL-GP-70089-A



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -2.5 cm/year

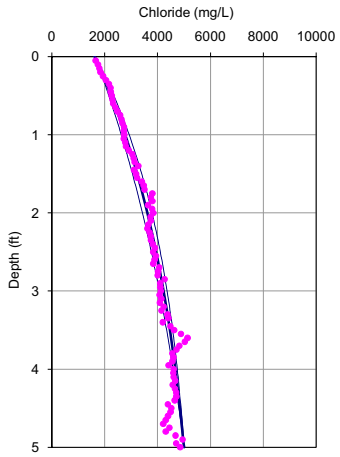
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	2977	2977
Cl (mg/L)	7975	5700
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-0.84	-3.50
q (cm/yr)	-0.58	-2.45
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.74	0.75

OL-GP-70090



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -1.6 cm/year

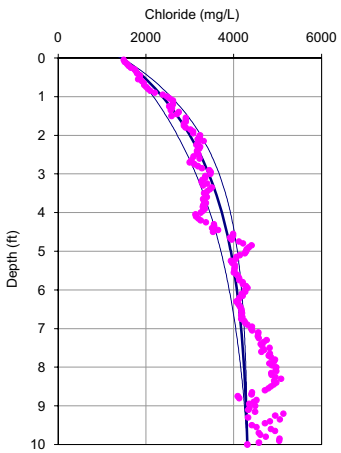
OL-GP-70090



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -1.9 cm/year

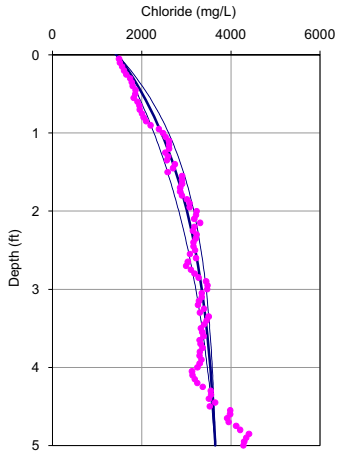
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1634	1634
Cl (mg/L)	6771	5000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-2.22	-2.78
q (cm/yr)	-1.55	-1.95
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.78	0.75

OL-GP-70091



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -2.6 cm/year

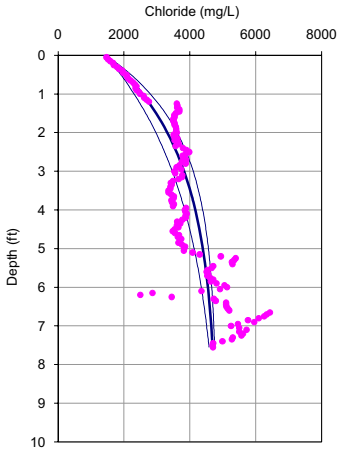
OL-GP-70091



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -3.5 cm/year

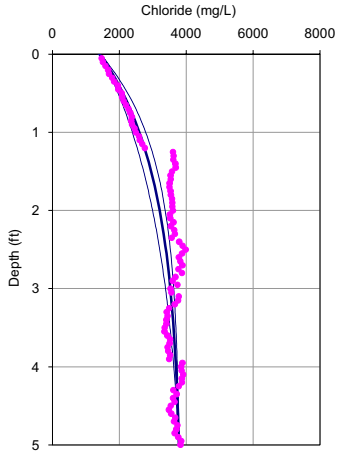
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1460	1460
Cl (mg/L)	4311	3650
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-3.66	-5.00
q (cm/yr)	-2.56	-3.50
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.81	0.77

OL-GP-70092



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -2.7 cm/year

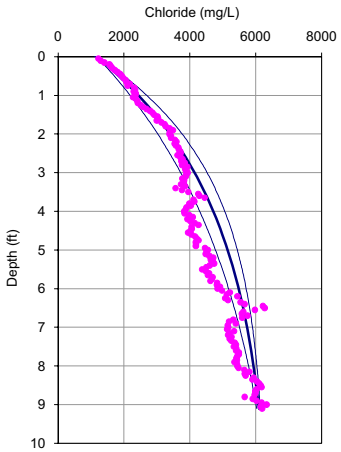
OL-GP-70092



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -4.2 cm/year

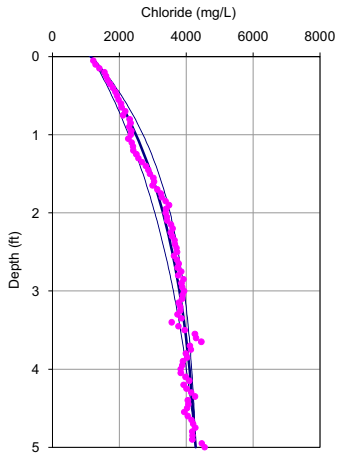
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1437	1437
Cl (mg/L)	4800	3780
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-3.91	-6.00
q (cm/yr)	-2.74	-4.20
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.82	0.77

OL-GP-70093



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -1.8 cm/year

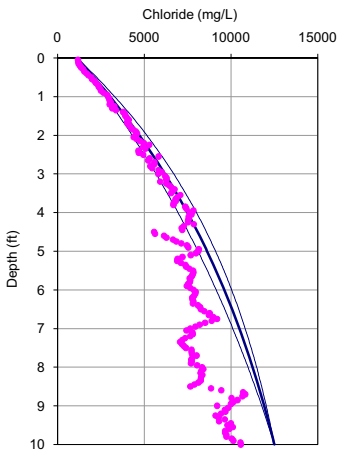
OL-GP-70093



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -3.2 cm/year

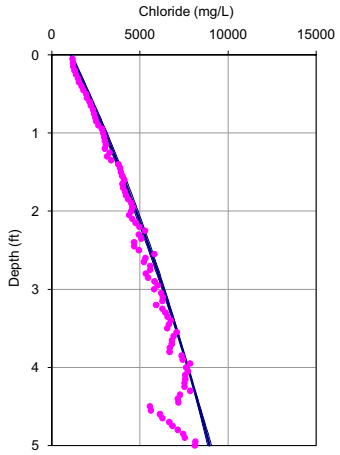
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1175	1175
Cl (mg/L)	6200	4280
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-2.50	-4.52
q (cm/yr)	-1.75	-3.16
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.79	0.76

OL-GP-70094



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -0.8 cm/year

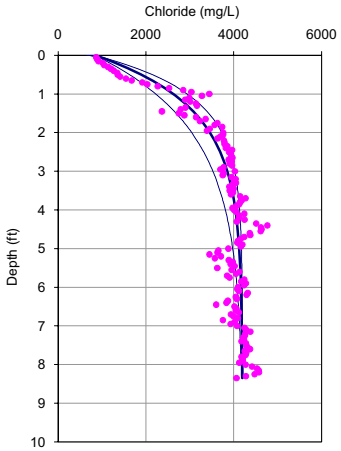
OL-GP-70094



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -0.7 cm/year

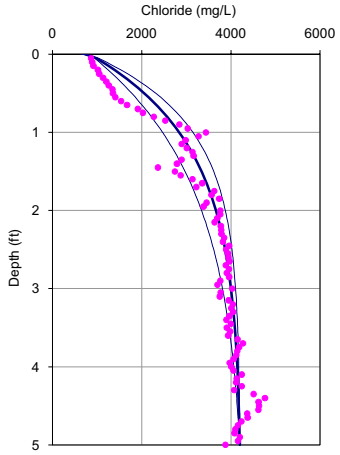
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1100	1100
Cl (mg/L)	12500	7718
L(ft)	10	4
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-1.19	-1.00
q (cm/yr)	-0.83	-0.70
dispersion length (ft)	0.31	0.08
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.08
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.75	0.73

OL-GP-70095



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -5.9 cm/year

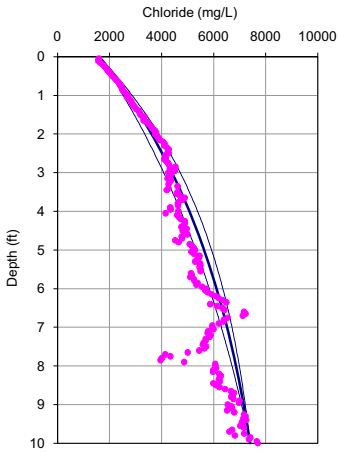
OL-GP-70095



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -5.9 cm/year

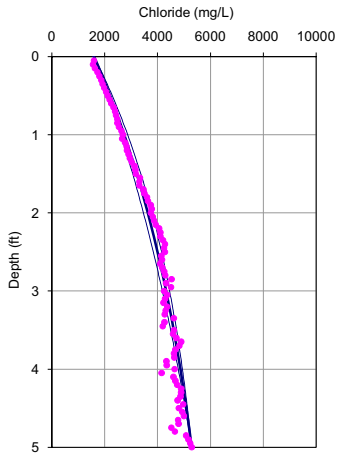
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	838	838
Cl (mg/L)	4200	4200
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-8.48	-8.48
q (cm/yr)	-5.94	-5.94
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.94	0.80

OL-GP-70096



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -1.1 cm/year

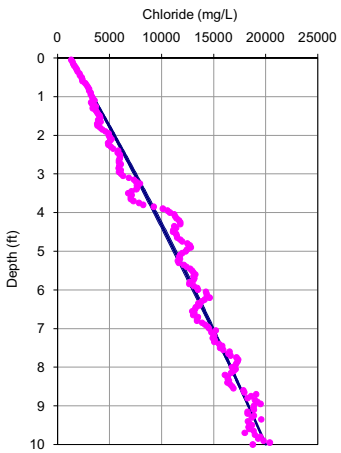
OL-GP-70096



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -1.5 cm/year

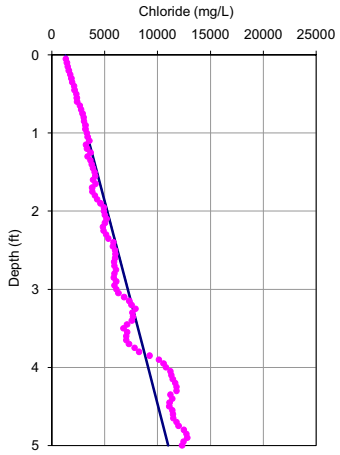
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1600	1600
Cl (mg/L)	7400	5288
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-1.50	-2.20
q (cm/yr)	-1.05	-1.54
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.76	0.74

OL-GP-70097



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -0.2 cm/year

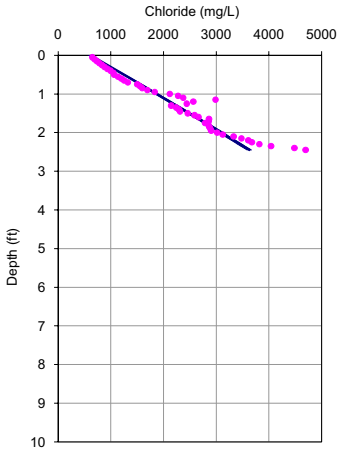
OL-GP-70097



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = ~0 cm/year

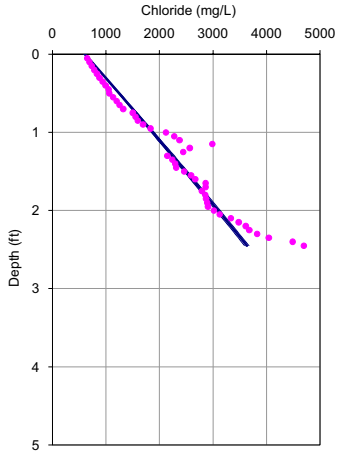
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1303	1303
Cl (mg/L)	20000	11000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-0.23	-0.10
q (cm/yr)	-0.16	-0.07
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.73	0.72

OL-GP-70098



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -0.2 cm/year

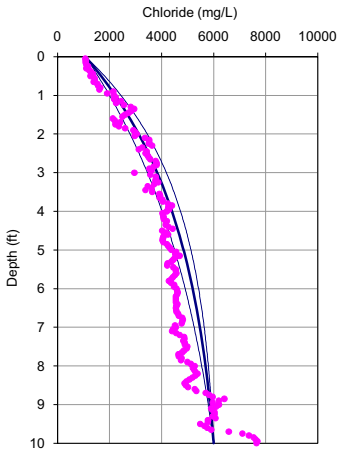
OL-GP-70098



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -0.2 cm/year

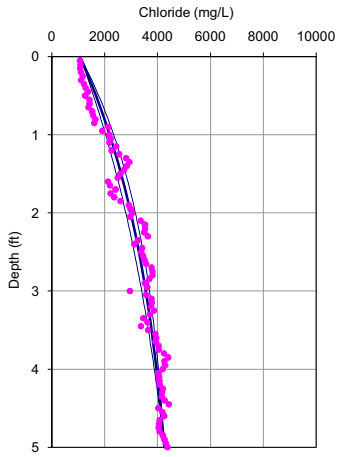
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	609	609
Cl (mg/L)	6500	6500
L(ft)	5	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-0.32	-0.32
q (cm/yr)	-0.22	-0.22
dispersion length (ft)	0.11	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.11	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.72	0.72

OL-GP-70099



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -1.5 cm/year

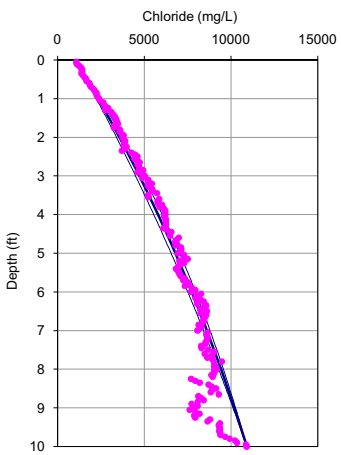
OL-GP-70099



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -2.1 cm/year

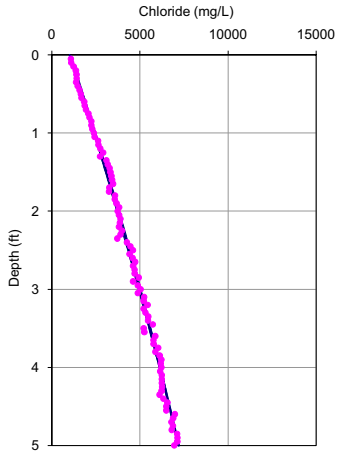
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1068	1068
Cl (mg/L)	6000	4250
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-2.20	-3.03
q (cm/yr)	-1.54	-2.12
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.78	0.75

OL-GP-70100



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -0.4 cm/year

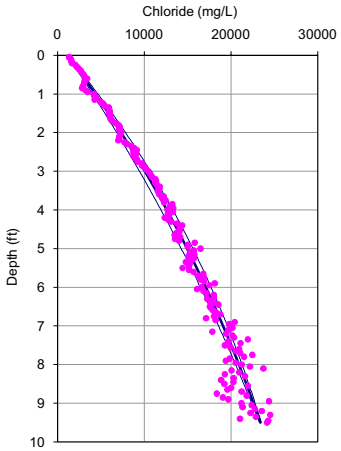
OL-GP-70100



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -0.4 cm/year

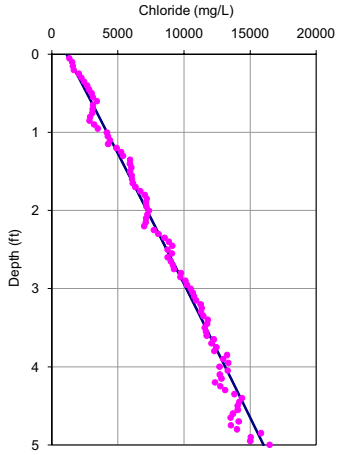
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1023	1023
Cl (mg/L)	10907	7200
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-0.60	-0.60
q (cm/yr)	-0.42	-0.42
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.74	0.73

OL-GP-70101



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -0.5 cm/year

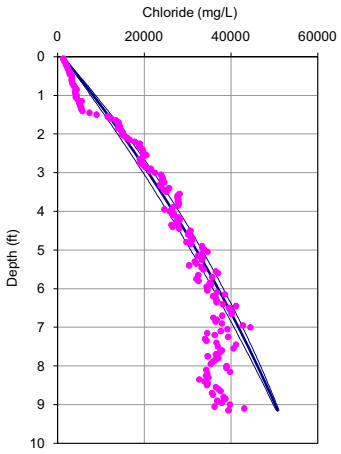
OL-GP-70101



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = ~0 cm/year

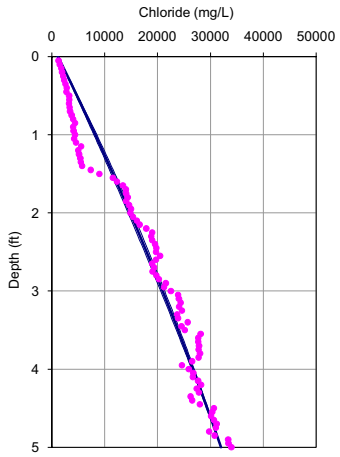
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1112	1112
Cl (mg/L)	24161	16000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-0.72	-0.13
q (cm/yr)	-0.50	-0.09
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.74	0.72

OL-GP-70102



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -0.4 cm/year

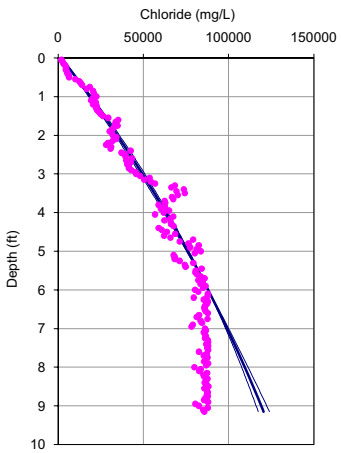
OL-GP-70102



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -0.4 cm/year

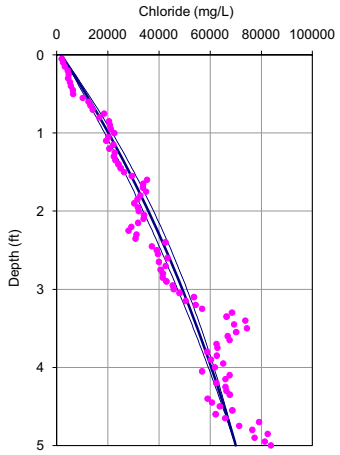
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1158	1158
Cl (mg/L)	54000	32000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-0.60	-0.62
q (cm/yr)	-0.42	-0.43
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.74	0.73

OL-GP-70103



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -0.4 cm/year

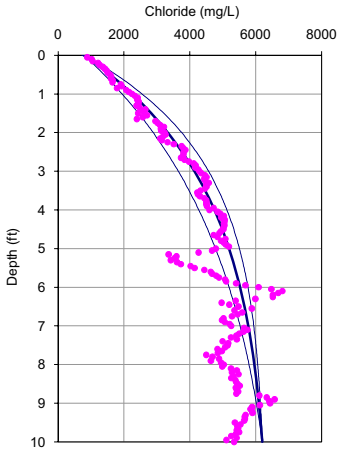
OL-GP-70103



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -1.0 cm/year

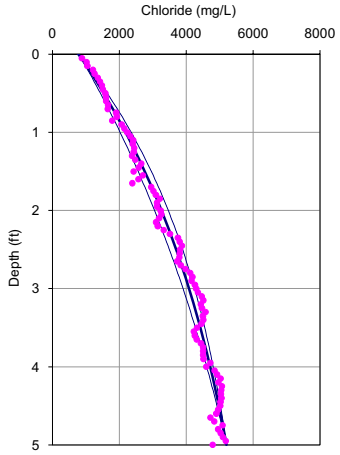
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	1786	1786
Cl (mg/L)	88000	70000
L(ft)	6	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-0.62	-1.44
q (cm/yr)	-0.43	-1.01
dispersion length (ft)	0.14	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.14	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.73	0.73

OL-GP-70104



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -2.0 cm/year

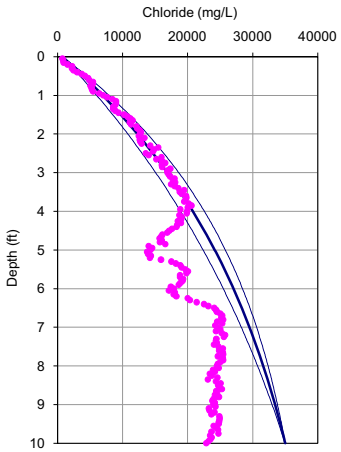
OL-GP-70104



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -1.6 cm/year

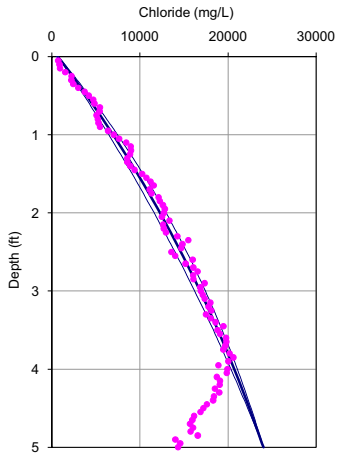
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	790	790
Cl (mg/L)	6200	5200
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-2.80	-2.36
q (cm/yr)	-1.96	-1.65
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.79	0.74

OL-GP-70105



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -1.0 cm/year

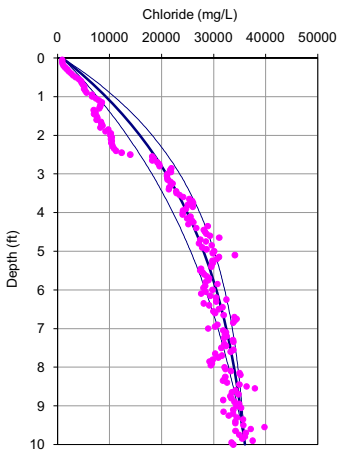
OL-GP-70105



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -1.0 cm/year

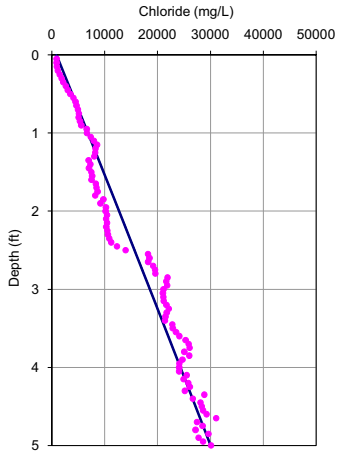
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	709	709
Cl (mg/L)	35000	24000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-1.40	-1.40
q (cm/yr)	-0.98	-0.98
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.76	0.73

OL-GP-70106



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -1.6 cm/year

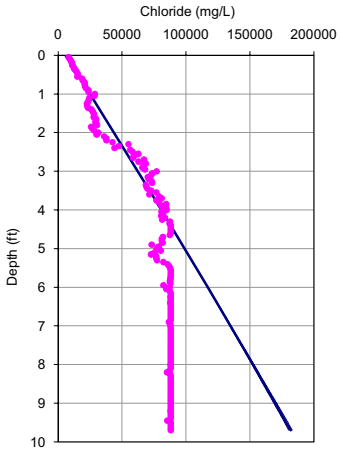
OL-GP-70106



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = ~0 cm/year

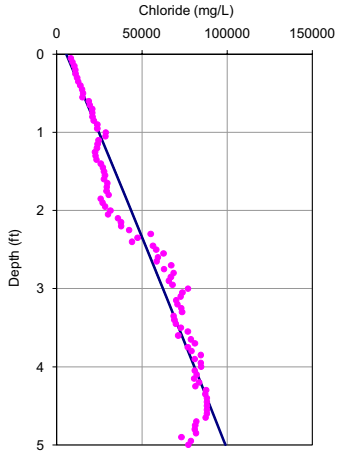
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	870	870
Cl (mg/L)	36000	30000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-2.30	-0.10
q (cm/yr)	-1.61	-0.07
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.78	0.72

OL-GP-70107



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = ~0 cm/year

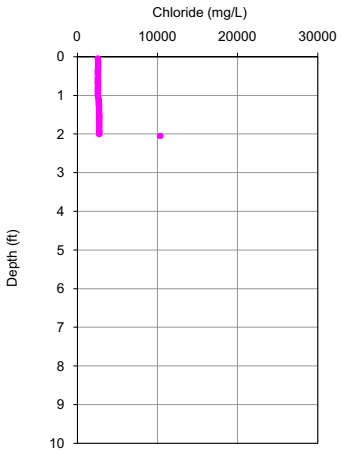
OL-GP-70107



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = ~0 cm/year

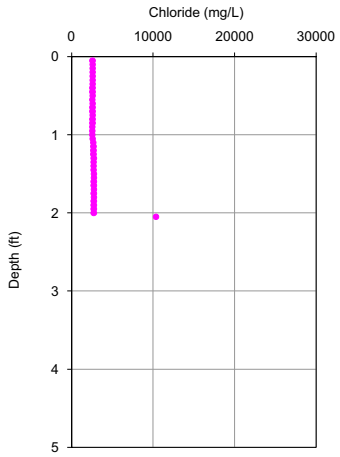
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	5734	5734
Cl (mg/L)	99000	99000
L(ft)	5	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-0.10	-0.10
q (cm/yr)	-0.07	-0.07
dispersion length (ft)	0.11	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.11	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.72	0.72

OL-GP-70107-1



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = NA cm/year

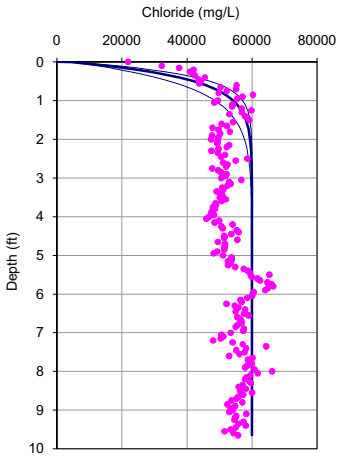
OL-GP-70107-1



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = NA cm/year

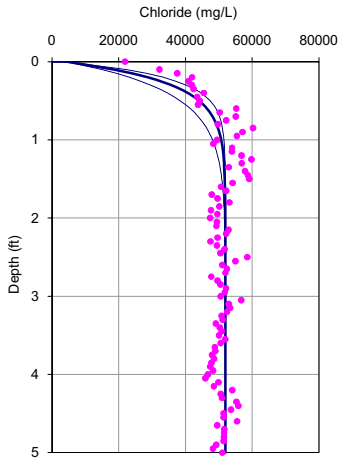
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	2571	2571
Cl (mg/L)	10362	10362
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-0.10	6.05
q (cm/yr)	-0.07	4.23
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.72	0.77

OL-GP-70107-2



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = <-35 cm/year

OL-GP-70107-2

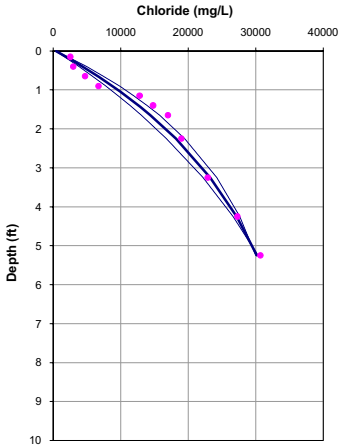


Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = <-35 cm/year

	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	4364	4364
Cl (mg/L)	60000	52000
L(ft)	9.2	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-50.00	-50.00
q (cm/yr)	-35.00	-35.00
dispersion length (ft)	0.27	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.27	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	1.84	1.16

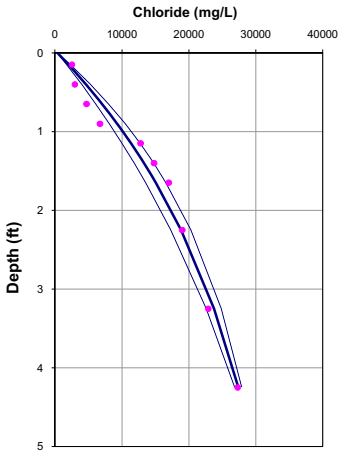
Upwelling Velocities from Sediment Pore-Water Chloride Data

OL-VC-20111



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = -1.4 cm/year

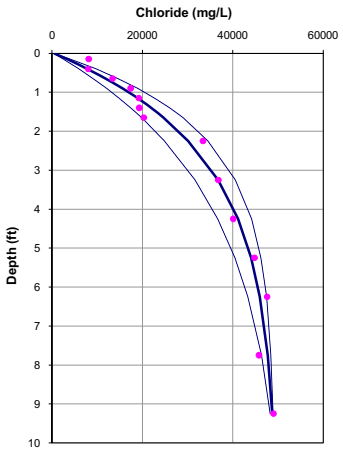
OL-VC-20111



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = -1.6 cm/year

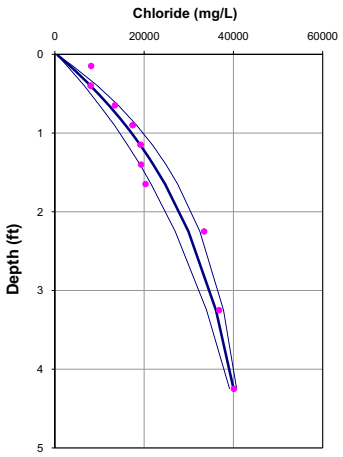
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	29500	29500
L(ft)	5	5
D (cm2/day)	1.236	1.236
porosity	0.65	0.65
Calculated Values **********		
V(cm/yr)	-2.16	-2.50
q (cm/yr)	-1.40	-1.63
dispersion length (ft)	0.11	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.11	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.66	0.66
Diffusion + Dispersion (cm2/day)	0.68	0.69

OL-VC-20113



Porosity = 0.65
Dispersion length = 0.3 feet
Upwelling Velocity = -2.4 cm/year

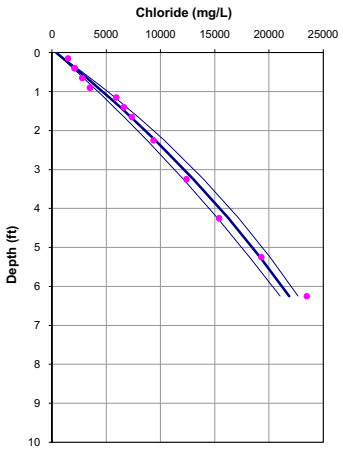
OL-VC-20113



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = -2.4 cm/year

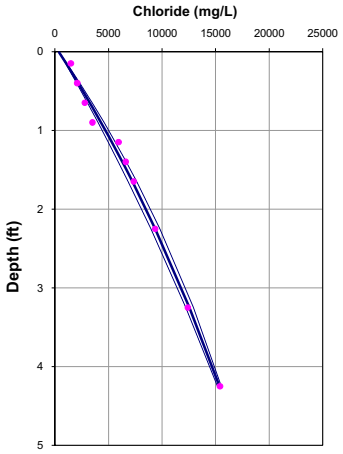
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	49000	42000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.65	0.65
Calculated Values **********		
V(cm/yr)	-3.72	-3.73
q (cm/yr)	-2.42	-2.42
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.66	0.66
Diffusion + Dispersion (cm2/day)	0.76	0.70

OL-VC-20118



Porosity = 0.65
Dispersion length = 0.3 feet
Upwelling Velocity = -0.5 cm/year

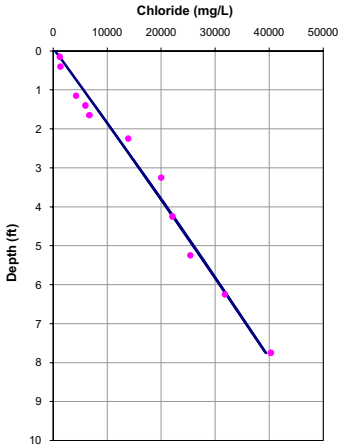
OL-VC-20118



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = -0.7 cm/year

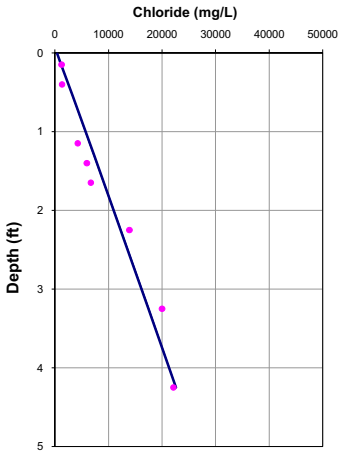
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	30000	17208
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.65	0.65
Calculated Values **********		17208
V(cm/yr)	-0.74	-1.10
q (cm/yr)	-0.48	-0.72
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.66	0.66
Diffusion + Dispersion (cm2/day)	0.68	0.67

OL-VC-20119



Porosity = 0.65
Dispersion length = 0.3 feet
Upwelling Velocity = ~0 cm/year

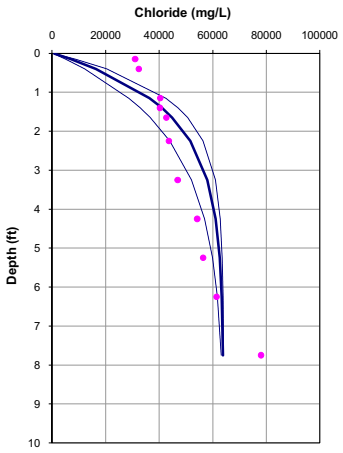
OL-VC-20119



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = ~0 cm/year

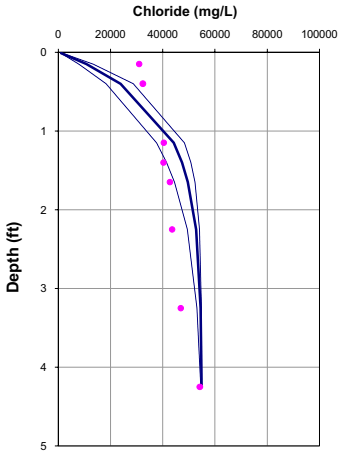
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	50000	26403
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.65	0.65
Calculated Values **********		26403
V(cm/yr)	-0.10	-0.10
q (cm/yr)	-0.07	-0.07
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.66	0.66
Diffusion + Dispersion (cm2/day)	0.67	0.66

OL-VC-20133



Porosity = 0.65
Dispersion length = 0.3 feet
Upwelling Velocity = -4.8 cm/year

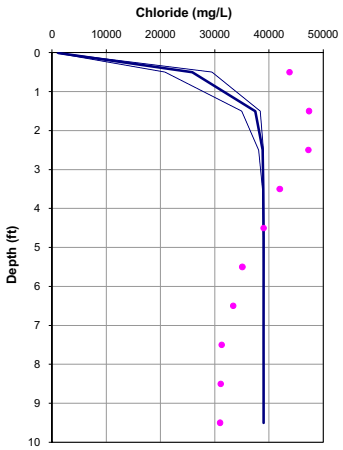
OL-VC-20133



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = -8.5 cm/year

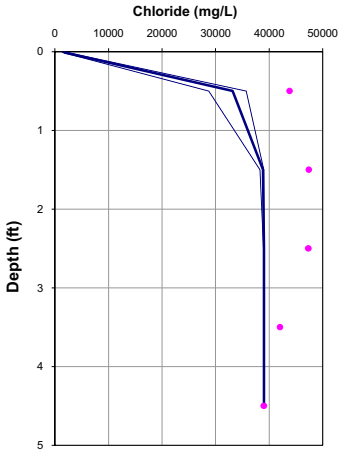
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	64000	55000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.65	0.65
Calculated Values **********		
V(cm/yr)	-7.40	-13.11
q (cm/yr)	-4.81	-8.52
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.66	0.66
Diffusion + Dispersion (cm2/day)	0.85	0.78

OL-STA-10111



Porosity = 0.65
Dispersion length = 0.3 feet
Upwelling Velocity = <-32.5 cm/year

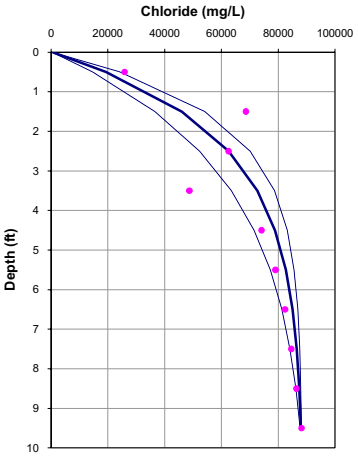
OL-STA-10111



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = <-32.5 cm/year

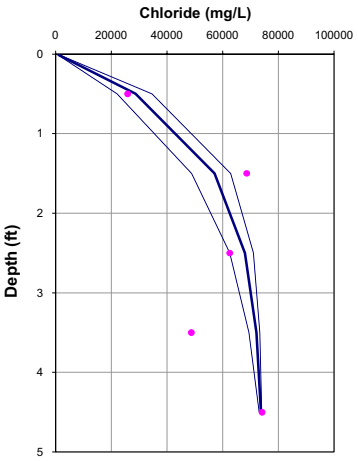
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	39000	39000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.65	0.65
Calculated Values **********		
V(cm/yr)	-50.00	-50.00
q (cm/yr)	-32.50	-32.50
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.66	0.66
Diffusion + Dispersion (cm2/day)	1.94	1.11

OL-STA-20087



Porosity = 0.65
Dispersion length = 0.3 feet
Upwelling Velocity = -2.9 cm/year

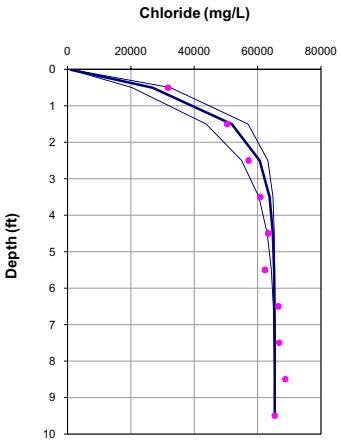
OL-STA-20087



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = -5.5 cm/year

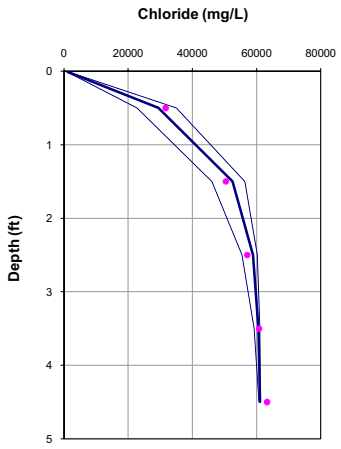
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	88200	74100
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.65	0.65
Calculated Values **********		
V(cm/yr)	-4.51	-8.47
q (cm/yr)	-2.93	-5.51
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)****		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.66	0.66
Diffusion + Dispersion (cm2/day)	0.78	0.74

OL-STA-40055



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -10.8 cm/year

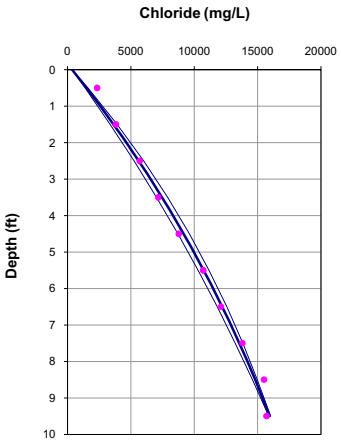
OL-STA-40055



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -10.6 cm/year

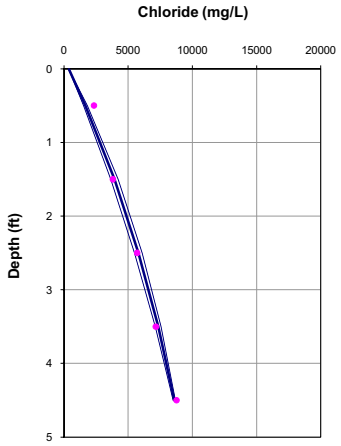
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	65400	61140
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		61140
V(cm/yr)	-14.40	-14.14
q (cm/yr)	-10.80	-10.60
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	1.15	0.91

OL-STA-40056



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -0.6 cm/year

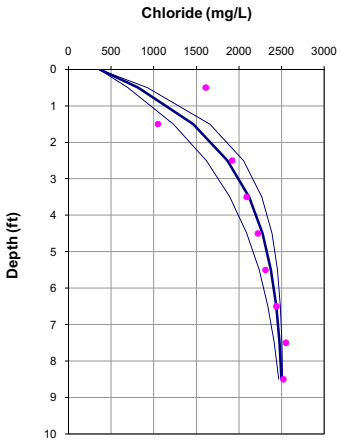
OL-STA-40056



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -1.4 cm/year

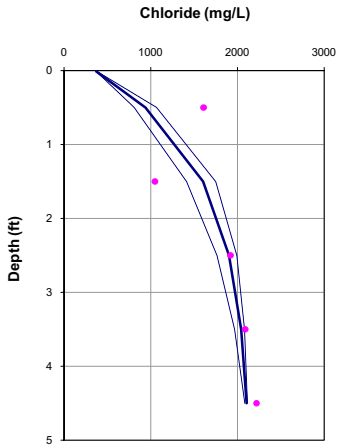
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	16500	9145
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		9144.7
V(cm/yr)	-0.74	-1.87
q (cm/yr)	-0.56	-1.41
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)**		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.80	0.80

OL-STA-40057



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -3.9 cm/year

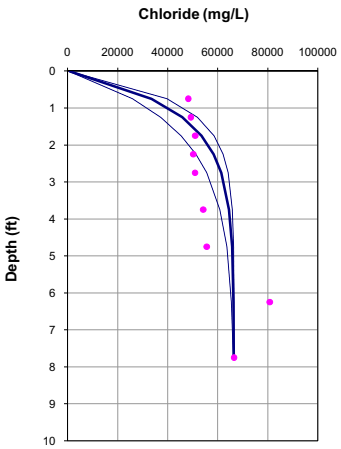
OL-STA-40057



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -6.0 cm/year

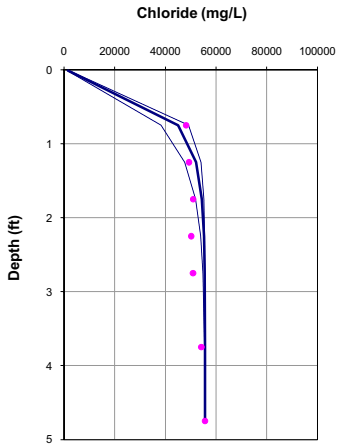
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	2520	2124
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		2124
V(cm/yr)	-5.14	-8.01
q (cm/yr)	-3.86	-6.01
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)**		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.92	0.86

OL-VC-40083



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -9.1 cm/year

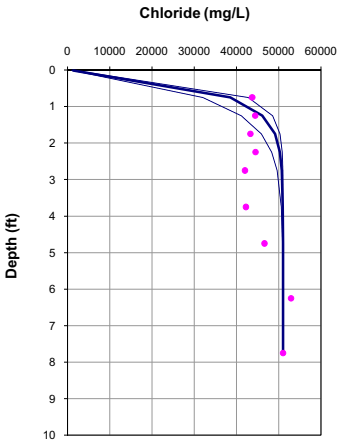
OL-VC-40083



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -20.2 cm/year

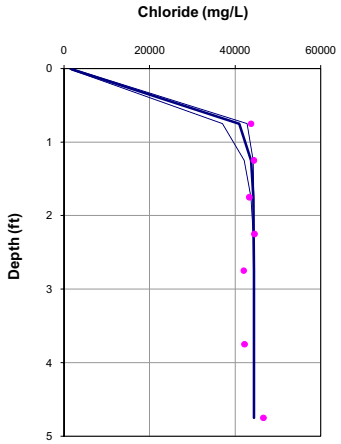
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	66500	55600
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-12.19	-26.98
q (cm/yr)	-9.14	-20.23
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	1.10	1.02

OL-VC-40084



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -30.6 cm/year

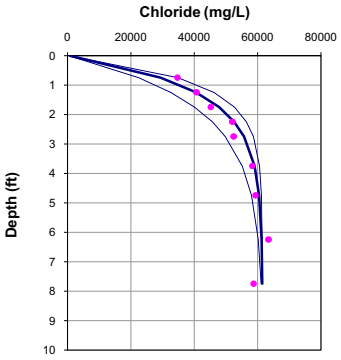
OL-VC-40084



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = <-37.5 cm/year

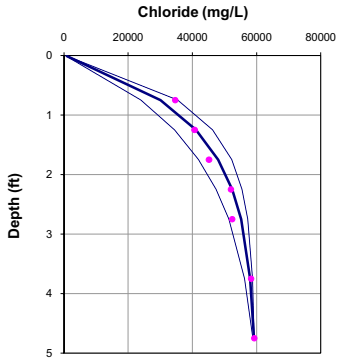
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	51000	44378
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		44378
V(cm/yr)	-40.81	-50.00
q (cm/yr)	-30.61	-37.50
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)**		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	1.82	1.23

OL-VC-40085



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -8.1 cm/year

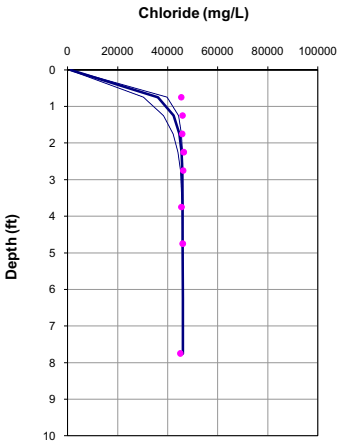
OL-VC-40085



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -7.2 cm/year

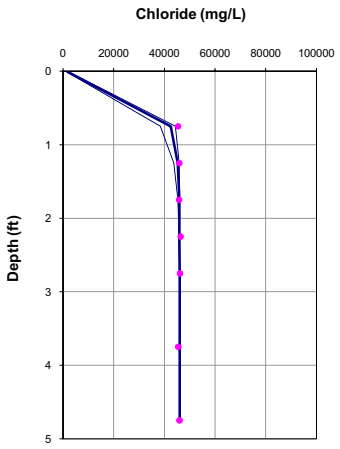
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	61500	59300
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-10.86	-9.62
q (cm/yr)	-8.14	-7.22
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)**		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	1.06	0.87

OL-VC-40087



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = <-37.5 cm/year

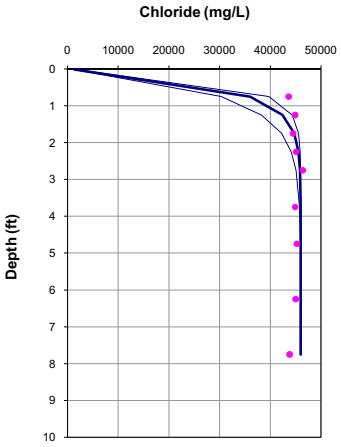
OL-VC-40087



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = <-37.5 cm/year

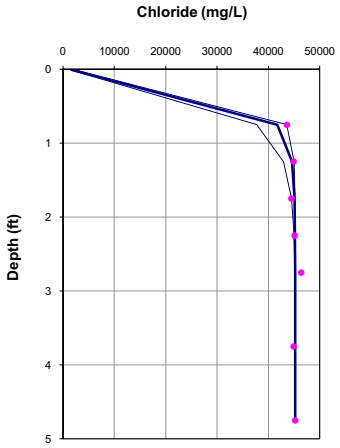
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	46000	46000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-50.00	-50.00
q (cm/yr)	-37.50	-37.50
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	2.06	1.23

OL-VC-40088



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = <-37.5 cm/year

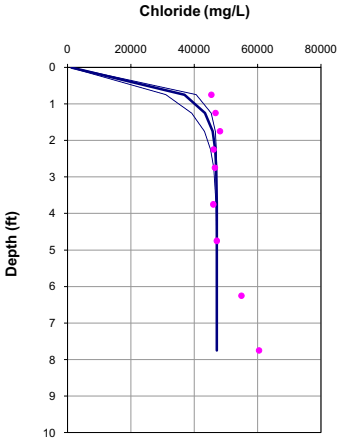
OL-VC-40088



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = <-37.5 cm/year

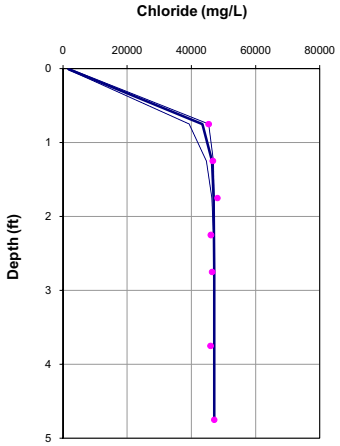
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	46000	45200
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-50.00	-50.00
q (cm/yr)	-37.50	-37.50
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)**		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	2.06	1.23

OL-VC-40089



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = <-37.5 cm/year

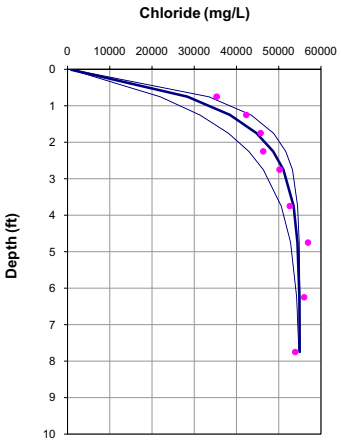
OL-VC-40089



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = <-37.5 cm/year

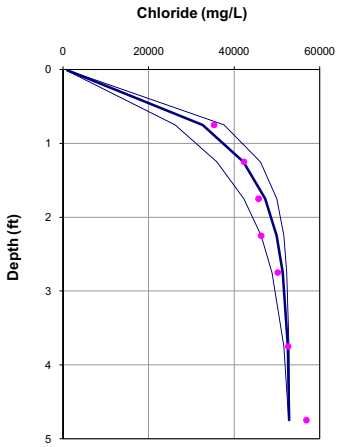
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	47100	47100
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-50.00	-50.00
q (cm/yr)	-37.50	-37.50
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)**		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	2.06	1.23

OL-VC-40091



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -9.5 cm/year

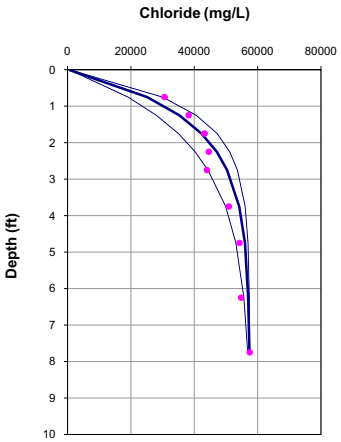
OL-VC-40091



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -10.3 cm/year

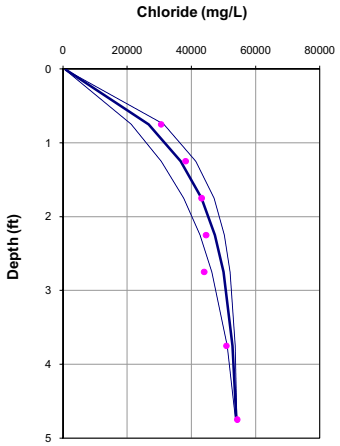
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	55000	52870
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		52870
V(cm/yr)	-12.68	-13.74
q (cm/yr)	-9.51	-10.31
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	1.11	0.91

OL-VC-40092



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -6.9 cm/year

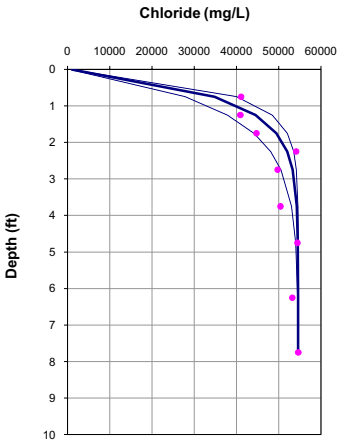
OL-VC-40092



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -6.8 cm/year

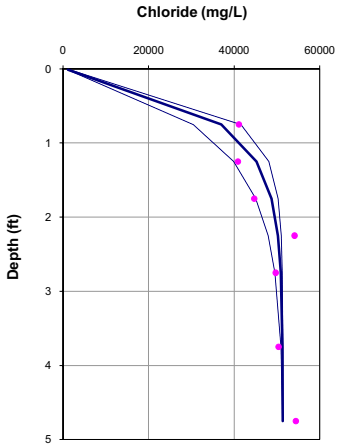
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	57500	54200
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-9.21	-9.10
q (cm/yr)	-6.91	-6.82
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)**		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	1.02	0.86

OL-VC-40093



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -16.0 cm/year

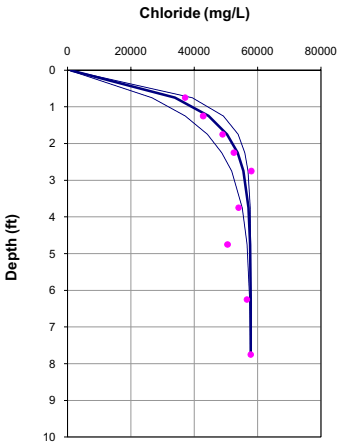
OL-VC-40093



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -14.5 cm/year

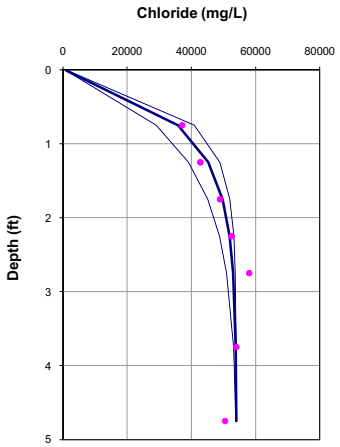
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	54600	51378
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		51378
V(cm/yr)	-21.38	-19.34
q (cm/yr)	-16.03	-14.50
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)**		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	1.33	0.96

OL-VC-40126



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -12.8 cm/year

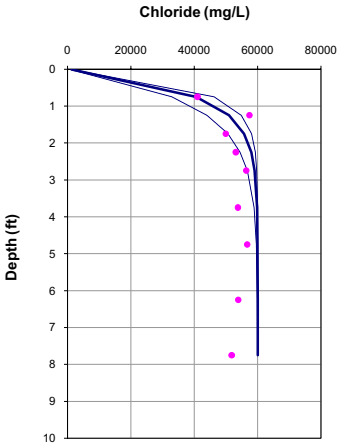
OL-VC-40126



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -12.0 cm/year

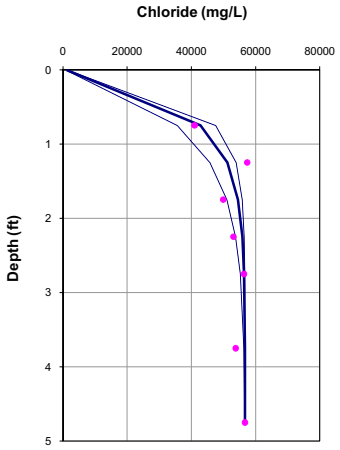
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	57800	54000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-17.06	-15.99
q (cm/yr)	-12.79	-11.99
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	1.22	0.93

OL-VC-40127



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -19.6 cm/year

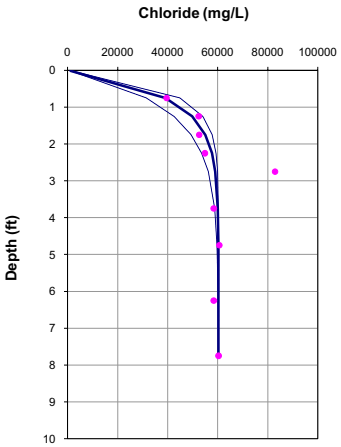
OL-VC-40127



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -16.4 cm/year

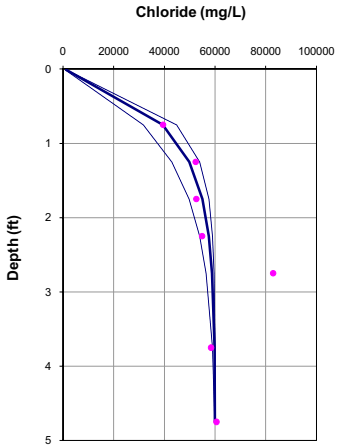
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	60000	56700
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-26.11	-21.85
q (cm/yr)	-19.58	-16.39
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)**		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	1.45	0.98

OL-VC-40128



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -17.0 cm/year

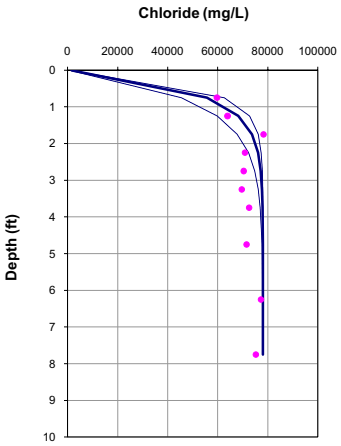
OL-VC-40128



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -11.7 cm/year

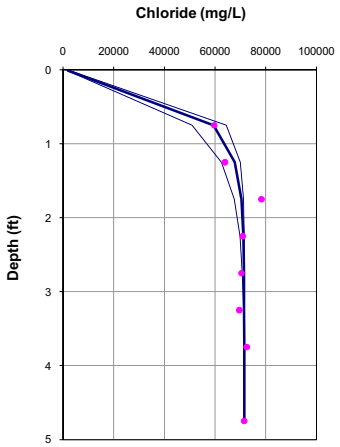
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	60300	60000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-22.65	-15.55
q (cm/yr)	-16.99	-11.66
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)**		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	1.36	0.92

OL-VC-40129



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -23.6 cm/year

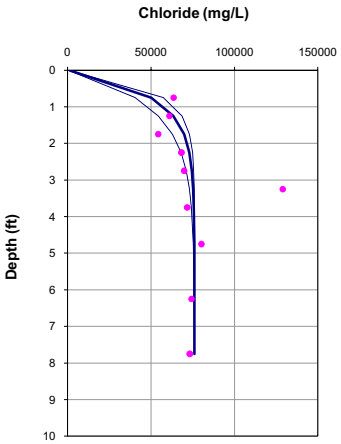
OL-VC-40129



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -22.2 cm/year

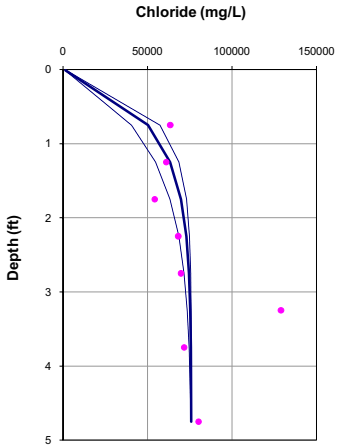
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	78000	71500
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-31.48	-29.55
q (cm/yr)	-23.61	-22.16
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	1.59	1.05

OL-VC-40130



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -17.9 cm/year

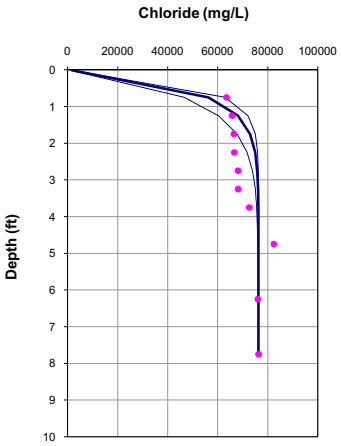
OL-VC-40130



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -11.9 cm/year

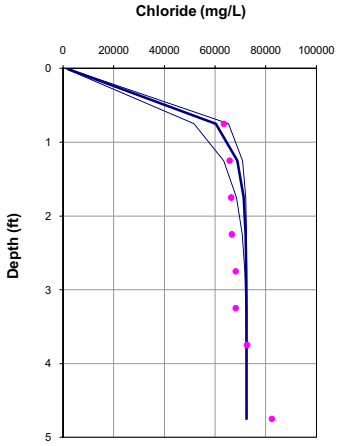
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	76000	76000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********	71054	
V(cm/yr)	-23.88	-15.90
q (cm/yr)	-17.91	-11.93
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)**		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	1.39	0.92

OL-VC-40131



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -27.4 cm/year

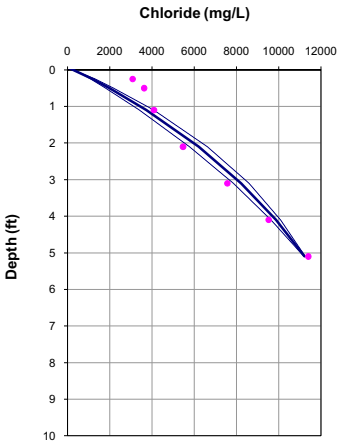
OL-VC-40131



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -22.4 cm/year

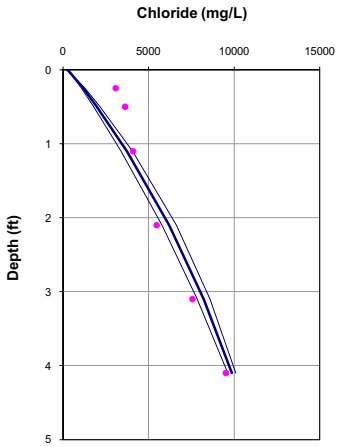
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	76300	72400
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-36.59	-29.81
q (cm/yr)	-27.44	-22.36
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)**		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	1.72	1.05

OL-VC-40149



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -1.5 cm/year

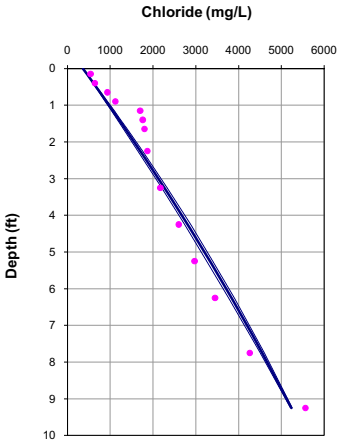
OL-VC-40149



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -1.5 cm/year

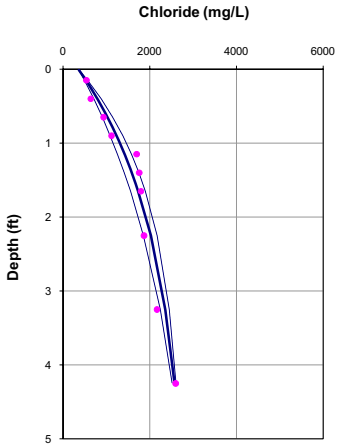
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	11400	11400
L(ft)	5.25	5.25
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		9280.8
V(cm/yr)	-1.95	-1.95
q (cm/yr)	-1.46	-1.46
dispersion length (ft)	0.11	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.11	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.80	0.80

OL-VC-40151



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -0.3 cm/year

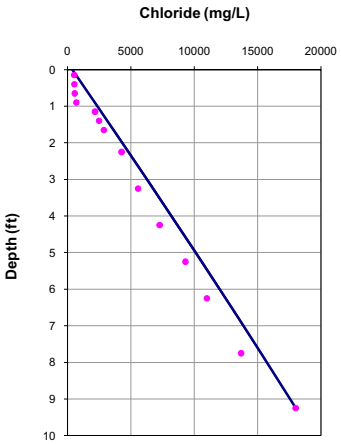
OL-VC-40151



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -3.4 cm/year

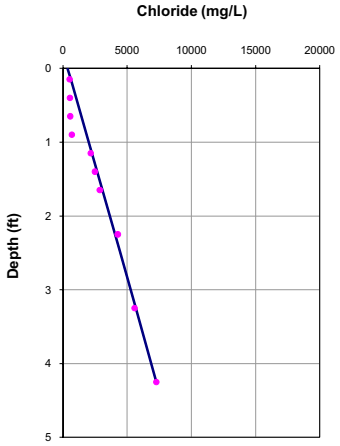
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	5560	2680
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-0.35	-4.57
q (cm/yr)	-0.26	-3.43
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)**		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.79	0.82

OL-VC-40154



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = ~0 cm/year

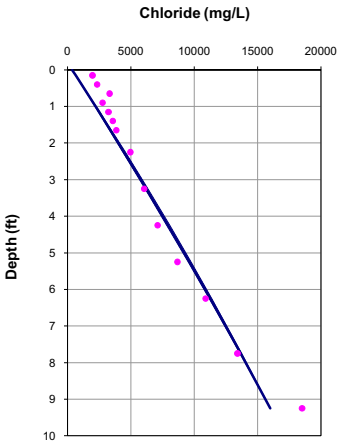
OL-VC-40154



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = ~0 cm/year

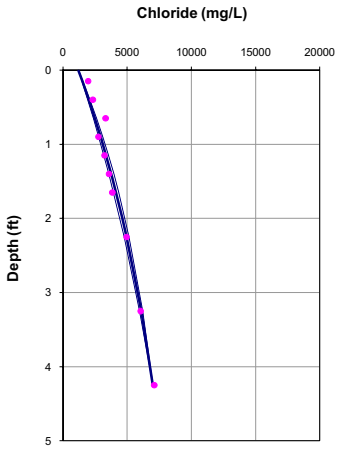
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	18000	7270
L(ft)	9.25	4.25
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-0.10	-0.10
q (cm/yr)	-0.08	-0.08
dispersion length (ft)	0.27	0.08
Internal Parameters *********(do not alter except as noted)**		
Neuman dispersion length (ft)	0.27	0.08
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.79	0.79

OL-VC-40157



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -0.2 cm/year

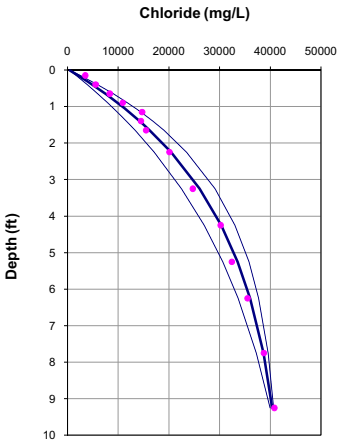
OL-VC-40157



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -1.7 cm/year

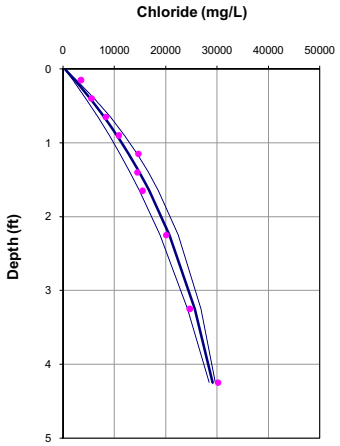
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	1200
Cl (mg/L)	16000	7000
L(ft)	9.25	4.25
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-0.21	-2.21
q (cm/yr)	-0.16	-1.65
dispersion length (ft)	0.27	0.08
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.27	0.08
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.79	0.80

OL-VC-40165



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -2.1 cm/year

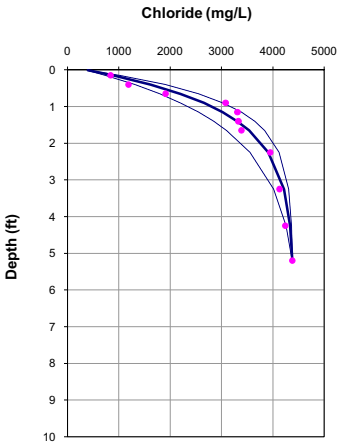
OL-VC-40165



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -2.6 cm/year

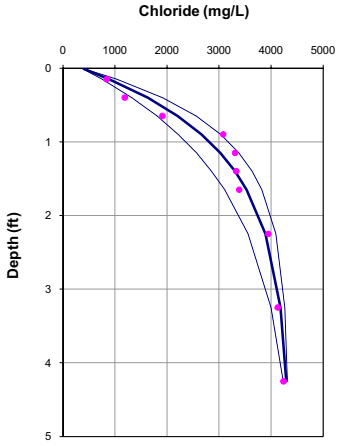
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	41000	31030
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********'		31030
V(cm/yr)	-2.82	-3.50
q (cm/yr)	-2.12	-2.63
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)**		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.86	0.82

OL-VC-40168



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -7.3 cm/year

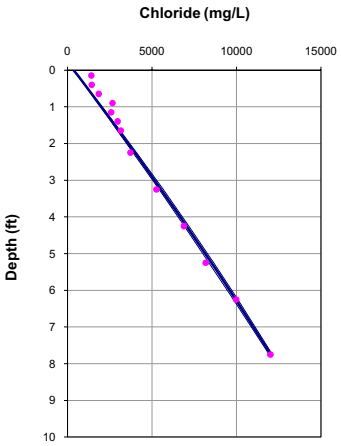
OL-VC-40168



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -7.5 cm/year

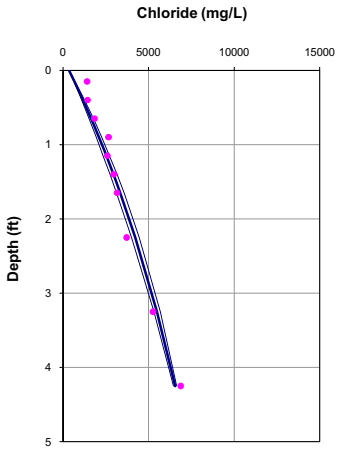
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	4380	4327
L(ft)	5.25	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********'		4326.8
V(cm/yr)	-9.78	-9.97
q (cm/yr)	-7.34	-7.48
dispersion length (ft)	0.11	0.11
Internal Parameters *********(do not alter except as noted)**		
Neuman dispersion length (ft)	0.11	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.88	0.87

OL-VC-40172



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -0.2 cm/year

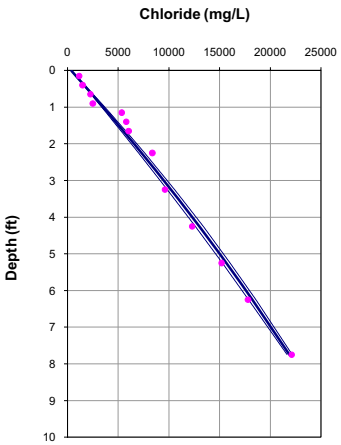
OL-VC-40172



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -1.3 cm/year

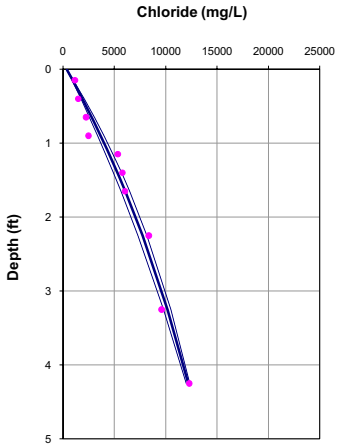
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	15000	7233
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		7233.3
V(cm/yr)	-0.24	-1.76
q (cm/yr)	-0.18	-1.32
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.79	0.80

OL-VC-40179



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -0.3 cm/year

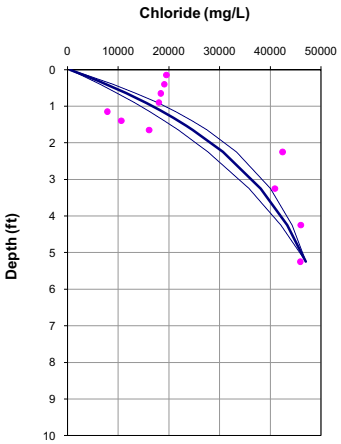
OL-VC-40179



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -1.3 cm/year

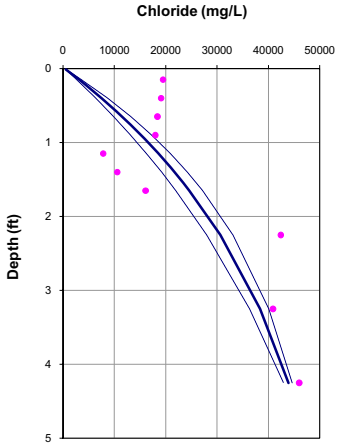
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	27000	13484
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		13484
V(cm/yr)	-0.38	-1.75
q (cm/yr)	-0.28	-1.31
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)**		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.79	0.80

OL-VC-40184



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = NA cm/year

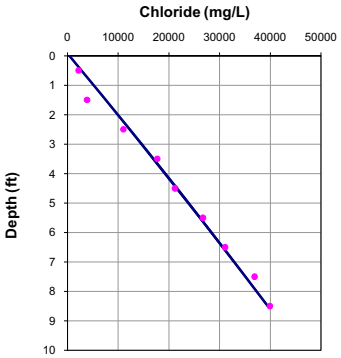
OL-VC-40184



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = NA cm/year

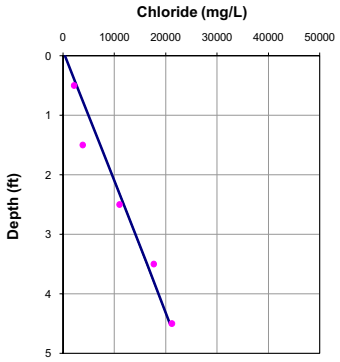
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	47000	47000
L(ft)	5.25	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-3.44	-3.22
q (cm/yr)	-2.58	-2.41
dispersion length (ft)	0.11	0.11
Internal Parameters *********(do not alter except as noted)**		
Neuman dispersion length (ft)	0.11	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.82	0.81

OL-STA-60072



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = ~0 cm/year

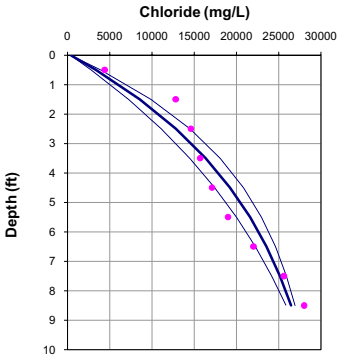
OL-STA-60072



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = ~0 cm/year

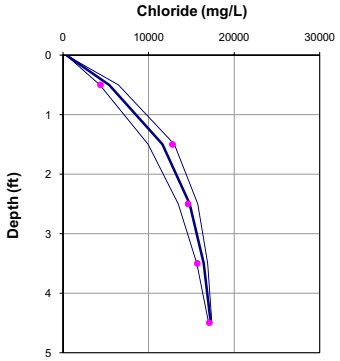
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	46000	23000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-0.10	-0.10
q (cm/yr)	-0.07	-0.07
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.72	0.72

OL-STA-60078



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -1.3 cm/year

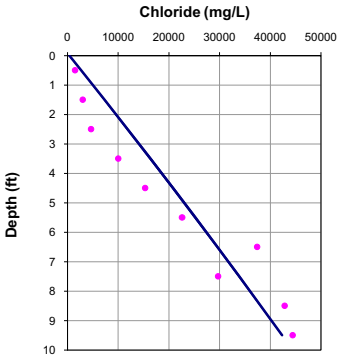
OL-STA-60078



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -4.4 cm/year

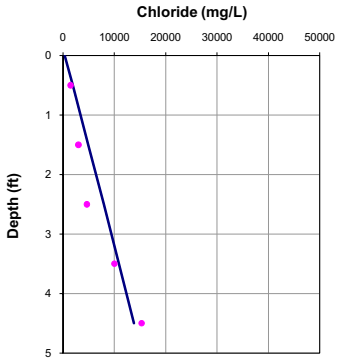
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	28000	17500
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-1.80	-6.23
q (cm/yr)	-1.26	-4.36
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)**		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.77	0.78

OL-STA-60081



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = ~0 cm/year

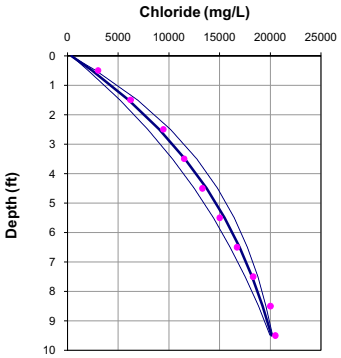
OL-STA-60081



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = ~0 cm/year

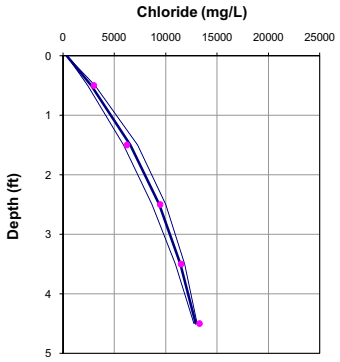
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	44400	15300
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-0.10	-0.10
q (cm/yr)	-0.07	-0.07
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)**		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.72	0.72

OL-STA-60087



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -1.1 cm/year

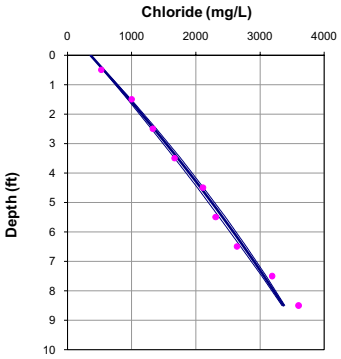
OL-STA-60087



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -2.0 cm/year

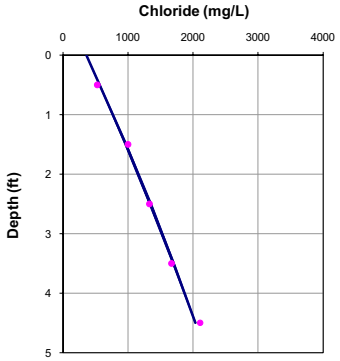
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	20500	13500
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-1.62	-2.79
q (cm/yr)	-1.13	-1.96
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.76	0.75

OL-STA-60090



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -0.2 cm/year

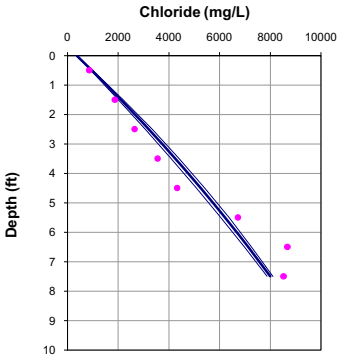
OL-STA-60090



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -0.3 cm/year

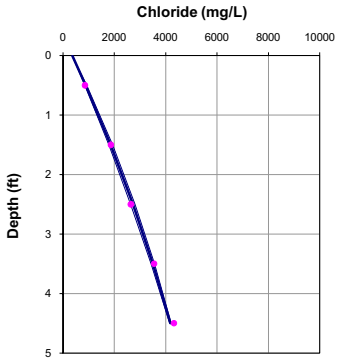
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	3800	2200
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-0.34	-0.49
q (cm/yr)	-0.24	-0.34
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)**		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.73	0.73

OL-STA-60096



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -0.3 cm/year

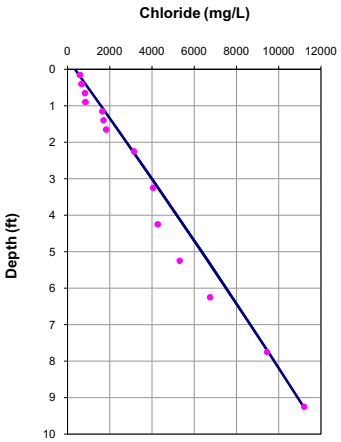
OL-STA-60096



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -0.7 cm/year

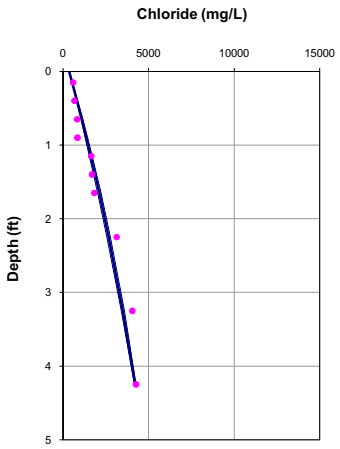
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	10000	4500
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-0.41	-1.00
q (cm/yr)	-0.28	-0.70
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)**		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.73	0.73

OL-VC-60125



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = ~0 cm/year

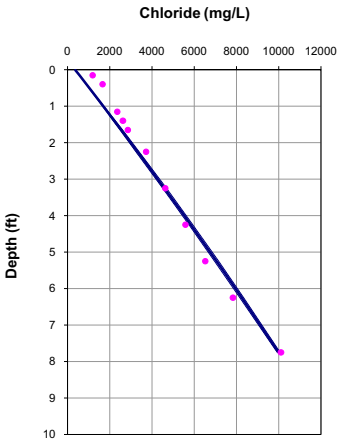
OL-VC-60125



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -0.8 cm/year

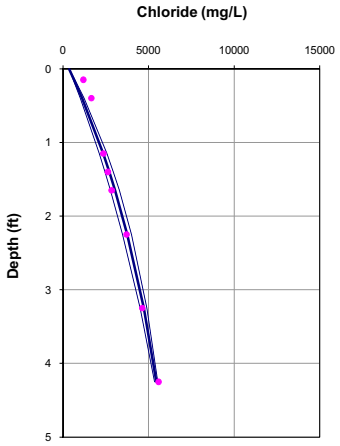
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	12000	4700
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-0.10	-1.17
q (cm/yr)	-0.07	-0.82
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.72	0.73

OL-VC-60127



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -0.1 cm/year

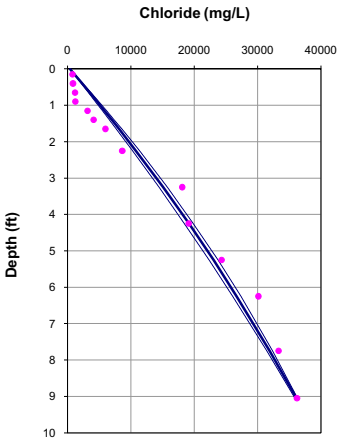
OL-VC-60127



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -1.7 cm/year

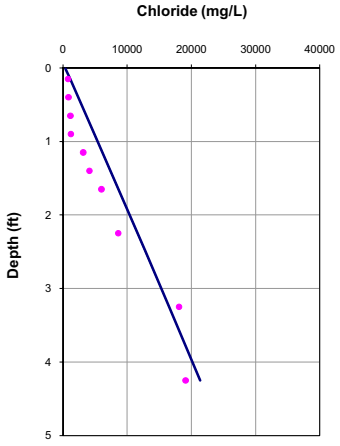
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	12500	5895
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		5895.3
V(cm/yr)	-0.18	-2.38
q (cm/yr)	-0.13	-1.67
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)**		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.73	0.74

OL-VC-60129



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -0.3 cm/year

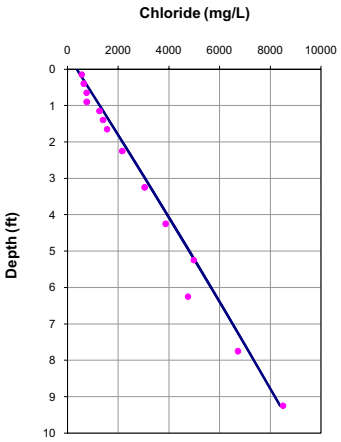
OL-VC-60129



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = ~0 cm/year

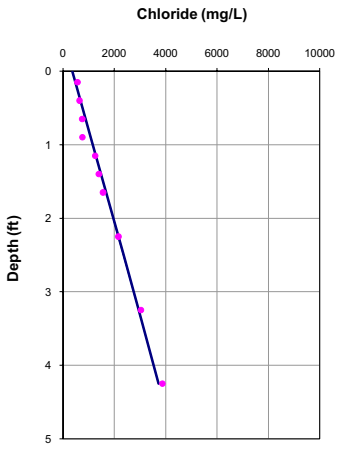
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	39000	25000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-0.44	-0.10
q (cm/yr)	-0.31	-0.07
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)**		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.73	0.72

OL-VC-60150



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = ~0 cm/year

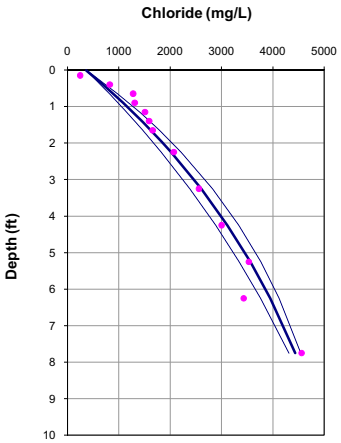
OL-VC-60150



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = ~0 cm/year

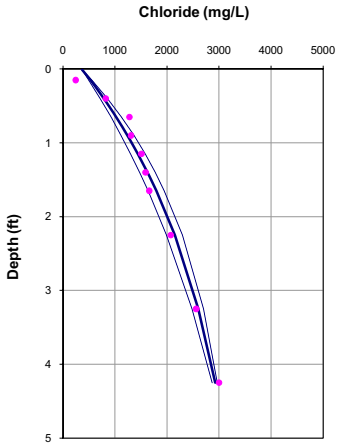
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	9000	4300
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		4300
V(cm/yr)	-0.10	-0.10
q (cm/yr)	-0.07	-0.07
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.72	0.72

OL-VC-60152



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -0.9 cm/year

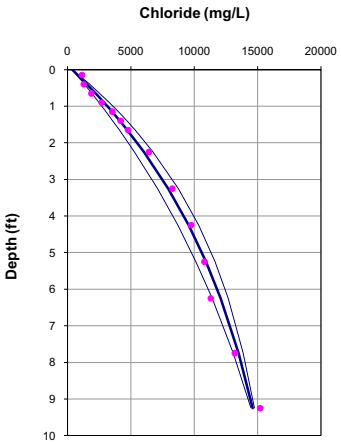
OL-VC-60152



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -2.1 cm/year

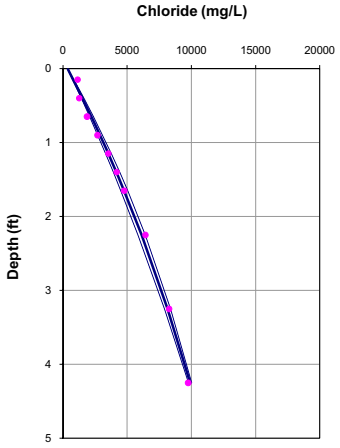
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	5000	3104
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		3104.5
V(cm/yr)	-1.26	-3.01
q (cm/yr)	-0.88	-2.11
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)**		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.75	0.75

OL-VC-60154



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -1.1 cm/year

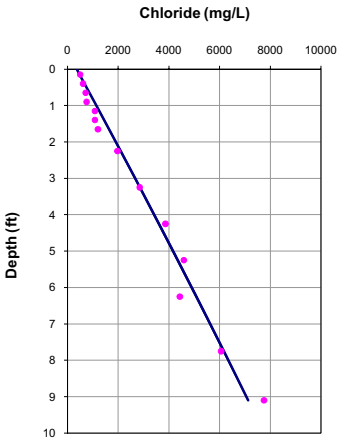
OL-VC-60154



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -0.9 cm/year

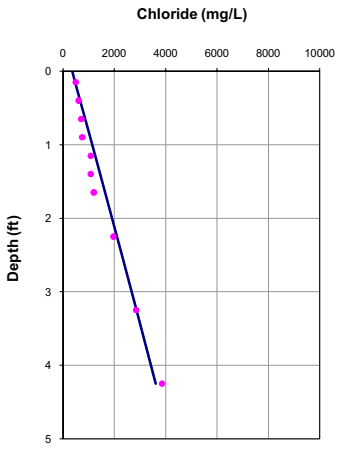
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	15070	11068
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********	15070	11068
V(cm/yr)	-1.51	-1.25
q (cm/yr)	-1.06	-0.88
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)**		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.76	0.73

OL-VC-60162



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = ~0 cm/year

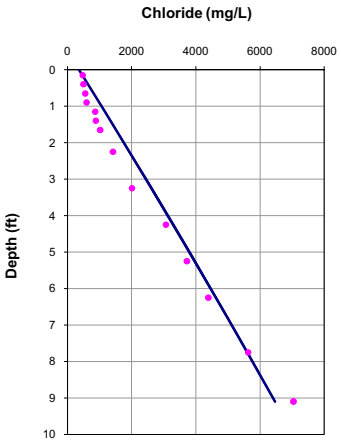
OL-VC-60162



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = ~0 cm/year

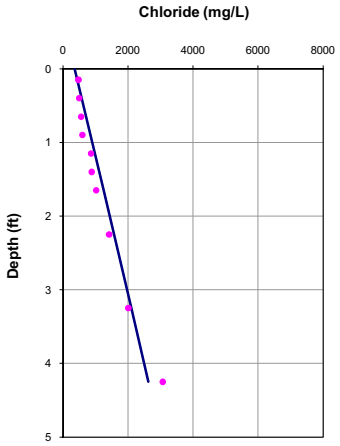
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	7750	4912
L(ft)	10	6
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		4912.2
V(cm/yr)	-0.10	-0.10
q (cm/yr)	-0.07	-0.07
dispersion length (ft)	0.31	0.14
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.14
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.72	0.72

OL-VC-60168



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = ~0 cm/year

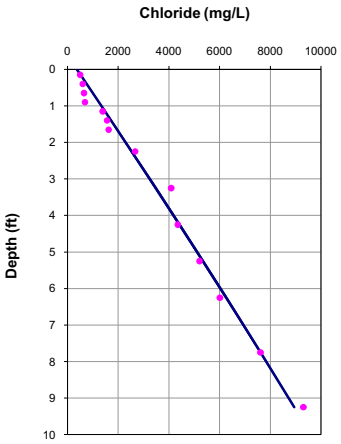
OL-VC-60168



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = ~0 cm/year

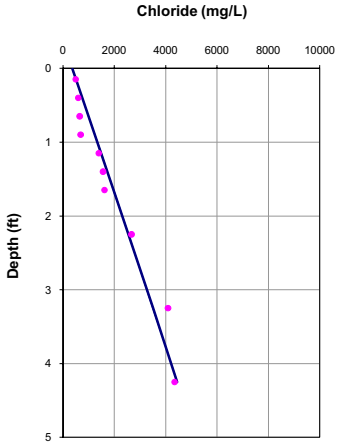
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	7040	3016
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		3016.4
V(cm/yr)	-0.10	-0.10
q (cm/yr)	-0.07	-0.07
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)**		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.72	0.72

OL-VC-60171



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = ~0 cm/year

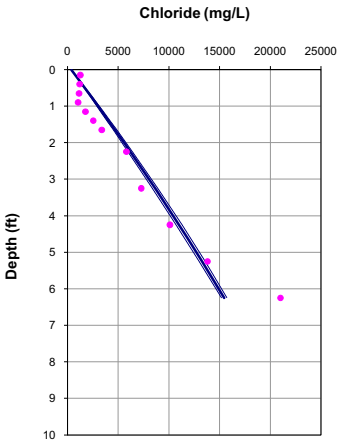
OL-VC-60171



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = ~0 cm/year

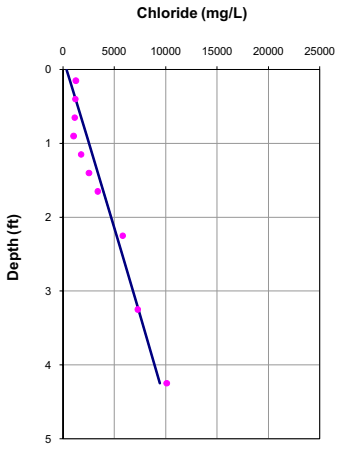
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	9600	5153
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		5153.4
V(cm/yr)	-0.10	-0.10
q (cm/yr)	-0.07	-0.07
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)**		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.72	0.72

OL-VC-60179



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -0.2 cm/year

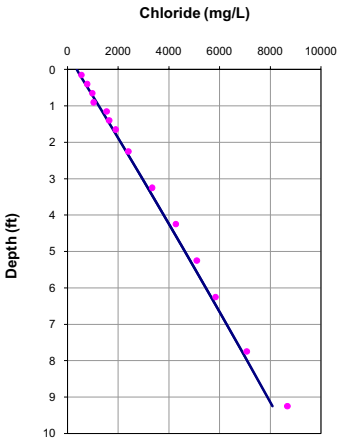
OL-VC-60179



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = ~0 cm/year

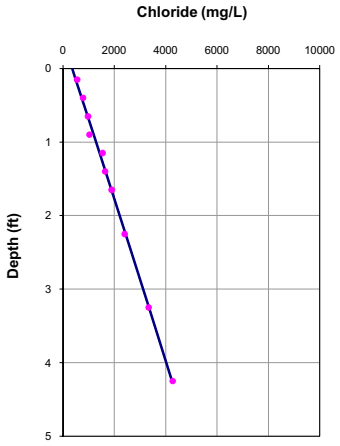
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	23000	11000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		11000
V(cm/yr)	-0.32	-0.10
q (cm/yr)	-0.22	-0.07
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.73	0.72

OL-VC-60181



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = ~0 cm/year

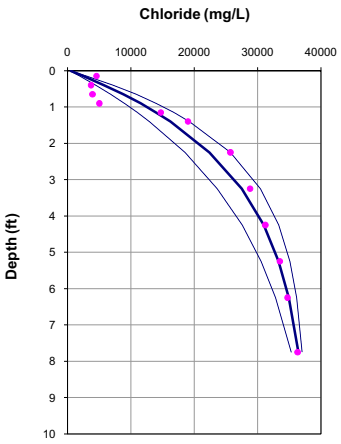
OL-VC-60181



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = ~0 cm/year

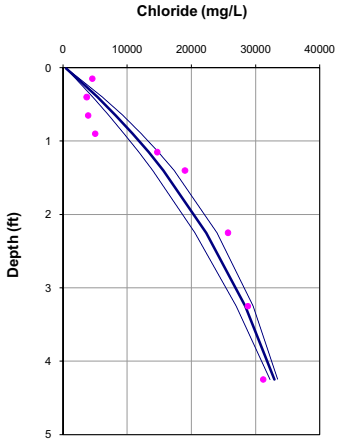
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	8670	4910
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		4909.5
V(cm/yr)	-0.10	-0.10
q (cm/yr)	-0.07	-0.07
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)**		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.72	0.72

OL-VC-60191



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -2.7 cm/year

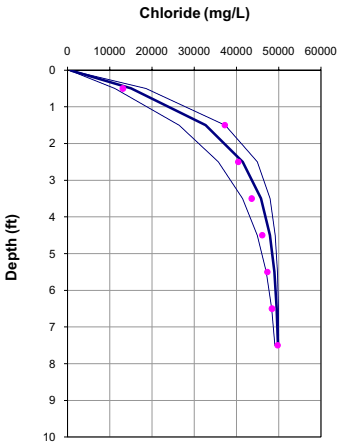
OL-VC-60191



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -1.8 cm/year

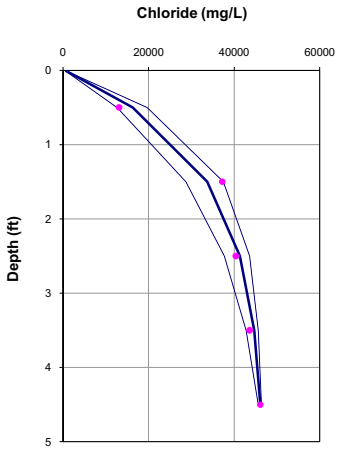
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	37500	35568
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		35568
V(cm/yr)	-3.79	-2.55
q (cm/yr)	-2.65	-1.79
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)**		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.82	0.74

OL-STA-70040



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -5.4 cm/year

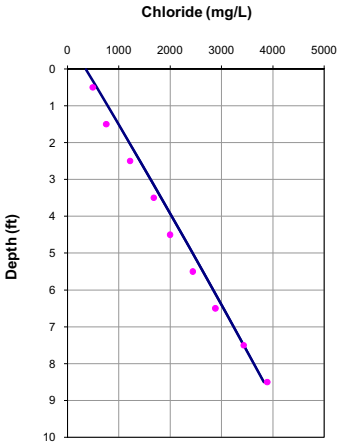
OL-STA-70040



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -5.5 cm/year

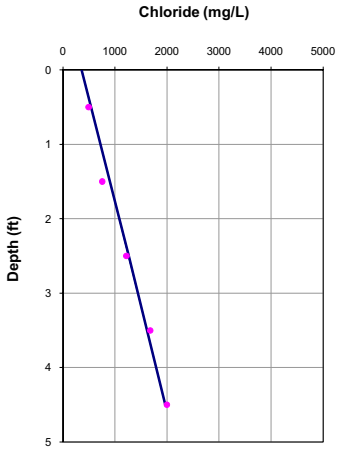
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	50000	46500
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-7.70	-7.84
q (cm/yr)	-5.39	-5.49
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.92	0.79

OL-STA-70042



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = ~0 cm/year

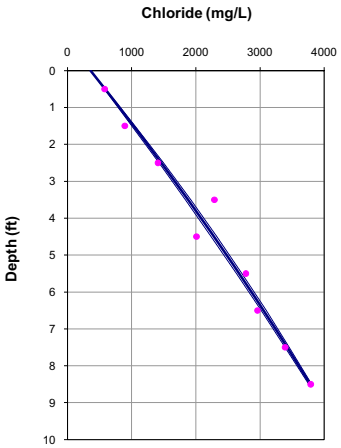
OL-STA-70042



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = ~0 cm/year

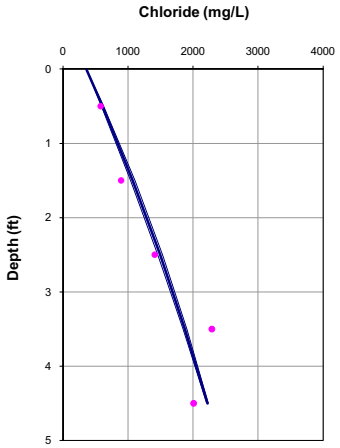
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	4400	2142
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********'		2142.1
V(cm/yr)	-0.10	-0.10
q (cm/yr)	-0.07	-0.07
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)**		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.72	0.72

OL-STA-70043



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -0.2 cm/year

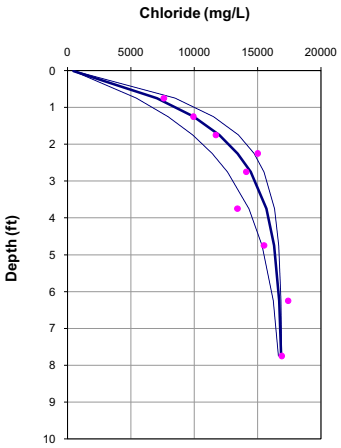
OL-STA-70043



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -0.6 cm/year

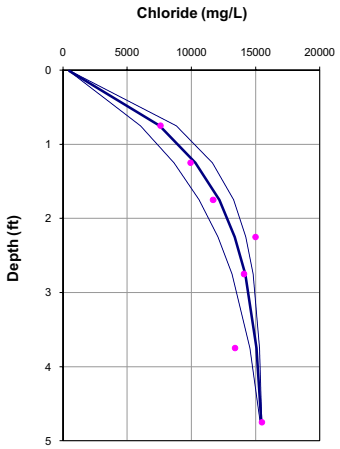
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	4300	2383
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********'		2382.6
V(cm/yr)	-0.27	-0.86
q (cm/yr)	-0.19	-0.60
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)**		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.73	0.73

OL-VC-70057



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -5.3 cm/year

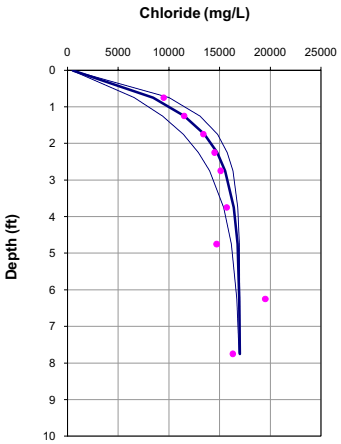
OL-VC-70057



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -5.5 cm/year

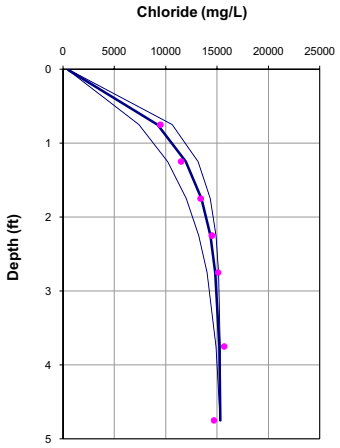
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	16900	15500
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-7.57	-7.91
q (cm/yr)	-5.30	-5.54
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.91	0.79

OL-VC-70058



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -7.4 cm/year

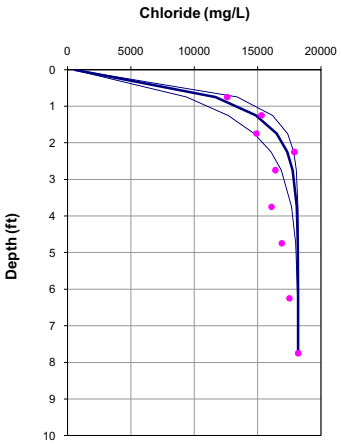
OL-VC-70058



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -8.2 cm/year

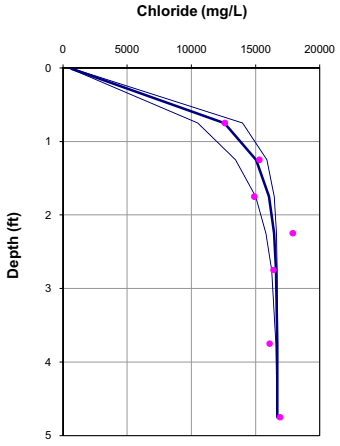
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	17000	15350
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		15350
V(cm/yr)	-10.51	-11.68
q (cm/yr)	-7.36	-8.18
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)**		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.99	0.82

OL-VC-70059



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -13.7 cm/year

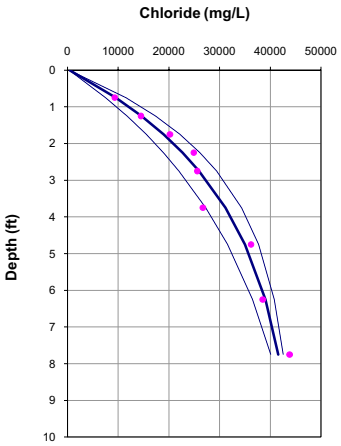
OL-VC-70059



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -13.8 cm/year

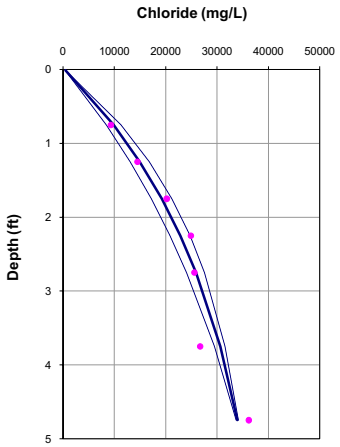
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	18200	16696
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		16696
V(cm/yr)	-19.60	-19.72
q (cm/yr)	-13.72	-13.81
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)**		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	1.22	0.90

OL-VC-70061



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -2.0 cm/year

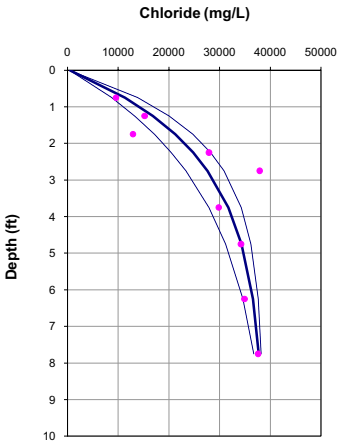
OL-VC-70061



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -2.2 cm/year

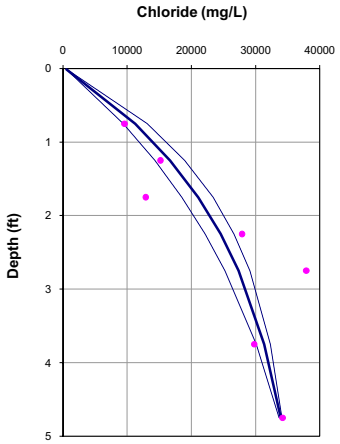
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	43800	34623
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		34623
V(cm/yr)	-2.83	-3.10
q (cm/yr)	-1.98	-2.17
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.79	0.75

OL-VC-70062



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -3.1 cm/year

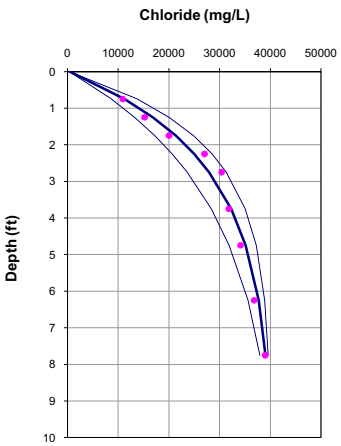
OL-VC-70062



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -2.8 cm/year

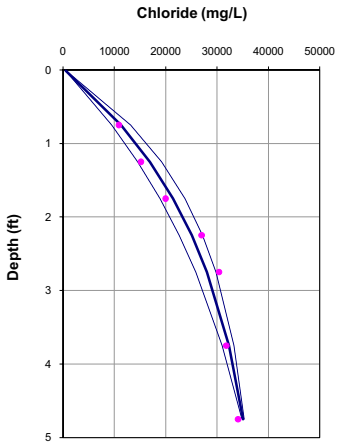
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	38500	34400
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		
V(cm/yr)	-4.45	-4.06
q (cm/yr)	-3.12	-2.84
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)**		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.83	0.76

OL-VC-70063



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -2.9 cm/year

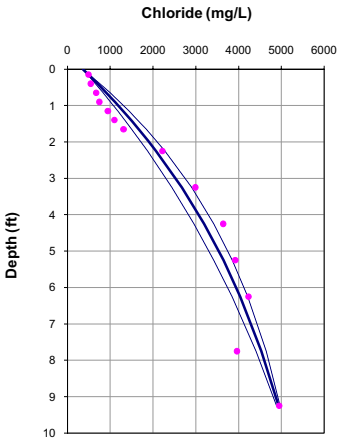
OL-VC-70063



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -2.7 cm/year

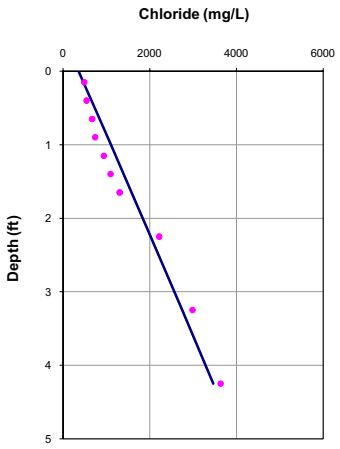
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	40000	35611
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		35611
V(cm/yr)	-4.17	-3.88
q (cm/yr)	-2.92	-2.72
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)**		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.83	0.76

OL-VC-70089



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -0.9 cm/year

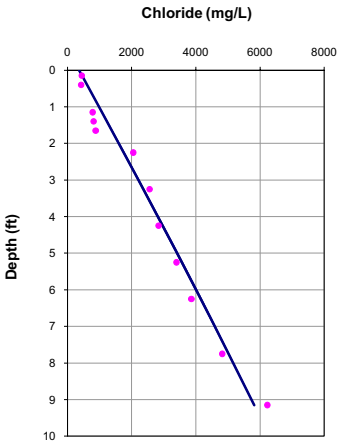
OL-VC-70089



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = ~0 cm/year

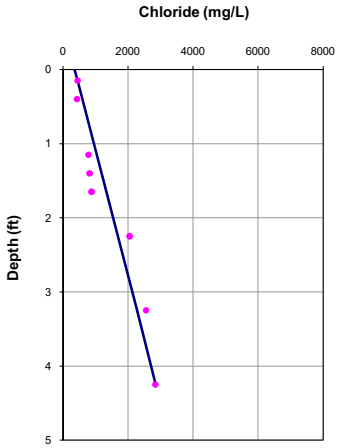
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	5100	4000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		4000
V(cm/yr)	-1.29	-0.10
q (cm/yr)	-0.90	-0.07
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.75	0.72

OL-VC-70093



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = ~0 cm/year

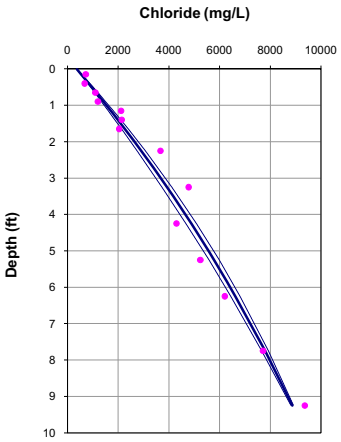
OL-VC-70093



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = ~0 cm/year

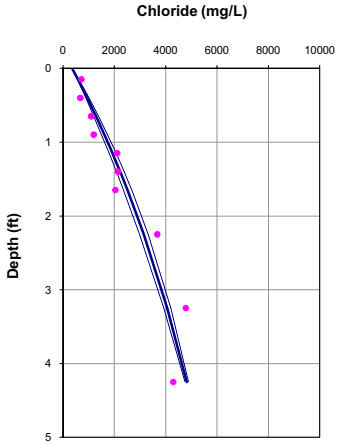
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	6300	3280
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		3280.1
V(cm/yr)	-0.10	-0.10
q (cm/yr)	-0.07	-0.07
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)**		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.72	0.72

OL-VC-70100



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -0.4 cm/year

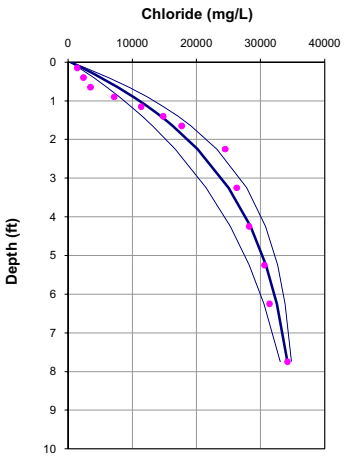
OL-VC-70100



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -1.2 cm/year

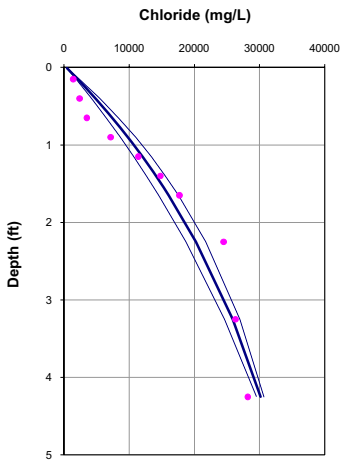
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	9360	5302
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		5301.6
V(cm/yr)	-0.55	-1.65
q (cm/yr)	-0.39	-1.15
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)**		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.74	0.74

OL-VC-70102



Porosity = 0.70
Dispersion length = 0.3 feet
Upwelling Velocity = -2.4 cm/year

OL-VC-70102

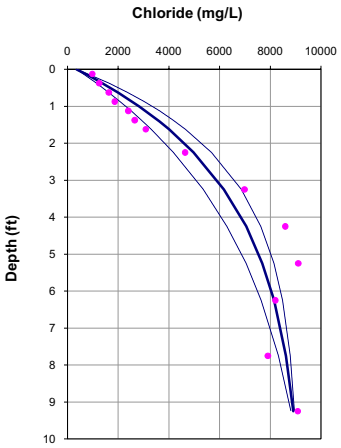


Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -1.7 cm/year

	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	35500	32680
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.7	0.7
Calculated Values **********		32680
V(cm/yr)	-3.40	-2.42
q (cm/yr)	-2.38	-1.69
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.72	0.72
Diffusion + Dispersion (cm2/day)	0.81	0.74

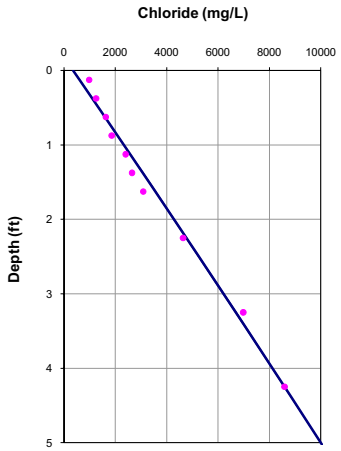
Upwelling Velocities from Sediment Pore-Water Chloride Data -
Phase 5 Data

OL-VC-20187



Porosity = 0.65
Dispersion length = 0.3 feet
Upwelling Velocity = -1.8 cm/year

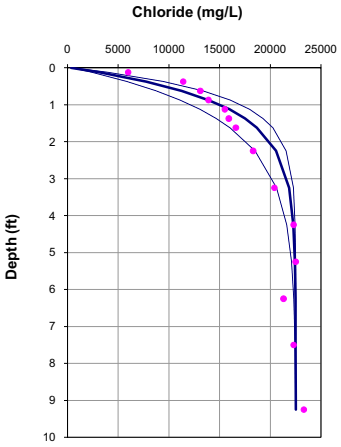
OL-VC-20187



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = -0.1 cm/year

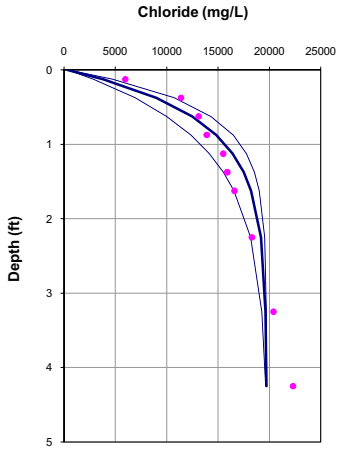
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	9000	10000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.65	0.65
Calculated Values **********		
V(cm/yr)	-2.81	-0.10
q (cm/yr)	-1.82	-0.07
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.66	0.66
Diffusion + Dispersion (cm2/day)	0.74	0.66

OL-VC-20188



Porosity = 0.65
Dispersion length = 0.3 feet
Upwelling Velocity = -8.3 cm/year

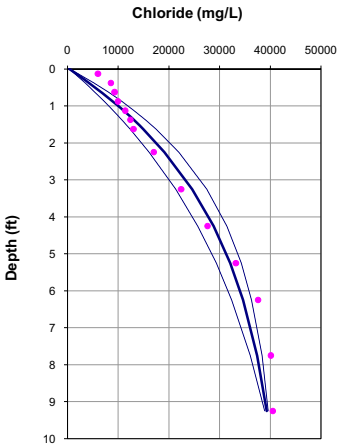
OL-VC-20188



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = -9.7 cm/year

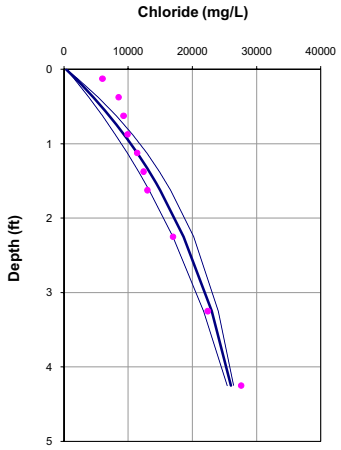
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	22500	19726
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.65	0.65
Calculated Values **********'	21025	19726
V(cm/yr)	-12.83	-14.97
q (cm/yr)	-8.34	-9.73
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)**		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.66	0.66
Diffusion + Dispersion (cm2/day)	0.99	0.80

OL-VC-20189



Porosity = 0.65
Dispersion length = 0.3 feet
Upwelling Velocity = -1.4 cm/year

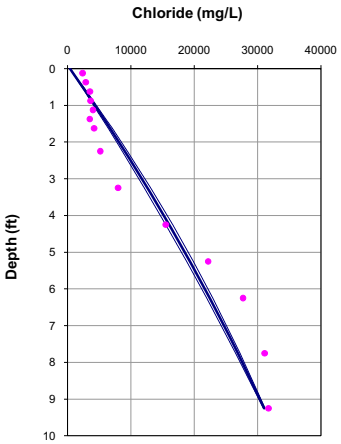
OL-VC-20189



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = -2.0 cm/year

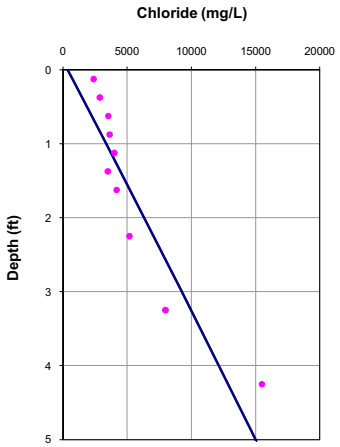
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	40000	27614
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.65	0.65
Calculated Values **********'	36787	27614
V(cm/yr)	-2.20	-3.07
q (cm/yr)	-1.43	-2.00
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)**		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.66	0.66
Diffusion + Dispersion (cm2/day)	0.72	0.69

OL-VC-20190



Porosity = 0.65
Dispersion length = 0.3 feet
Upwelling Velocity = -0.2 cm/year

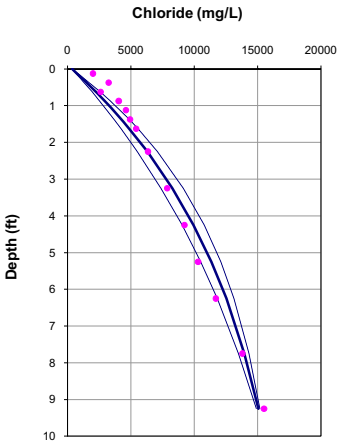
OL-VC-20190



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = -0.1 cm/year

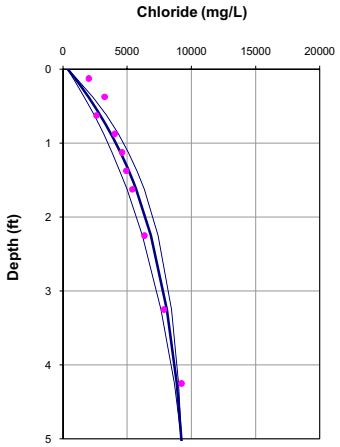
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	33000	15000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.65	0.65
Calculated Values **********		15000
V(cm/yr)	-0.36	-0.10
q (cm/yr)	-0.24	-0.07
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.66	0.66
Diffusion + Dispersion (cm2/day)	0.67	0.66

OL-VC-30129



Porosity = 0.65
Dispersion length = 0.3 feet
Upwelling Velocity = -0.9 cm/year

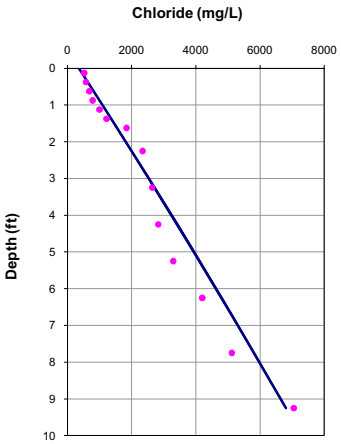
OL-VC-30129



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = -2.7 cm/year

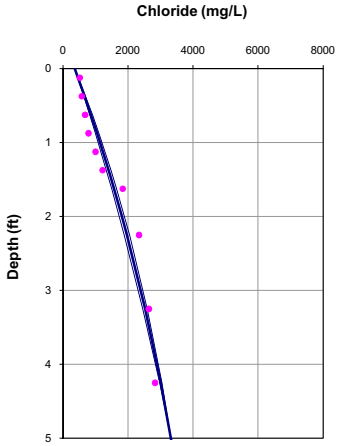
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	15500	9250
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.65	0.65
Calculated Values **********		9127.4
V(cm/yr)	-1.45	-4.09
q (cm/yr)	-0.94	-2.66
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)**		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.66	0.66
Diffusion + Dispersion (cm2/day)	0.70	0.70

OL-VC-30130



Porosity = 0.65
Dispersion length = 0.3 feet
Upwelling Velocity = -0.1 cm/year

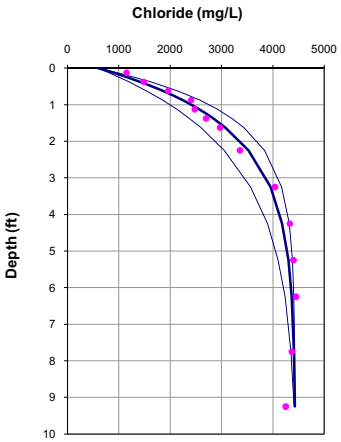
OL-VC-30130



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = -0.8 cm/year

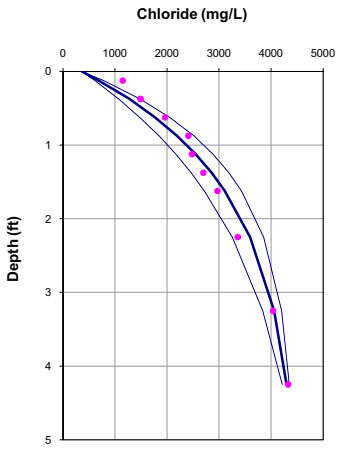
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	7300	3326
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.65	0.65
Calculated Values **********		3325.6
V(cm/yr)	-0.10	-1.21
q (cm/yr)	-0.07	-0.78
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)**		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.66	0.66
Diffusion + Dispersion (cm2/day)	0.67	0.67

OL-VC-30131



Porosity = 0.65
Dispersion length = 0.3 feet
Upwelling Velocity = -4.1 cm/year

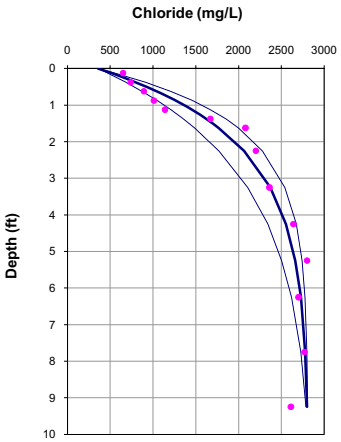
OL-VC-30131



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = -3.7 cm/year

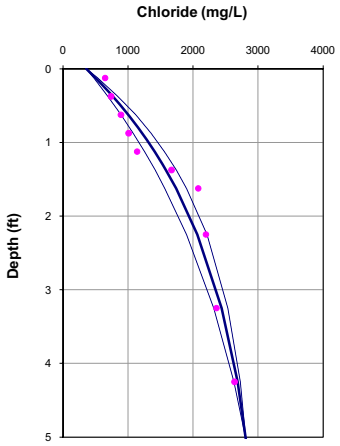
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	600	359
Cl (mg/L)	4430	4400
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.65	0.65
Calculated Values **********	4429.6	4374.4
V(cm/yr)	-6.30	-5.62
q (cm/yr)	-4.09	-3.65
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.66	0.66
Diffusion + Dispersion (cm2/day)	0.82	0.71

OL-VC-30132



Porosity = 0.65
Dispersion length = 0.3 feet
Upwelling Velocity = -3.2 cm/year

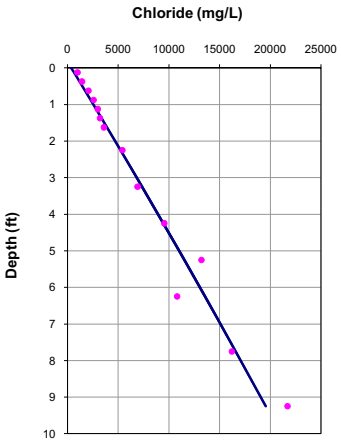
OL-VC-30132



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = -2.3 cm/year

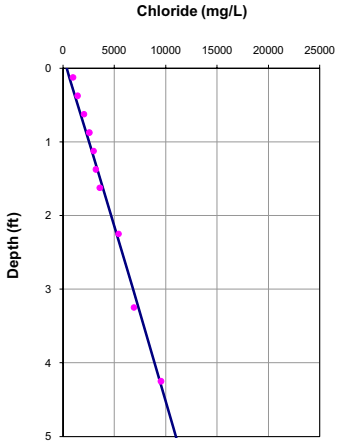
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	2807	2813
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.65	0.65
Calculated Values **********	2807.2	2812.8
V(cm/yr)	-4.94	-3.49
q (cm/yr)	-3.21	-2.27
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)**		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.66	0.66
Diffusion + Dispersion (cm2/day)	0.79	0.69

OL-VC-30133



Porosity = 0.65
Dispersion length = 0.3 feet
Upwelling Velocity = -0.1 cm/year

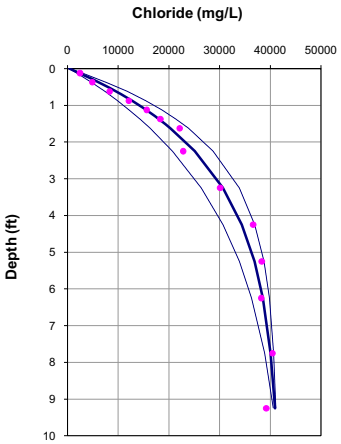
OL-VC-30133



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = -0.1 cm/year

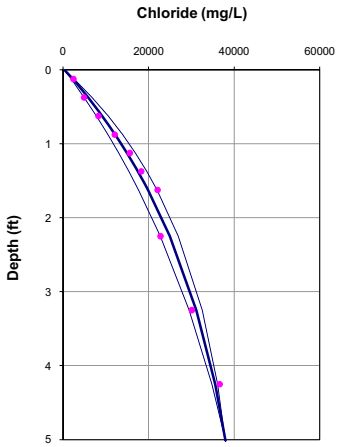
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	21000	11000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.65	0.65
Calculated Values **********	21000	19000
V(cm/yr)	-0.10	-0.10
q (cm/yr)	-0.07	-0.07
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)**		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.66	0.66
Diffusion + Dispersion (cm2/day)	0.67	0.66

OL-VC-40238



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -3.2 cm/year

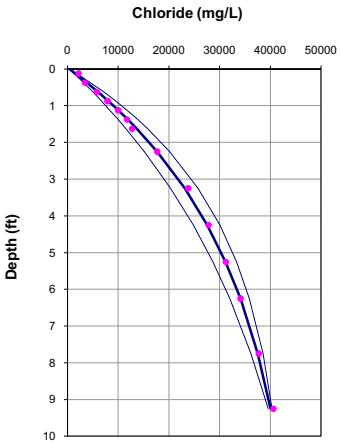
OL-VC-40238



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -2.5 cm/year

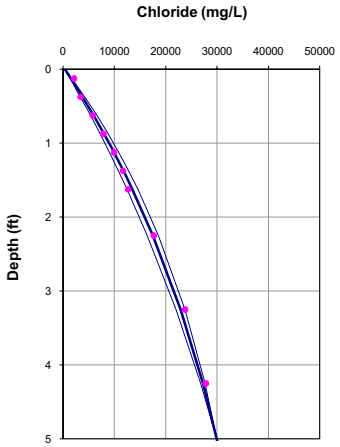
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	41163	38000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********	41163	37186
V(cm/yr)	-4.31	-3.30
q (cm/yr)	-3.23	-2.48
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.89	0.81

OL-VC-40239



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -1.6 cm/year

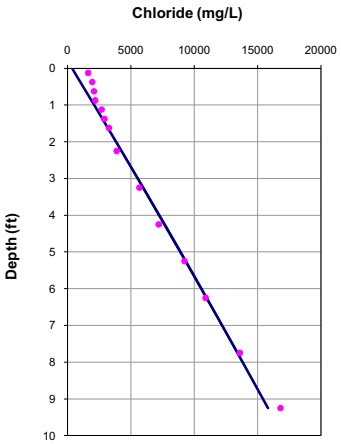
OL-VC-40239



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -1.5 cm/year

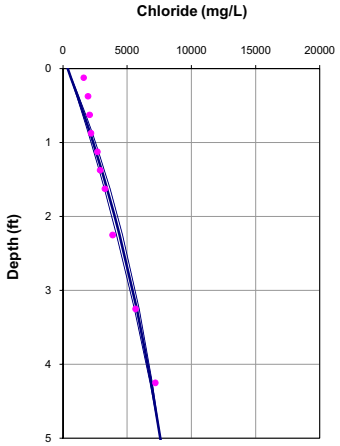
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	41000	30000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		28060
V(cm/yr)	-2.07	-2.01
q (cm/yr)	-1.56	-1.51
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)**		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.84	0.80

OL-VC-40240



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -0.1 cm/year

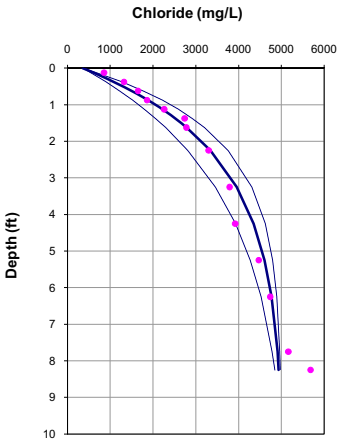
OL-VC-40240



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -1.3 cm/year

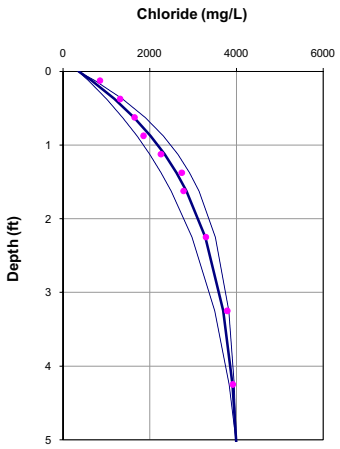
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	17000	7600
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		7414.6
V(cm/yr)	-0.10	-1.70
q (cm/yr)	-0.08	-1.27
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)**		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.79	0.80

OL-VC-40241



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -3.7 cm/year

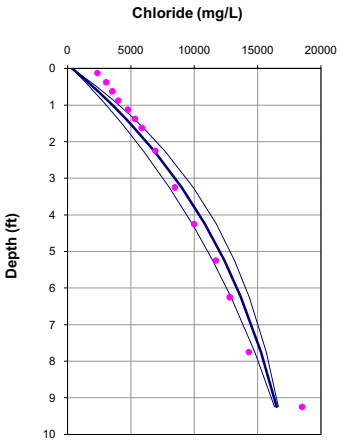
OL-VC-40241



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -5.0 cm/year

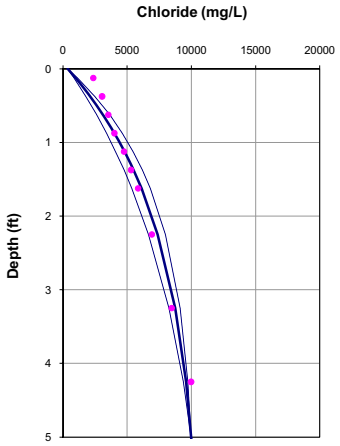
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	5000	4000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		4293.7
V(cm/yr)	-4.87	-6.70
q (cm/yr)	-3.65	-5.02
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.91	0.84

OL-VC-40242



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -1.3 cm/year

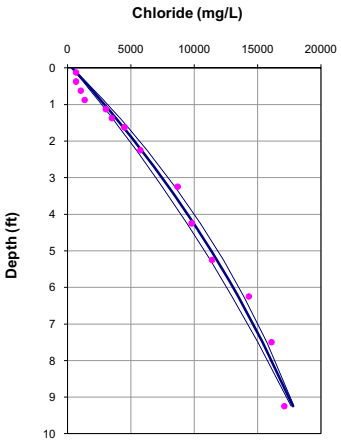
OL-VC-40242



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -3.6 cm/year

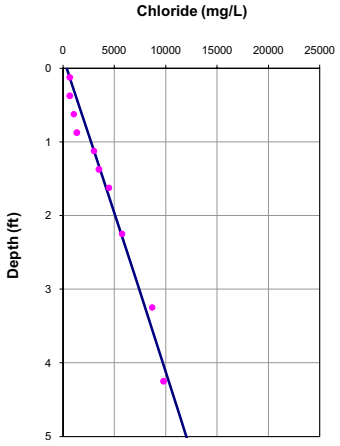
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	17000	10000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		9862
V(cm/yr)	-1.68	-4.80
q (cm/yr)	-1.26	-3.60
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)**		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.83	0.83

OL-VC-40243



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -0.6 cm/year

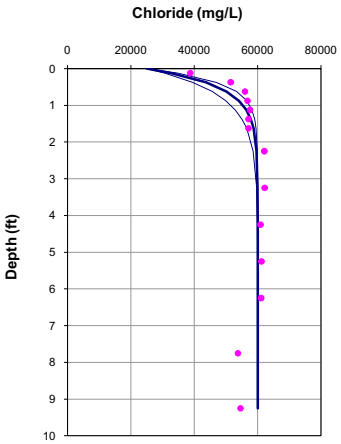
OL-VC-40243



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -0.1 cm/year

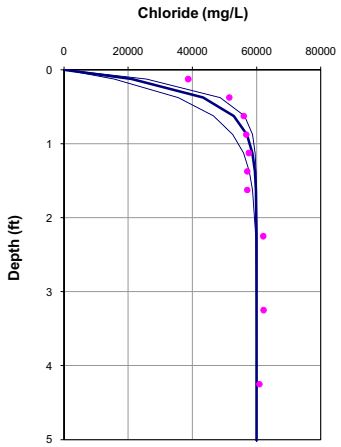
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	18700	12000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		12339
V(cm/yr)	-0.77	-0.10
q (cm/yr)	-0.57	-0.08
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)**		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.80	0.79

OL-VC-40244



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = <-35.0 cm/year

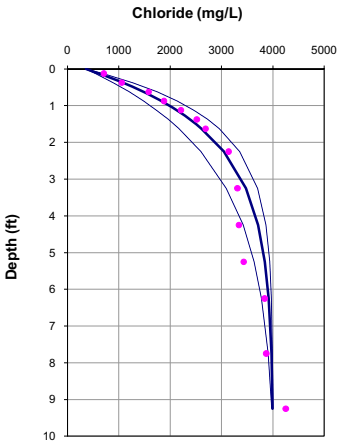
OL-VC-40244



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = <-35.0 cm/year

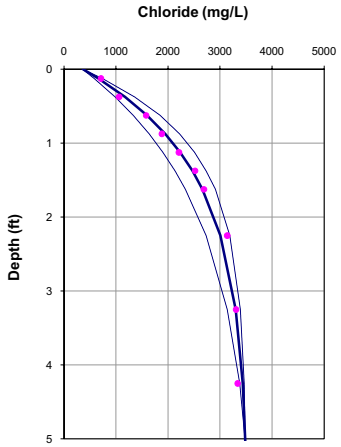
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	25000	359
Cl (mg/L)	60000	60000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		
V(cm/yr)	-50.00	-50.00
q (cm/yr)	-37.50	-37.50
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	2.06	1.23

OL-VC-40245



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -5.1 cm/year

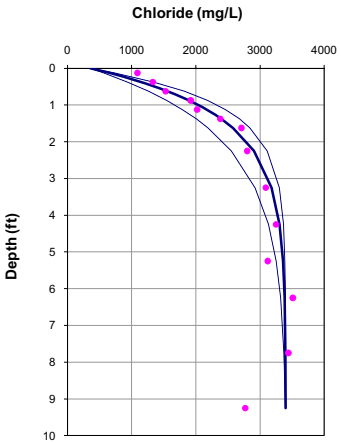
OL-VC-40245



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -6.1 cm/year

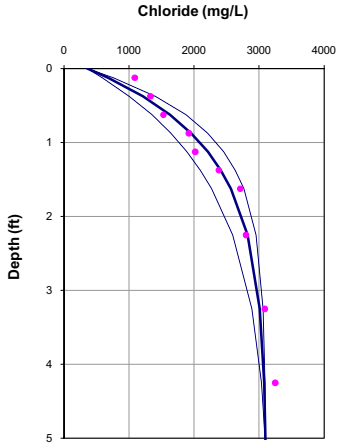
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	4000	3485
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********'		3485
V(cm/yr)	-6.77	-8.09
q (cm/yr)	-5.08	-6.06
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)**		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.96	0.86

OL-VC-40246



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -7.5 cm/year

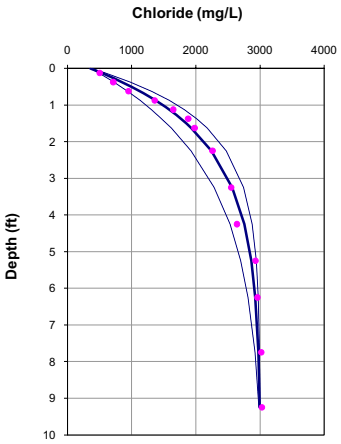
OL-VC-40246



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -7.8 cm/year

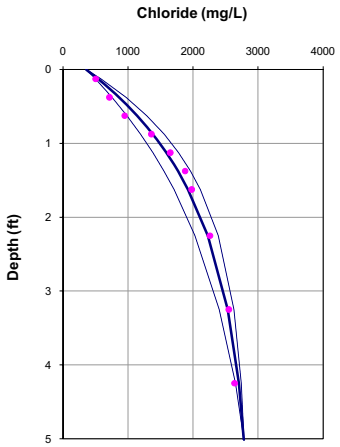
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	3400	3100
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********'		3393.5
V(cm/yr)	-10.03	-10.38
q (cm/yr)	-7.52	-7.79
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)**		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	1.04	0.88

OL-VC-40247



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -4.7 cm/year

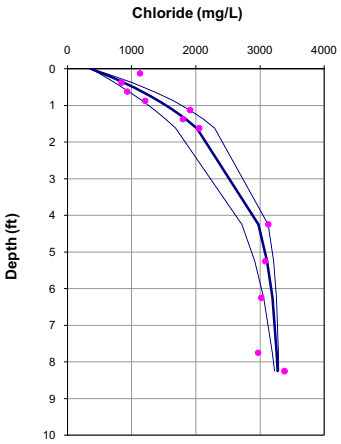
OL-VC-40247



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -4.3 cm/year

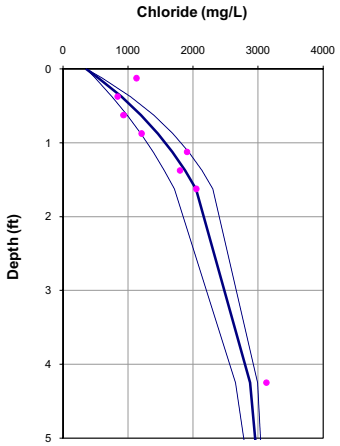
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	3000	2785
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		2784.8
V(cm/yr)	-6.22	-5.80
q (cm/yr)	-4.66	-4.35
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.94	0.84

OL-VC-40248



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -4.2 cm/year

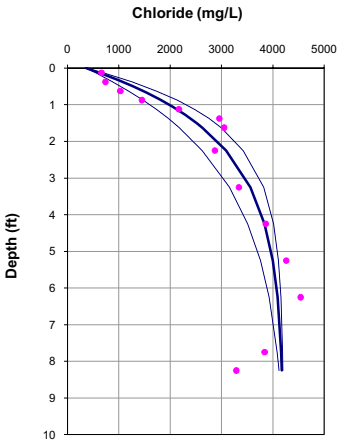
OL-VC-40248



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -5.0 cm/year

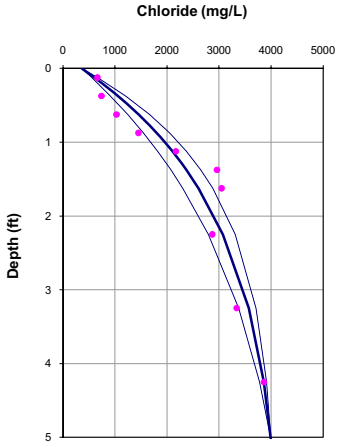
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	3300	3100
L(ft)	10	10
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		3098.4
V(cm/yr)	-5.63	-6.68
q (cm/yr)	-4.22	-5.01
dispersion length (ft)	0.31	0.31
Internal Parameters *********(do not alter except as noted)**		
Neuman dispersion length (ft)	0.31	0.31
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.93	0.95

OL-VC-40249



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -4.6 cm/year

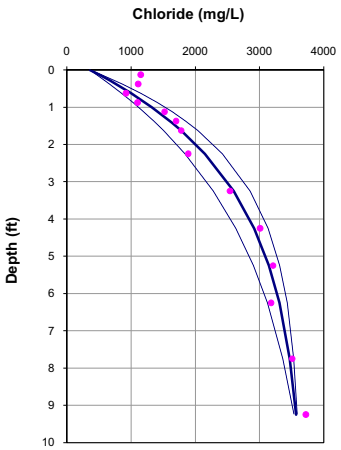
OL-VC-40249



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -3.9 cm/year

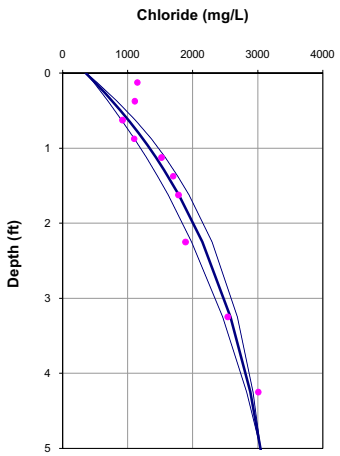
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	4200	4000
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		4523.6
V(cm/yr)	-6.16	-5.20
q (cm/yr)	-4.62	-3.90
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)**		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.94	0.83

OL-VC-40250



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -2.7 cm/year

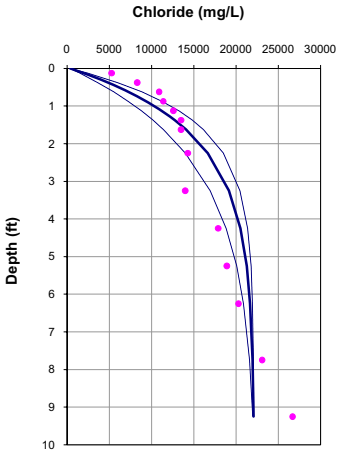
OL-VC-40250



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -2.6 cm/year

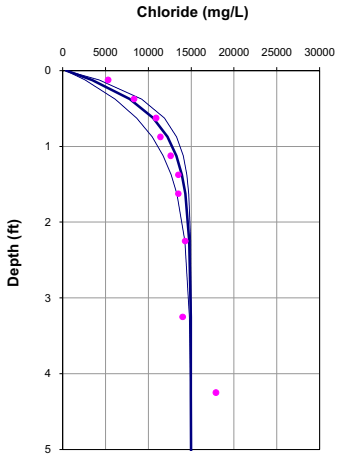
	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	3600	3049
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		3049.4
V(cm/yr)	-3.55	-3.53
q (cm/yr)	-2.66	-2.64
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)***		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.87	0.82

OL-VC-50071



Porosity = 0.75
Dispersion length = 0.3 feet
Upwelling Velocity = -5.3 cm/year

OL-VC-50071



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -16.8 cm/year

	10 feet	5 feet
Input Parameters **********		
Co (mg/L)	359	359
Cl (mg/L)	22100	14977
L(ft)	10	5
D (cm2/day)	1.236	1.236
porosity	0.75	0.75
Calculated Values **********		14977
V(cm/yr)	-7.07	-22.40
q (cm/yr)	-5.31	-16.80
dispersion length (ft)	0.31	0.11
Internal Parameters *********(do not alter except as noted)**		
Neuman dispersion length (ft)	0.31	0.11
V(ft/d)	0.00	0.00
Effective. Diffusion (cm2/day)	0.78	0.78
Diffusion + Dispersion (cm2/day)	0.96	0.98

Attachment VIII

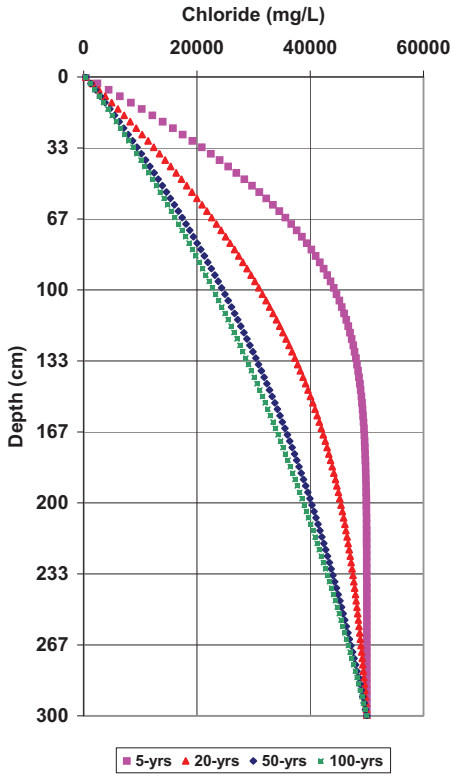
Transient Evaluation of Chloride-Depth Profiles

Attachment VIII
Transient Evaluation of Chloride-Depth Profiles

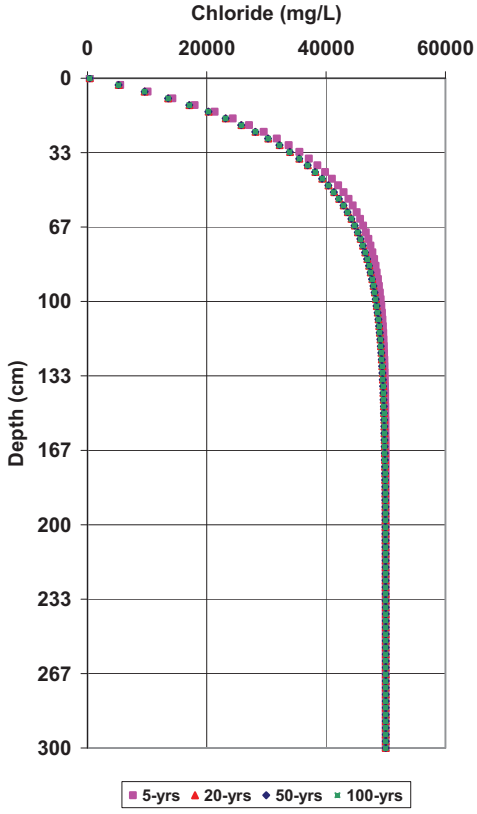
The transient analyses were conducted to determine the time required for an equilibrium chloride depth profile to be established after placement of high salinity pore waters in the subsurface. For these analyses, it was assumed that the chloride concentration in the sediment from the sediment-water interface to infinite depth was at a concentration of 50,000 mg/L and that chloride concentration in the overlying lake water was 350 mg/L.

A transient version of Equation 1 (Section 3 of the main report) was then used to calculate the time required to achieve relatively stable conditions. The time to achieve steady-state chloride profiles varies with upwelling velocity, and for these analyses upwelling velocities of 0 cm/year and 10 cm/year were evaluated. The results of these analyses are shown below.

Transient Diffusion/Advection Profiles



No Upwelling



10 cm/yr Upwelling

These results indicate that in shallow sediments, steady-state chloride profiles are achieved in a relatively short period of time if there is a small upwelling velocity. With an upwelling velocity of 10 cm/year, after five years the chloride-depth profile is approaching the steady-state profile. With no upwelling velocity, after 100 years a linear-steady-state diffusion profile is approximated.

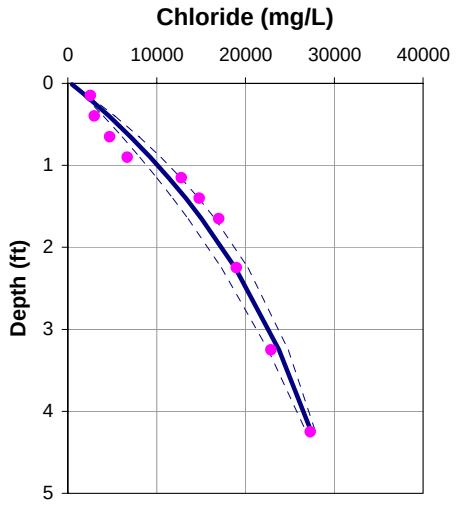
Attachment IX

Comparison of Upwelling Estimates from Pore Water and Sediment Conductivity Data from Same Location

Attachment IX
Comparison of Upwelling Estimates from Pore Water and Sediment Conductivity Data from Same Location

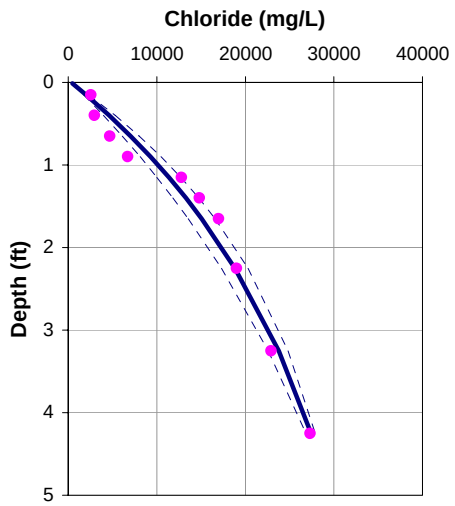
This Attachment contains a comparison of chloride-depth profiles from co-located Vibracore and sediment conductivity borings. At each location with co-located borings, plots of chloride-depth profiles are presented side by side to illustrate the similarities between profiles obtained from the two methods. In addition, the results of the co-located borings are tabulated with the difference between the upwelling velocities from the two methods noted. At several locations with co-located Vibracore and sediment-conductivity borings, duplicate and/or triplicate sediment conductivity borings were advanced. The chloride-depth profiles from the duplicates and/or triplicates are also plotted and the estimated upwelling velocities tabulated. There are a total of 30 locations with co-located Vibracore and sediment-conductivity borings.

OL-VC-20111



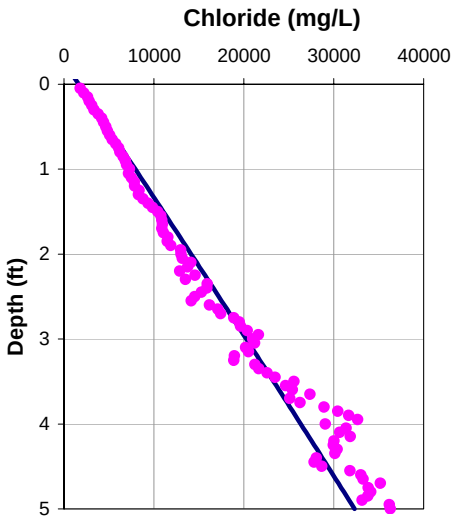
Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = -1.6 cm/year

OL-VC-20111



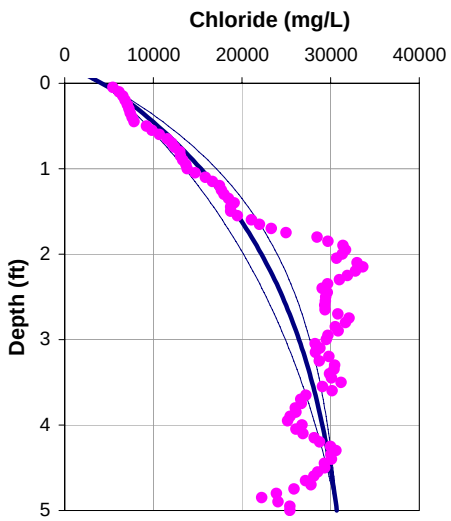
Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = -1.6 cm/year

OL-GP-20111



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = 0 cm/year

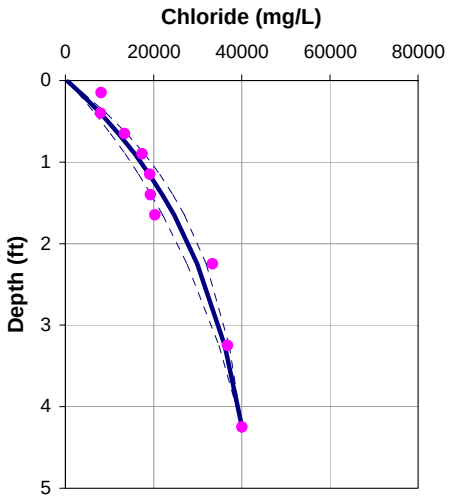
OL-GP-20111.DAT



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = -2.6 cm/year

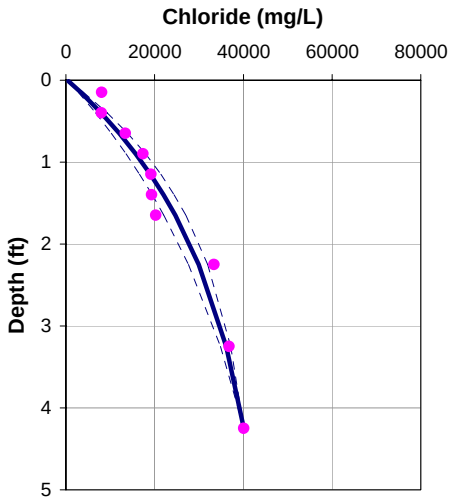
	20111	20111.DAT
Vibracore (cm/year)	-1.6	-1.6
Geoprobe (cm/year)	0.0	-2.6
Difference (cm/year)	1.6	-1.0

OL-VC-20113



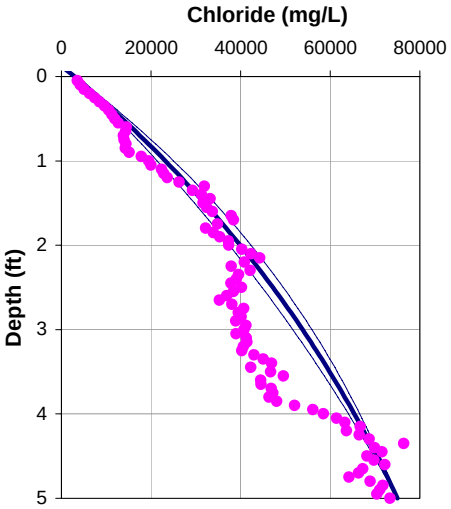
Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = -2.4 cm/year

OL-VC-20113



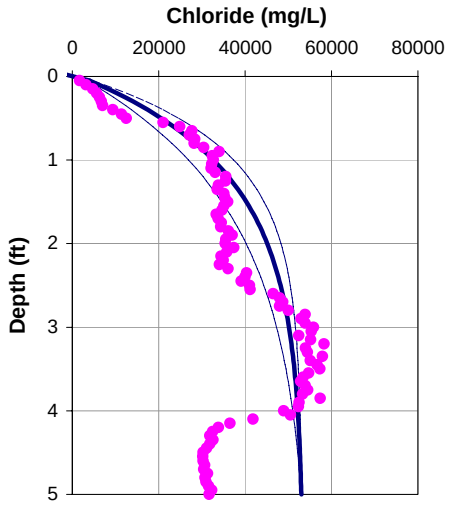
Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = -2.4 cm/year

OL-GP-20113



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = -1.0 cm/year

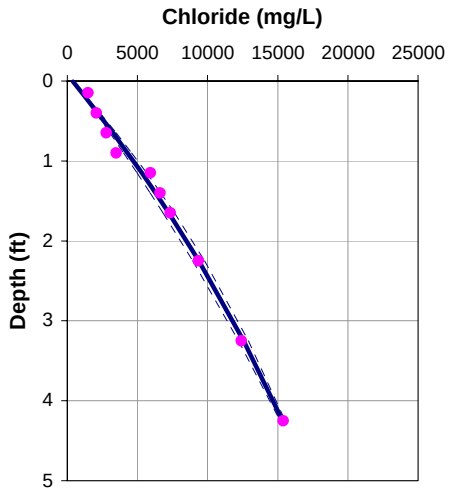
OL-GP-20113.DAT



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = -5.2 cm/year

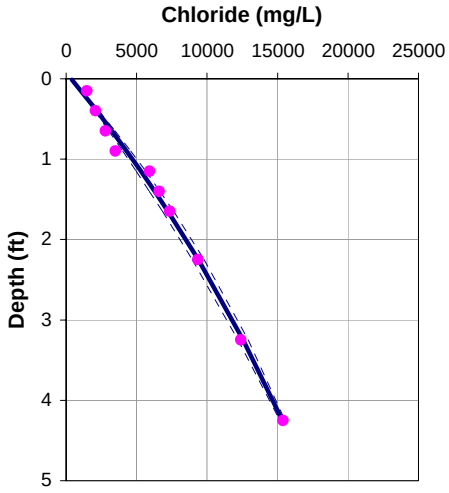
	20113	20113.DAT
Vibracore (cm/year)	-2.4	-2.4
Geoprobe (cm/year)	-1.0	-7.3
Difference (cm/year)	1.4	-4.9

OL-VC-20118



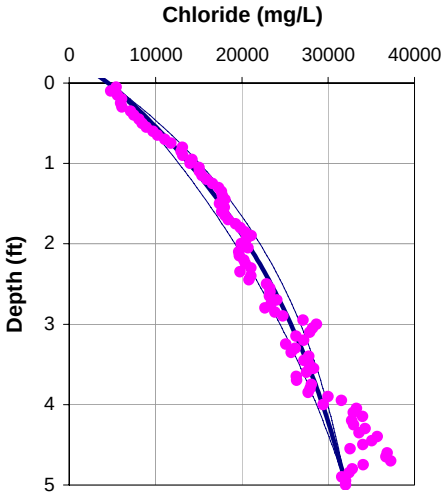
Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = -0.7 cm/year

OL-VC-20118



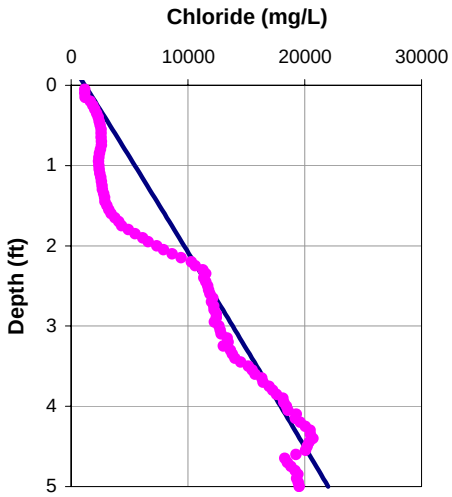
Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = -0.7 cm/year

OL-GP-20118



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = -1.6 cm/year

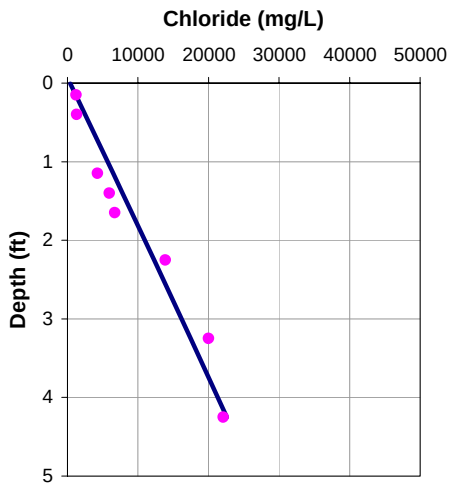
OL-GP-20118.DAT



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = 0.0 cm/year

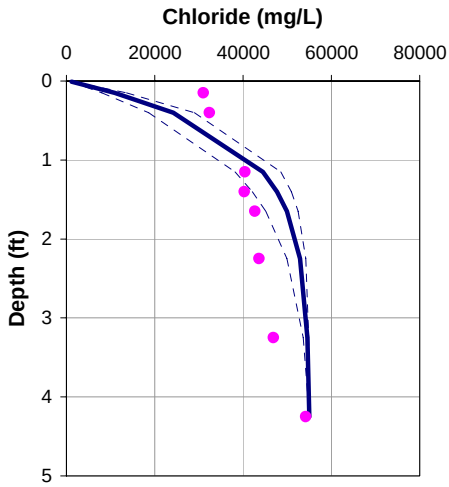
	20118	20118.DAT
Vibracore (cm/year)	-0.7	-0.7
Geoprobe (cm/year)	-1.6	0.0
Difference (cm/year)	-0.9	0.7

OL-VC-20119



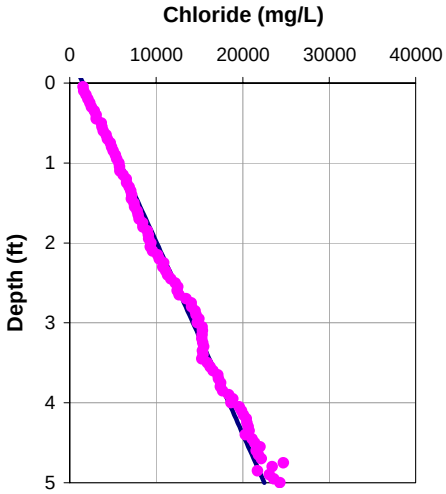
Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = 0.0 cm/year

OL-VC-20133



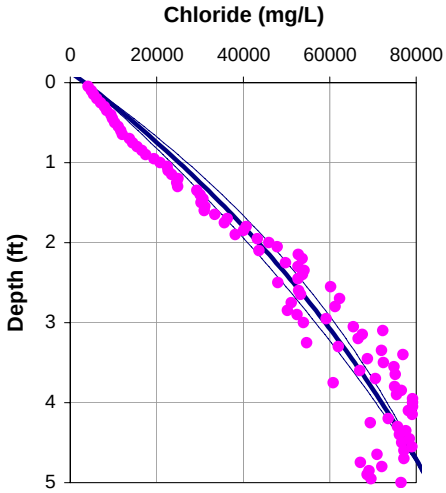
Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = -8.5 cm/year

OL-GP-20119



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = 0.0 cm/year

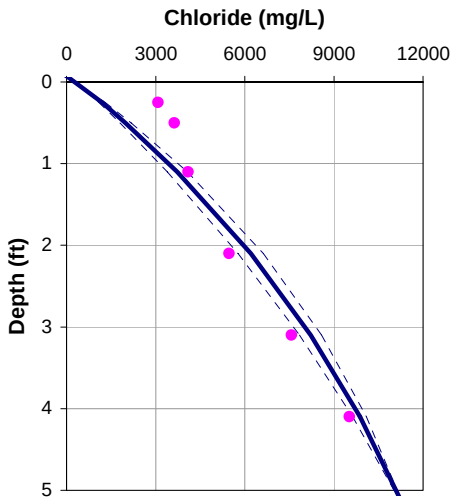
OL-GP-20133



Porosity = 0.65
Dispersion length = 0.1 feet
Upwelling Velocity = -0.9 cm/year

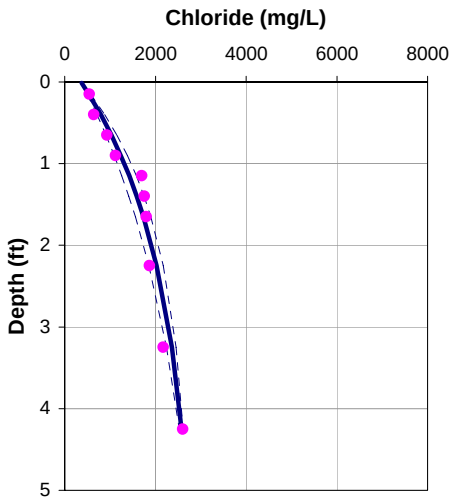
	20119	20133
Vibracore (cm/year)	0.0	-8.5
Geoprobe (cm/year)	0.0	-0.9
Difference (cm/year)	0.0	7.6

OL-VC-40149



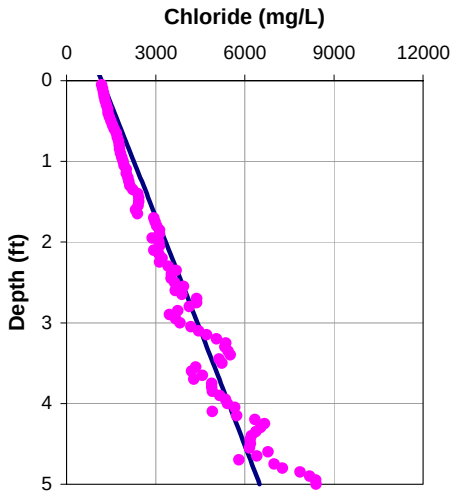
Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -1.5 cm/year

OL-VC-40151



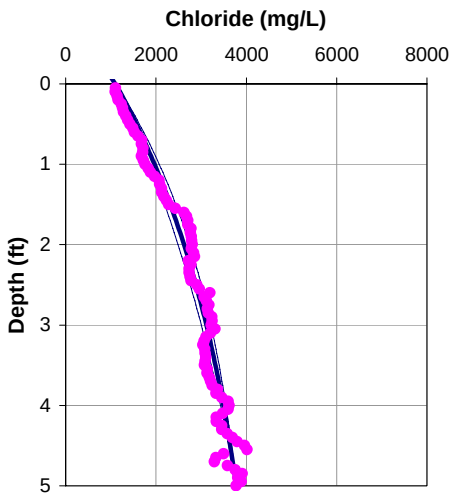
Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -3.4 cm/year

OL-GP-40149



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = 0.0 cm/year

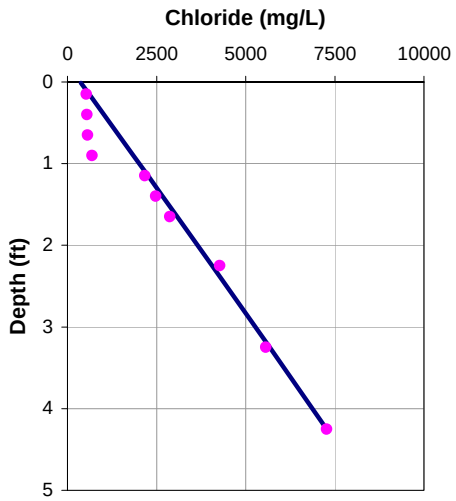
OL-GP-40151



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -2.0 cm/year

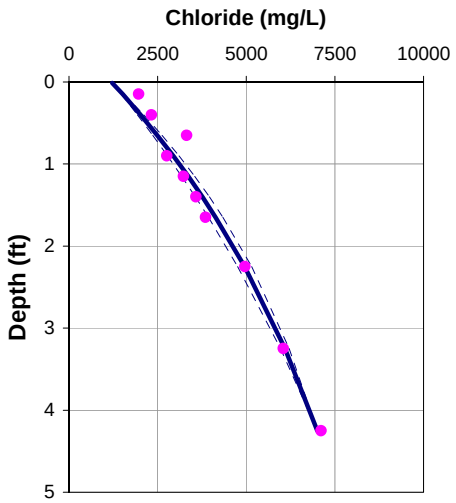
	40149	40151
Vibracore (cm/year)	-1.5	-3.4
Geoprobe (cm/year)	0.0	-2.0
Difference (cm/year)	1.5	1.4

OL-VC-40154



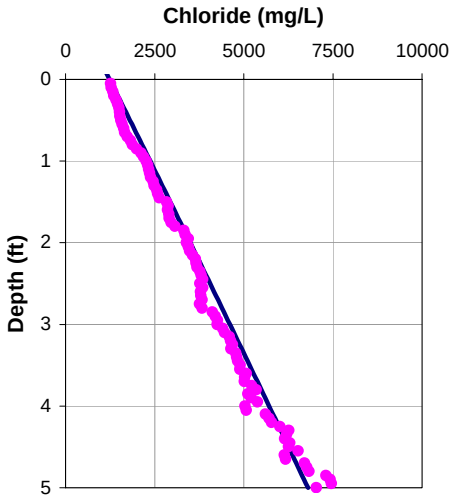
Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = 0.0 cm/year

OL-VC-40157



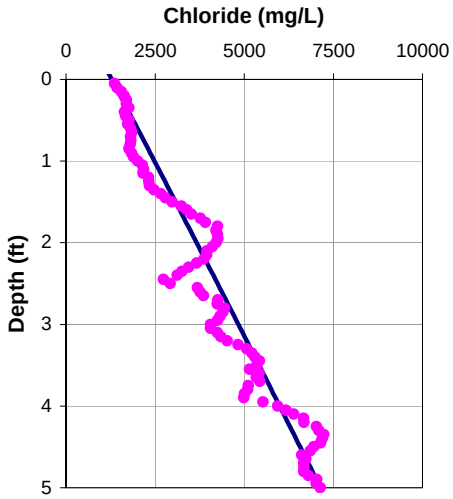
Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -1.7 cm/year

OL-GP-40154



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = 0.0 cm/year

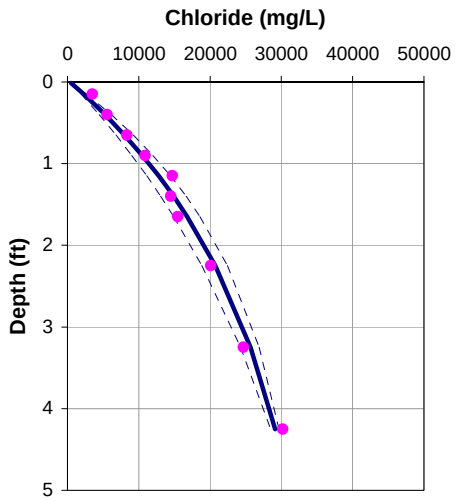
OL-GP-40157



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = 0.0 cm/year

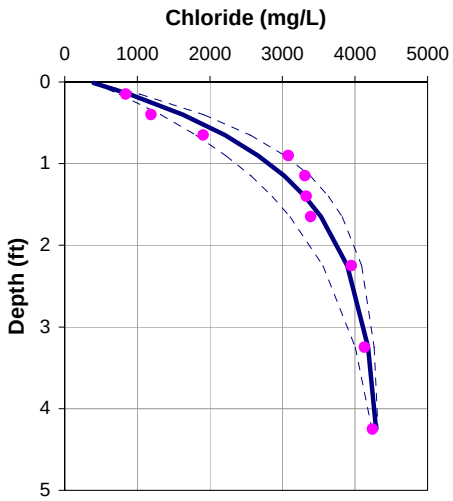
	40154	40157
Vibracore (cm/year)	0.0	-1.7
Geoprobe (cm/year)	0.0	0.0
Difference (cm/year)	0.0	1.7

OL-VC-40165



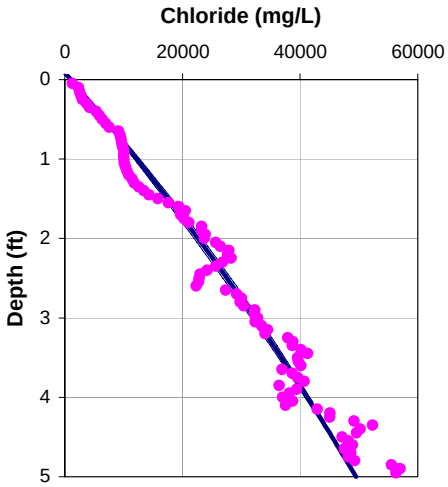
Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -2.6 cm/year

OL-VC-40168



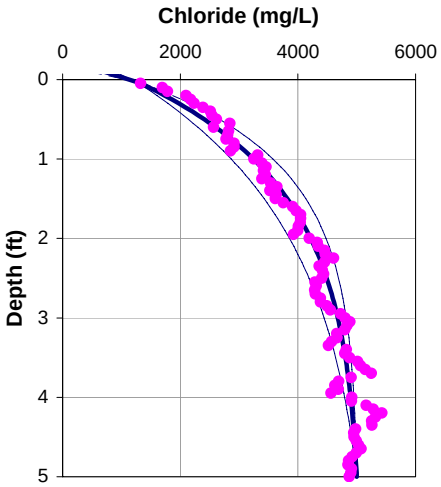
Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -7.5 cm/year

OL-GP-40165.DAT



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -0.5 cm/year

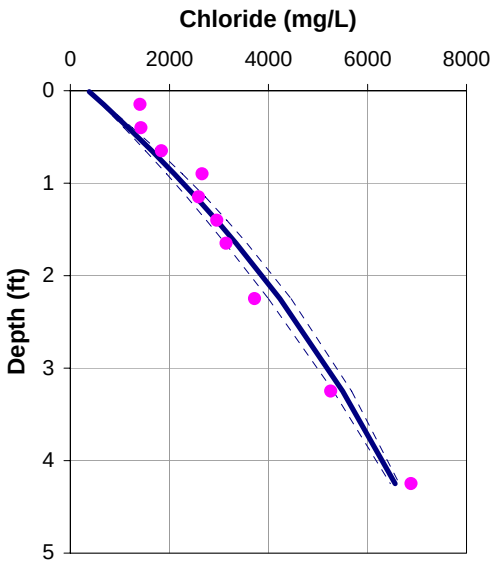
OL-GP-40168.DAT



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -5.7 cm/year

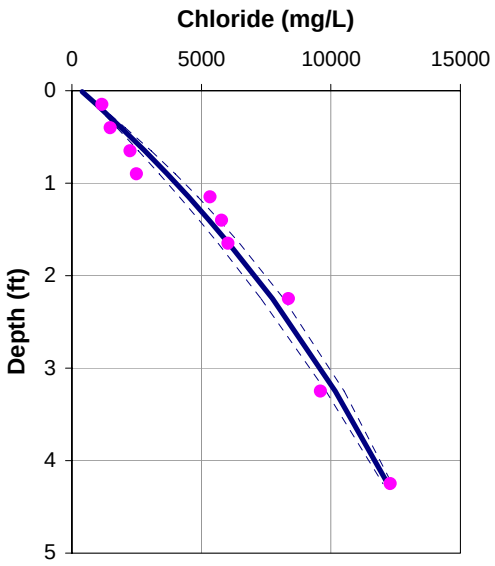
	40165.DAT	40168.DAT
Vibracore (cm/year)	-2.6	-7.5
Geoprobe (cm/year)	-0.5	-5.7
Difference (cm/year)	2.1	1.8

OL-VC-40172



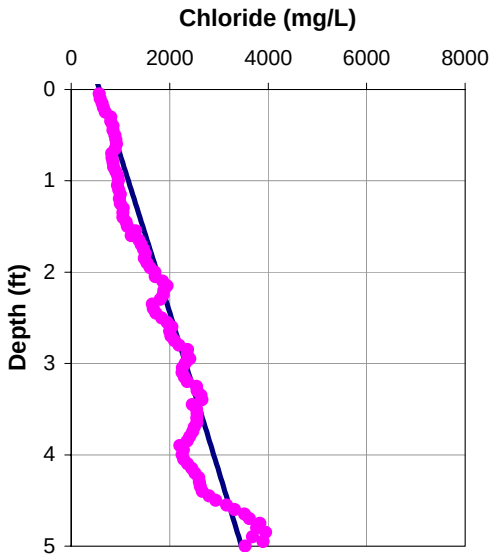
Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -1.3 cm/year

OL-VC-40179



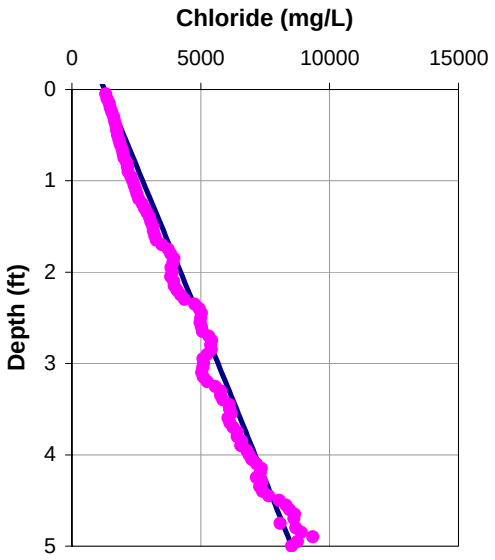
Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -1.3 cm/year

OL-GP-40172.DAT



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = 0.0 cm/year

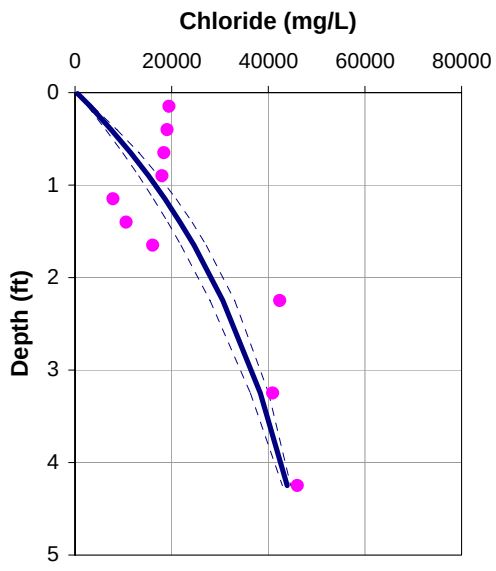
OL-GP-40179.DAT



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = 0.0 cm/year

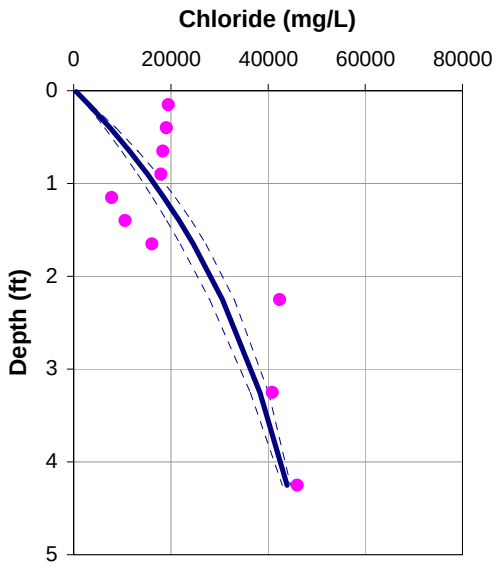
	40172	40179.DAT
Vibracore (cm/year)	-1.3	-1.3
Geoprobe (cm/year)	0.0	0.0
Difference (cm/year)	1.3	1.3

OL-VC-40184



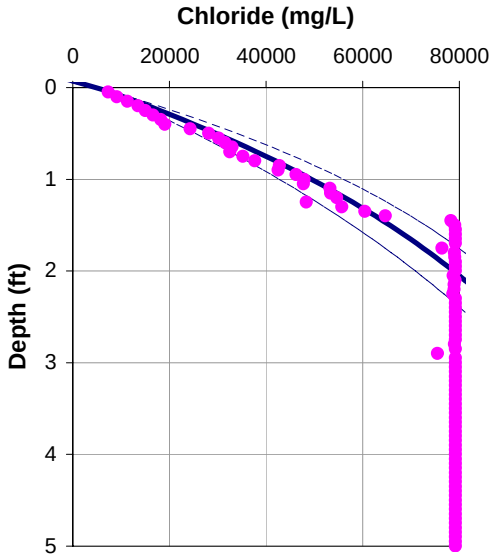
Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -2.4 cm/year

OL-VC-40184



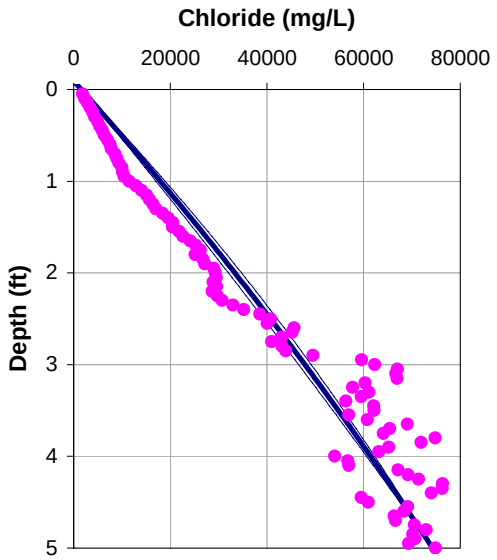
Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -2.4 cm/year

OL-GP-40184



Porosity = 0.75
Dispersion length = 0.0 feet
Upwelling Velocity = -3.0 cm/year

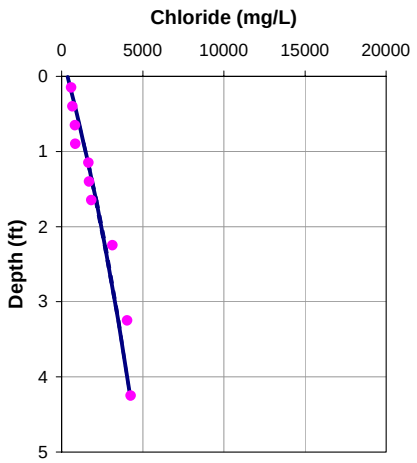
OL-GP-40184.DAT



Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -0.4 cm/year

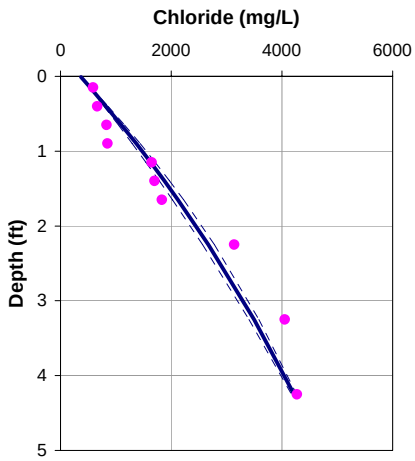
	40184	40184.DAT
Vibracore (cm/year)	-2.4	-2.4
Geoprobe (cm/year)	-3.0	-0.4
Difference (cm/year)	-0.6	2.0

OL-VC-60125



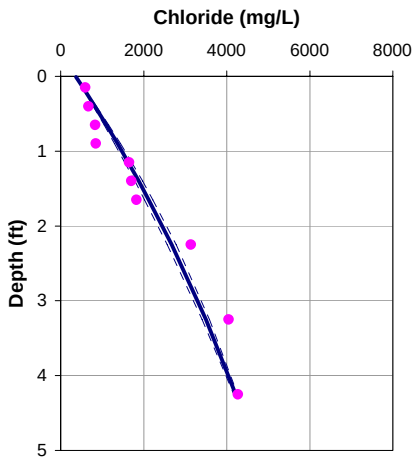
Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -0.8 cm/year

OL-VC-60125



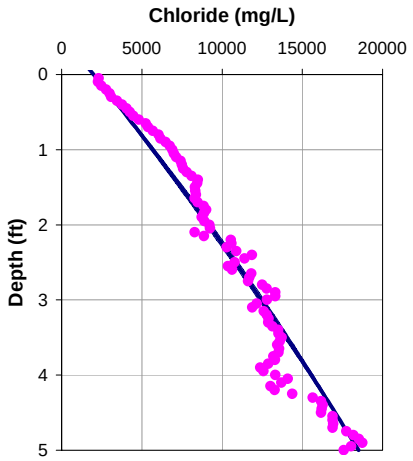
Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -0.8 cm/year

OL-VC-60125



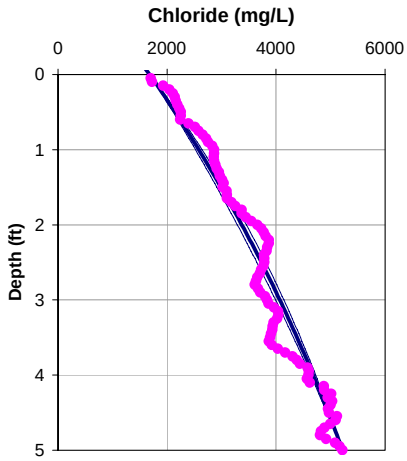
Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -0.8 cm/year

OL-GP-60125



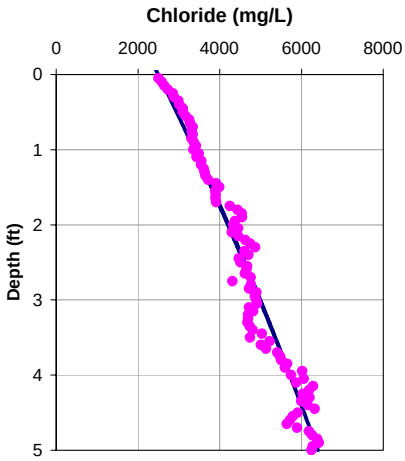
Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -0.3 cm/year

OL-GP-60125.DAT



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -0.8 cm/year

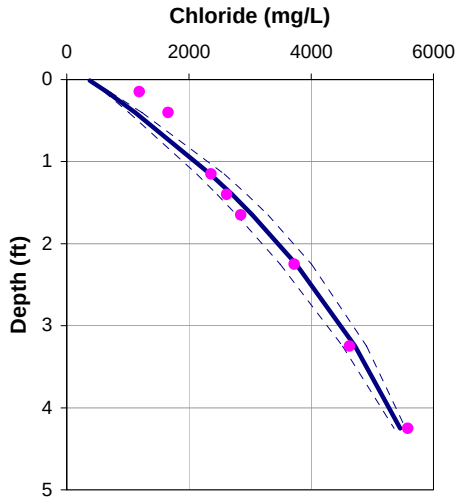
OL-GP-60125-A



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -0.4 cm/year

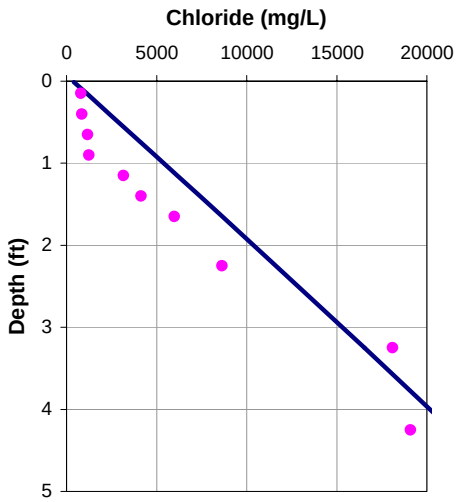
	60125	60125.DAT	60125-A
Vibracore (cm/year)	-0.8	-0.8	-0.8
Geoprobe (cm/year)	-0.3	-0.8	-0.4
Difference (cm/year)	0.5	0.0	0.4

OL-VC-60127



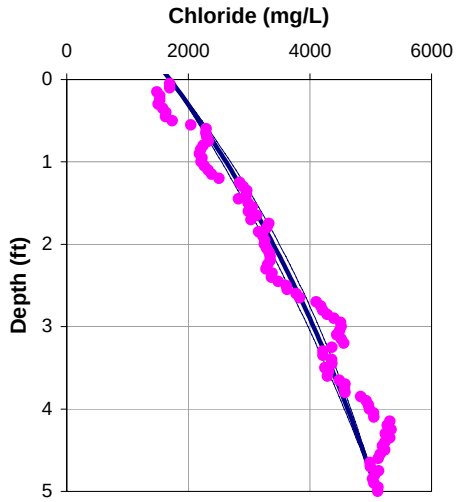
Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -1.7 cm/year

OL-VC-60129



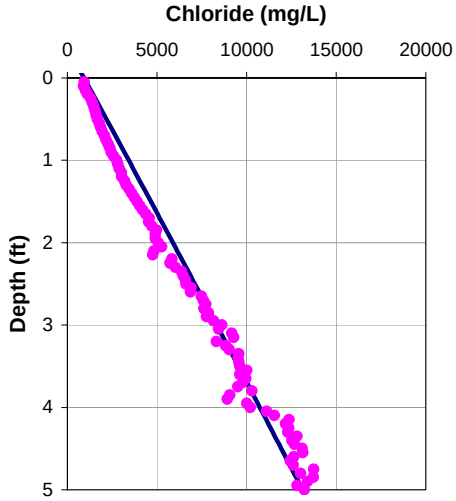
Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = 0.0 cm/year

OL-GP-60127



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -1.0 cm/year

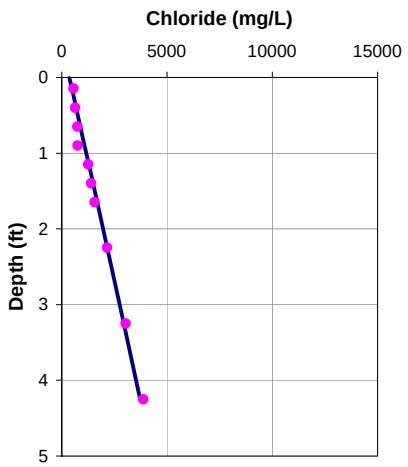
OL-GP-60129



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = 0.0 cm/year

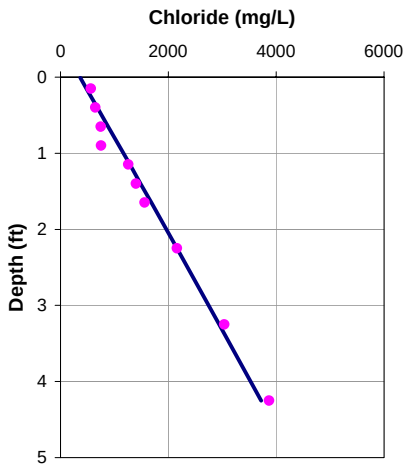
	60127	60129
Vibracore (cm/year)	-1.7	0.0
Geoprobe (cm/year)	-1.0	0.0
Difference (cm/year)	0.7	0.0

OL-VC-60150



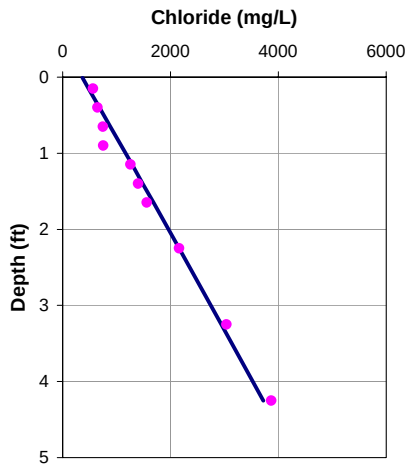
Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = 0.0 cm/year

OL-VC-60150



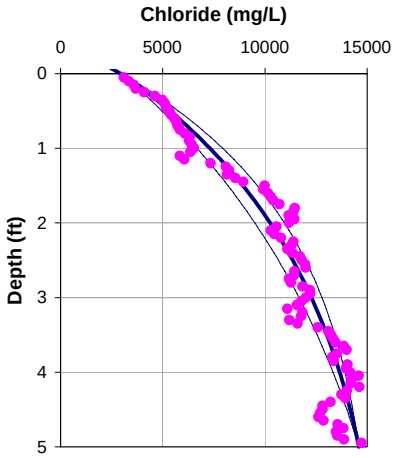
Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = 0.0 cm/year

OL-VC-60150



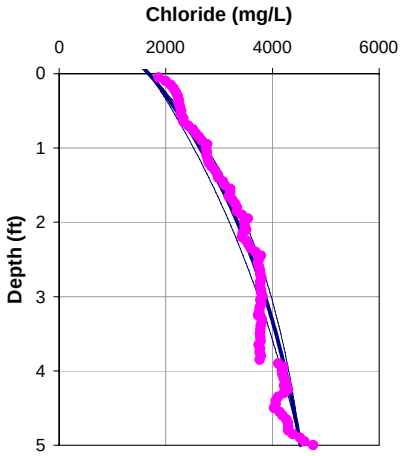
Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = 0.0 cm/year

OL-GP-60150



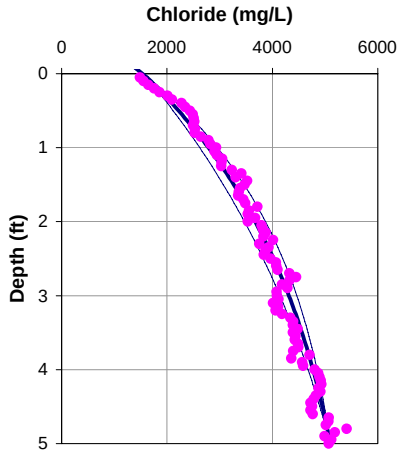
Porosity = 0.7
Dispersion length = 0.1 feet
Upwelling Velocity = -2.4 cm/year

OL-GP-60150.DAT



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -1.9 cm/year

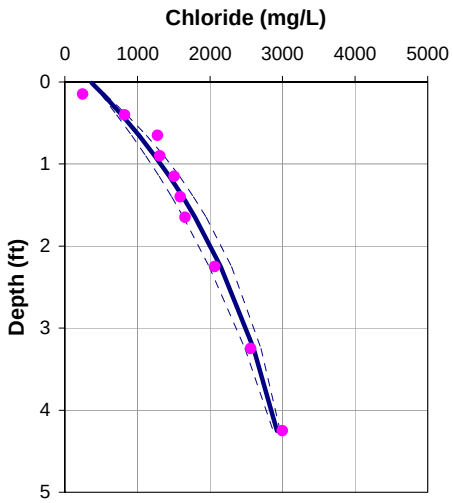
OL-GP-60150-A



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -2.1 cm/year

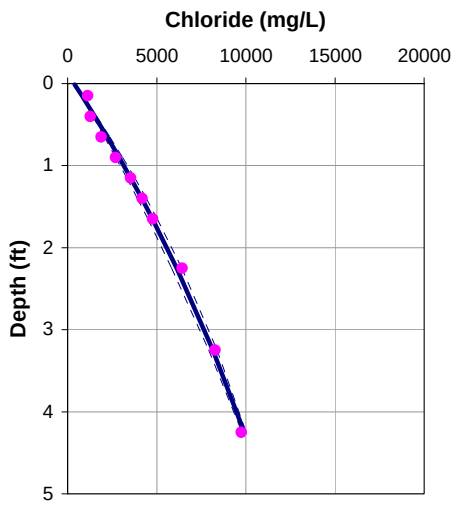
	60150	60150.DAT	60150-A
Vibracore (cm/year)	0.0	0.0	0.0
Geoprobe (cm/year)	-2.4	-1.9	-2.1
Difference (cm/year)	-2.4	-1.9	-2.1

OL-VC-60152



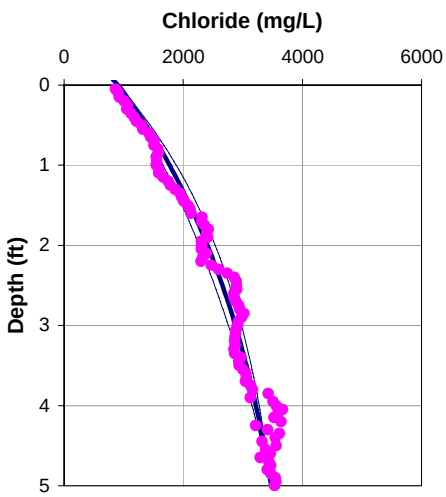
Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -2.1 cm/year

OL-VC-60154



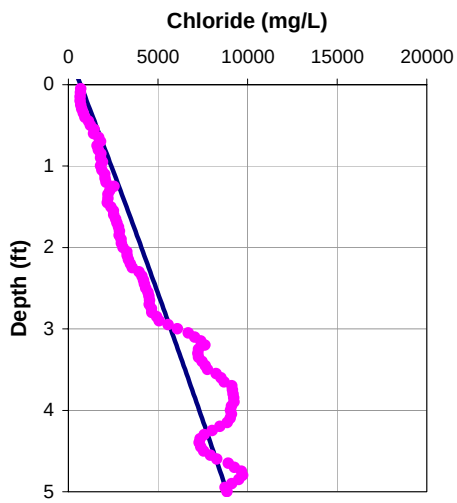
Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -0.9 cm/year

OL-GP-60152



Porosity = 0.7
Dispersion length = 0.1 feet
Upwelling Velocity = -1.9 cm/year

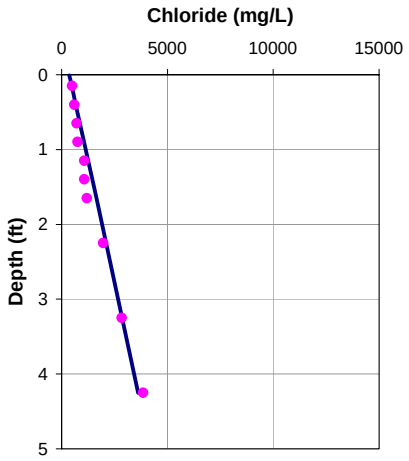
OL-GP-60154



Porosity = 0.7
Dispersion length = 0.1 feet
Upwelling Velocity = -0.2 cm/year

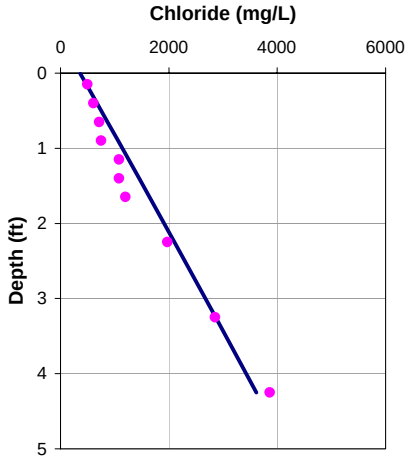
	60152	60154
Vibracore (cm/year)	-2.1	-0.9
Geoprobe (cm/year)	-1.9	-0.2
Difference (cm/year)	0.2	0.7

OL-VC-60162



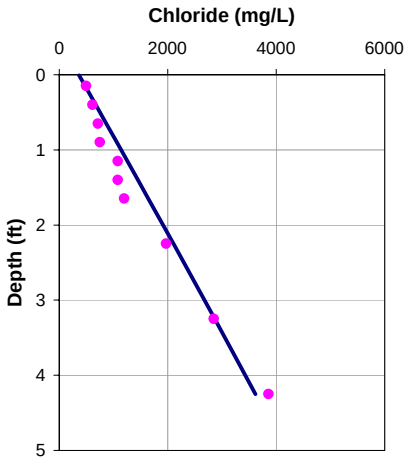
Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = 0.0 cm/year

OL-VC-60162



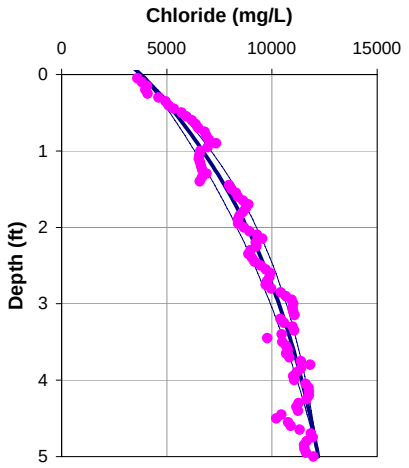
Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = 0.0 cm/year

OL-VC-60162



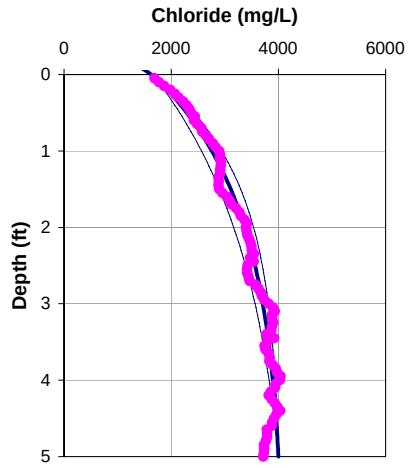
Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = 0.0 cm/year

OL-GP-60162



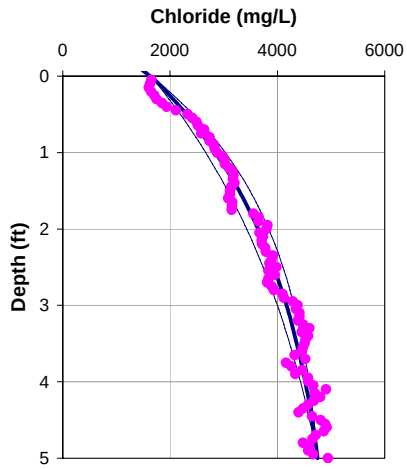
Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -2.1 cm/year

OL-GP-60162.DAT



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -3.8 cm/year

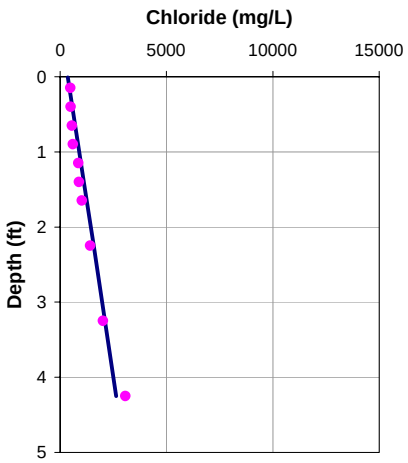
OL-GP-60162-A



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -2.6 cm/year

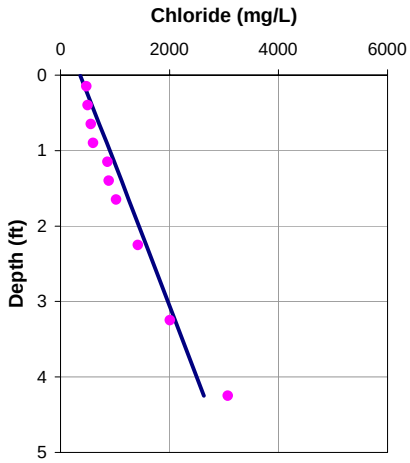
	60162	60162.DAT	60162-A
Vibracore (cm/year)	0.0	0.0	0.0
Geoprobe (cm/year)	-2.1	-3.8	-2.6
Difference (cm/year)	-2.1	-3.8	-2.6

OL-VC-60168



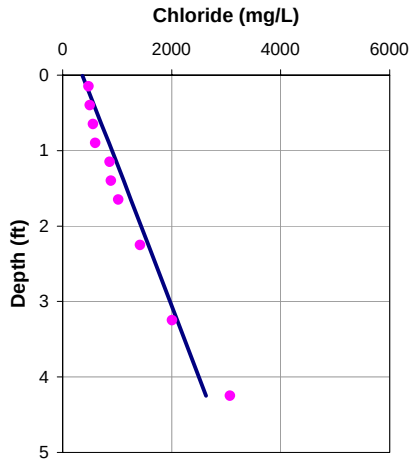
Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = 0.0 cm/year

OL-VC-60168



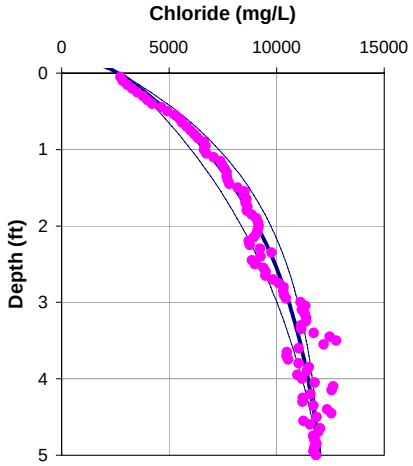
Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = 0.0 cm/year

OL-VC-60168



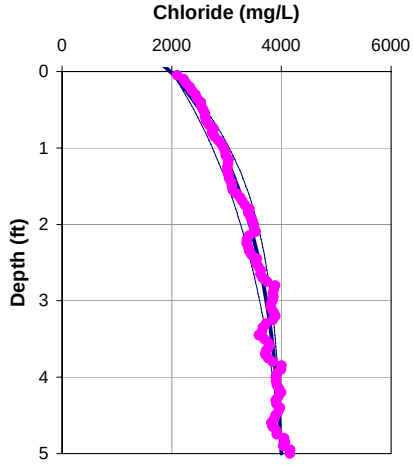
Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = 0.0 cm/year

OL-GP-60168



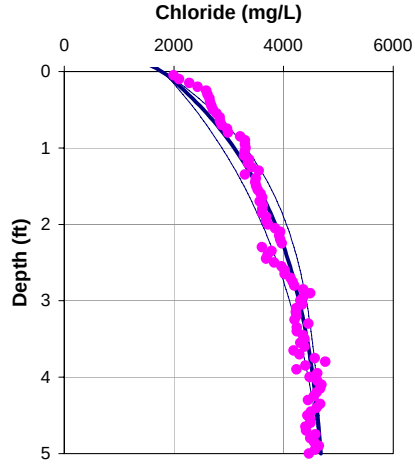
Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -3.2 cm/year

OL-GP-60168.DAT



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -3.5 cm/year

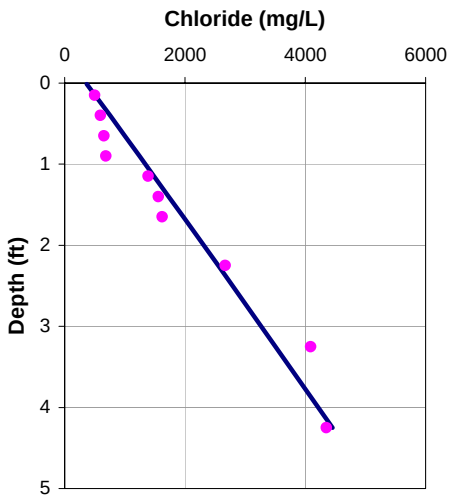
OL-GP-60168-A



Porosity = 0.70
Dispersion length = 0.1
Upwelling Velocity = -3.5

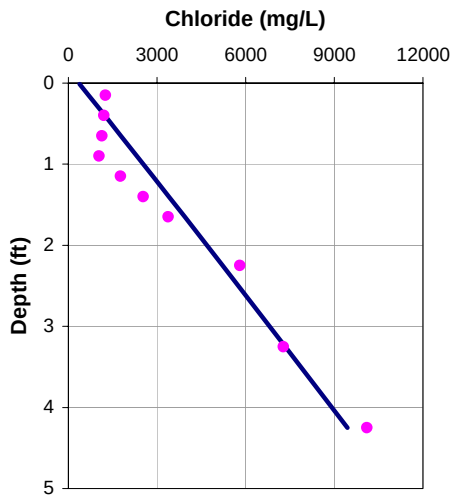
	60168	60168.DAT	60168-A
Vibracore (cm/year)	0.0	0.0	0.0
Geoprobe (cm/year)	-3.2	-3.5	-3.5
Difference (cm/year)	-3.2	-3.5	-3.5

OL-VC-60171



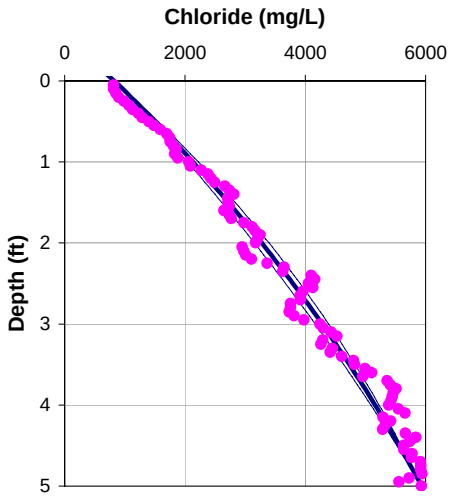
Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = 0.0 cm/year

OL-VC-60179



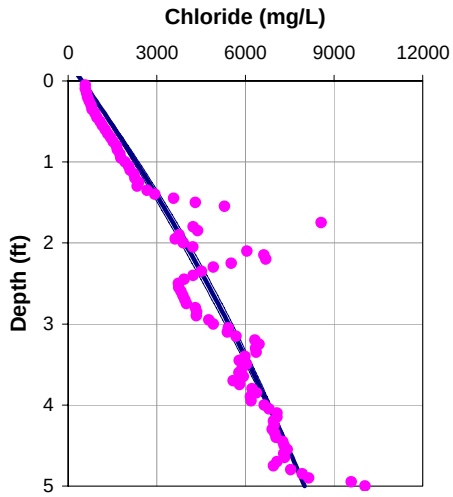
Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = 0.0 cm/year

OL-GP-60171



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -0.8 cm/year

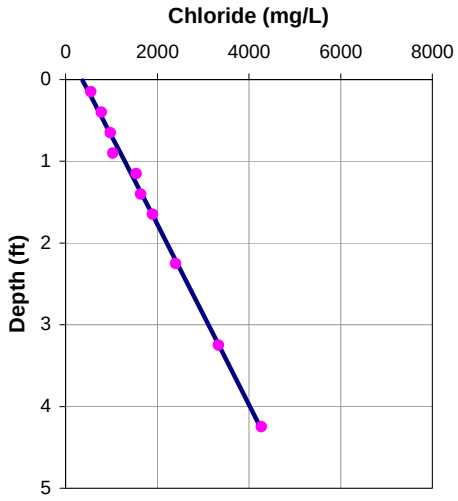
OL-GP-60179



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -0.6 cm/year

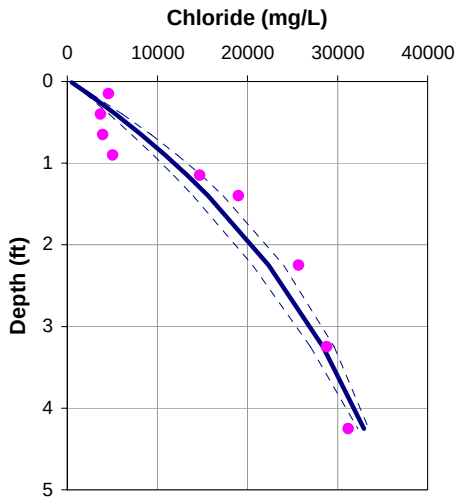
	60171	60179
Vibracore (cm/year)	0.0	0.0
Geoprobe (cm/year)	-0.8	-0.6
Difference (cm/year)	-0.8	-0.6

OL-VC-60181



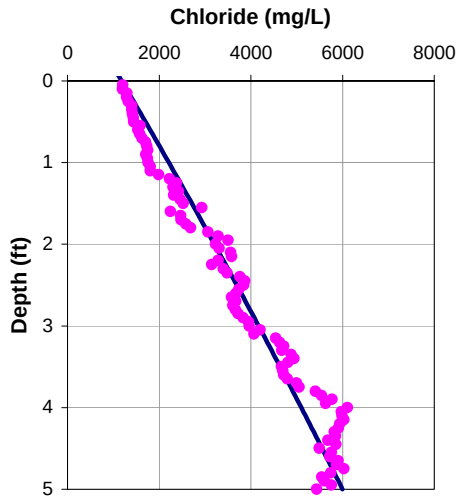
Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = 0.0 cm/year

OL-VC-60191



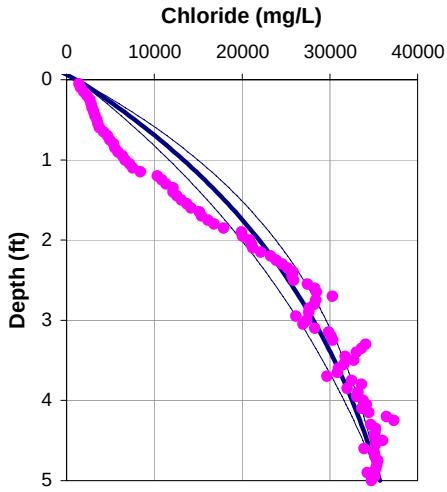
Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -1.8 cm/year

OL-GP-60181



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -0.2 cm/year

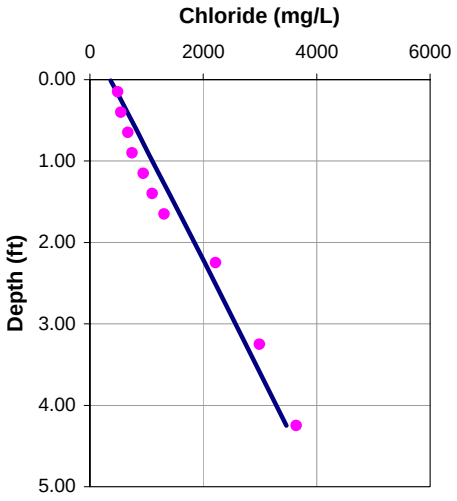
OL-GP-60191



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -2.1 cm/year

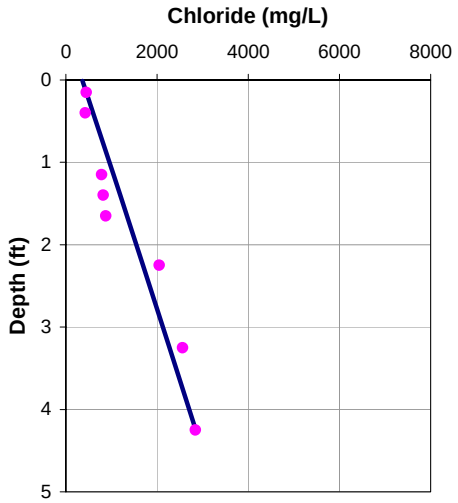
	60181	60191
Vibracore (cm/year)	0.0	-1.8
Geoprobe (cm/year)	-0.2	-2.1
Difference (cm/year)	-0.2	-0.3

OL-VC-70089



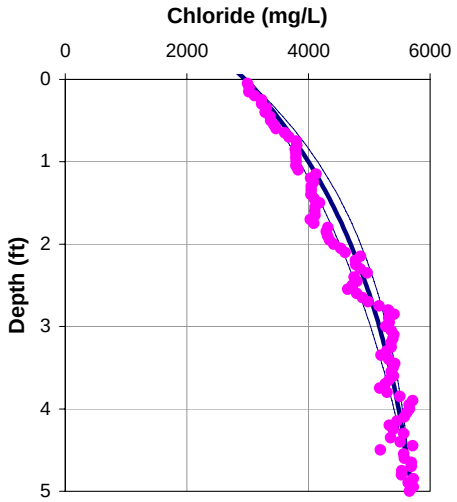
Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = 0.0 cm/year

OL-VC-70093



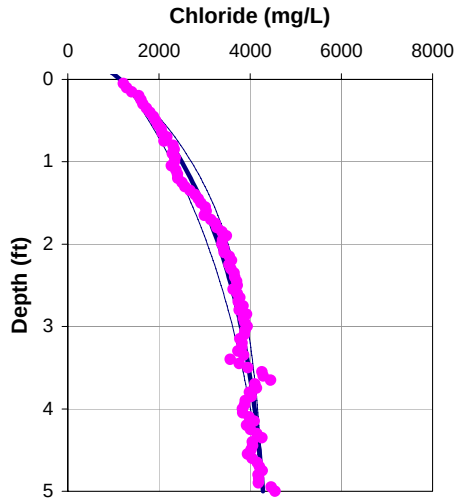
Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = 0.0 cm/year

OL-GP-70089-A



Porosity = 0.7
Dispersion length = 0.1 feet
Upwelling Velocity = -2.5 cm/year

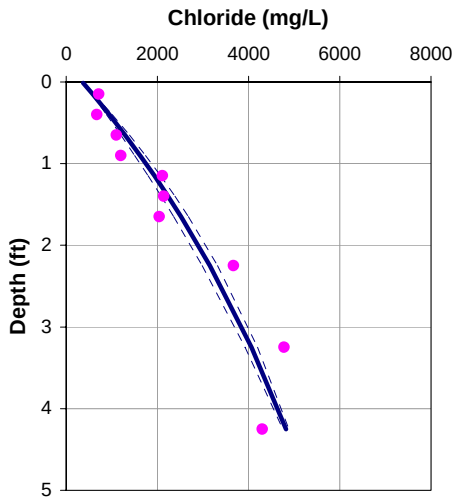
OL-GP-70093



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -3.2 cm/year

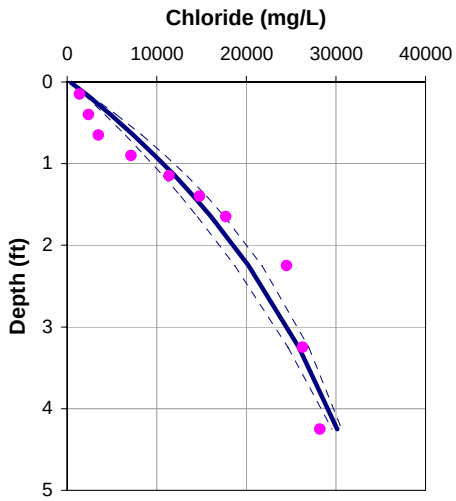
	70089-A	70093
Vibracore (cm/year)	0.0	0.0
Geoprobe (cm/year)	-2.5	-3.2
Difference (cm/year)	-2.5	-3.2

OL-VC-70100



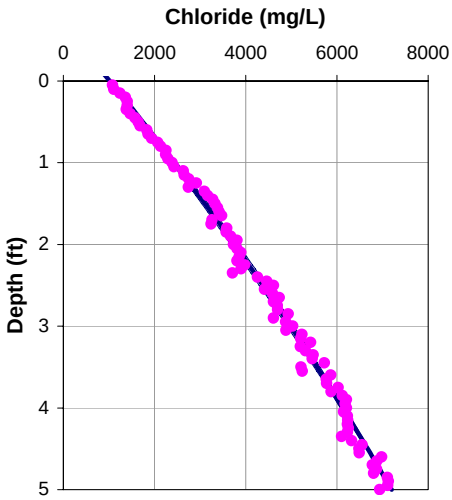
Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -1.2 cm/year

OL-VC-70102



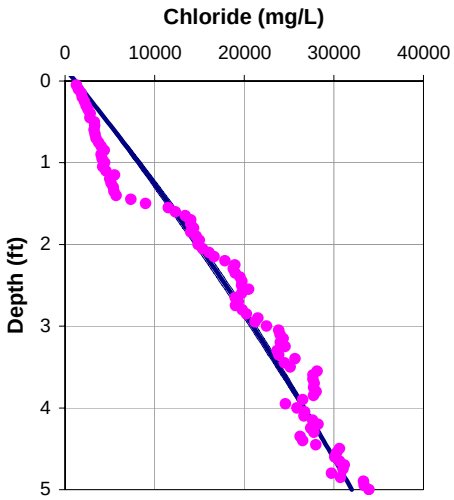
Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -1.7 cm/year

OL-GP-70100



Porosity = 0.7
Dispersion length = 0.1 feet
Upwelling Velocity = -0.4 cm/year

OL-GP-70102



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -0.4 cm/year

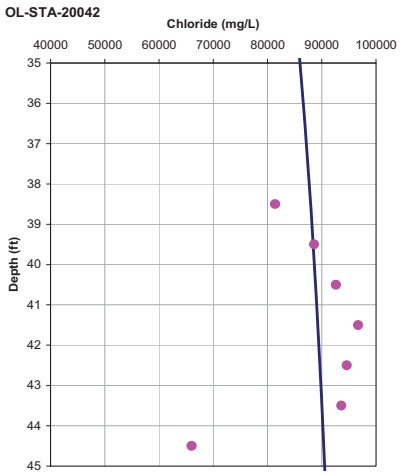
	70100	70102
Vibracore (cm/year)	-1.2	-1.7
Geoprobe (cm/year)	-0.4	-0.4
Difference (cm/year)	0.7	1.3

Attachment X

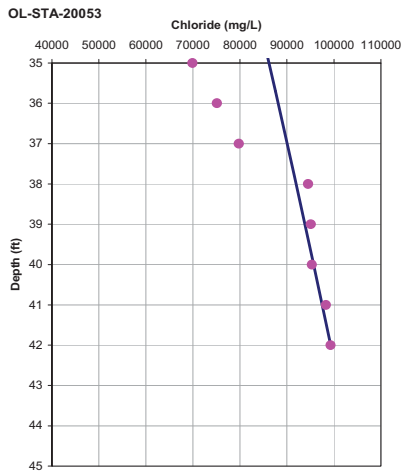
Evaluation of Velocity in Silt and Clay Unit

Attachment X
Evaluation of Velocity in Silt and Clay Unit

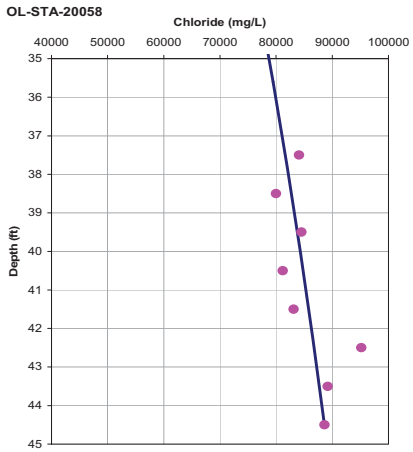
Three borings were advanced approximately 10 feet into the silt and clay unit in 2007 SMU-2. These borings are identified as OL-STA-20042, OL-STA-20053, and OL-STA-20058 and their locations are shown in Figure X-1. Pore water samples were collected at approximately one foot intervals after the boring had been advanced approximately three feet into the silt and clay unit. A total of eight pore water samples were collected at each location. The pore water was analyzed for common cations and anions. Plots of chloride concentrations with depth are shown below for the three locations. The velocity has been estimated using the technique described in Section 3. In these evaluations a lake water concentration of 359 mg/L was assumed.



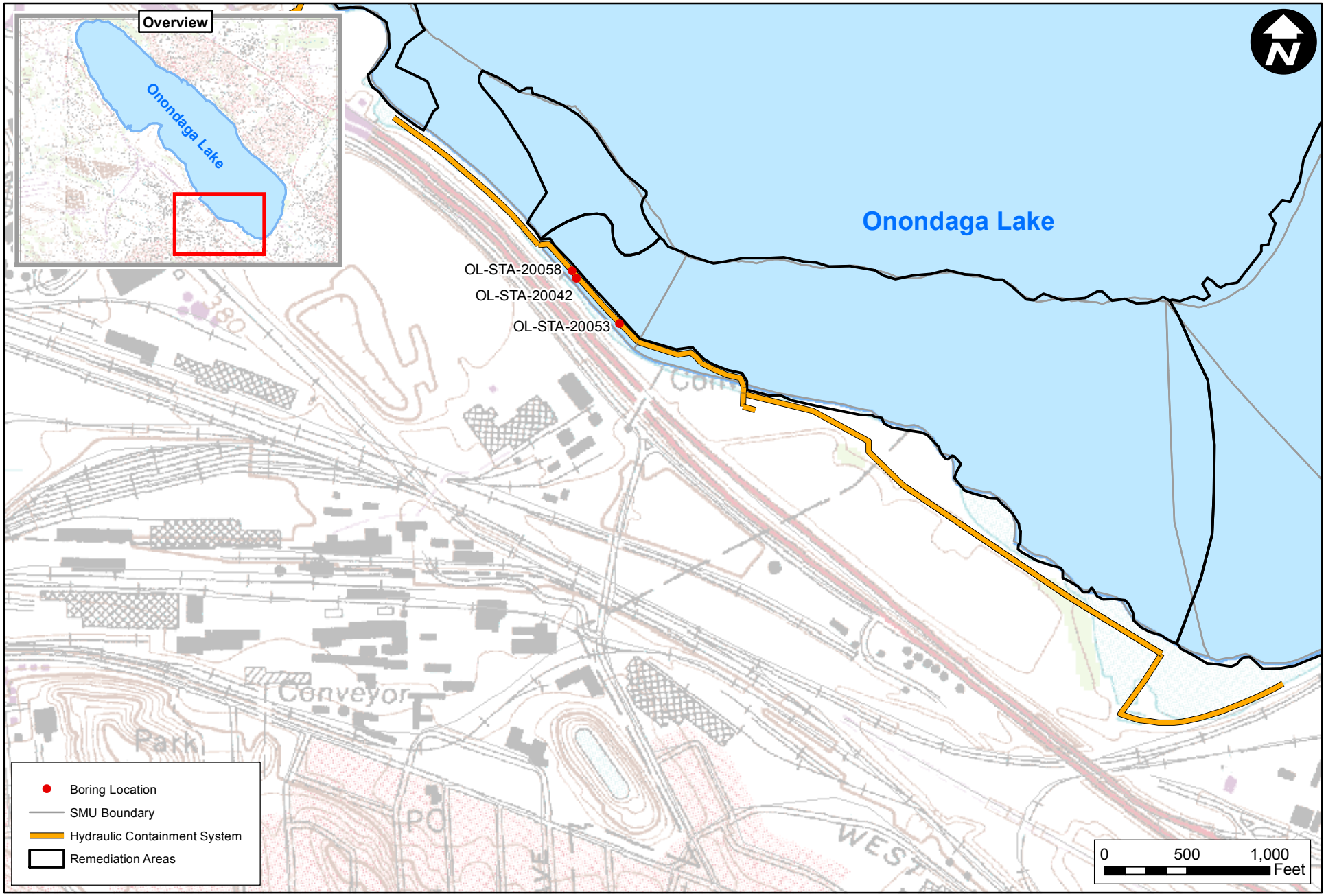
porosity = 0.65
dispersion length = 0.5 feet
Upwelling Velocity = -0.4 cm/year



porosity = 0.65
dispersion length = 0.5 feet
Upwelling Velocity = -0.1 cm/year



porosity = 0.65
dispersion length = 0.5 feet
Upwelling Velocity = -0.2 cm/year



P:\815\GIS\11-09 Report Figures\Boring Location Map.mxd
Map Date 11/10/2009 8:22:04 AM By: jstephens

Figure X-I Boring Location Map

Attachment XI

Sensitivity Evaluations

Attachment XI
Sensitivity Evaluations

The sensitivity of calculated velocities from Geoprobe Conductivity data to chloride-conductivity factor, porosity, and dispersion length was evaluated for data from location GP-40168. In addition, the sensitivity of calculated velocities to porosity and dispersion length were evaluated for chloride data from VC-40091, VC-40092, VC-70058. The evaluations indicate that calculated upwelling velocities are sensitive to the dispersion length.

Because the calculated upwelling velocities are sensitive to dispersion length, it is important to critically evaluate what is an appropriate dispersion length to use in the analyses of upwelling velocities. The range of dispersion lengths that were evaluated in the sensitivity analyses were based on language contained in an email from Don Hesler, NYSDEC, to Tim Johnson at Parsons dated December 10, 2007. This email stated:

Schulze-Makuch (2005) compiled data on dispersion length from 109 authors for different types of media including consolidated media and unconsolidated sediment. Schulze-Makuch discusses that the data included in the compilation differ in the degree of reliability,but it is Earth Tech's opinion that for purposes of choosing a range of values to use in a simple sensitivity analysis, these should be considered adequate. Based on review of the dispersion lengths reported for unconsolidated sediment from scales on the order of 10 ft (ranging from 3 to 16 ft), a range in dispersion lengths from about 0.01 ft to about 0.8 ft should be selected for use in the sensitivity analysis."

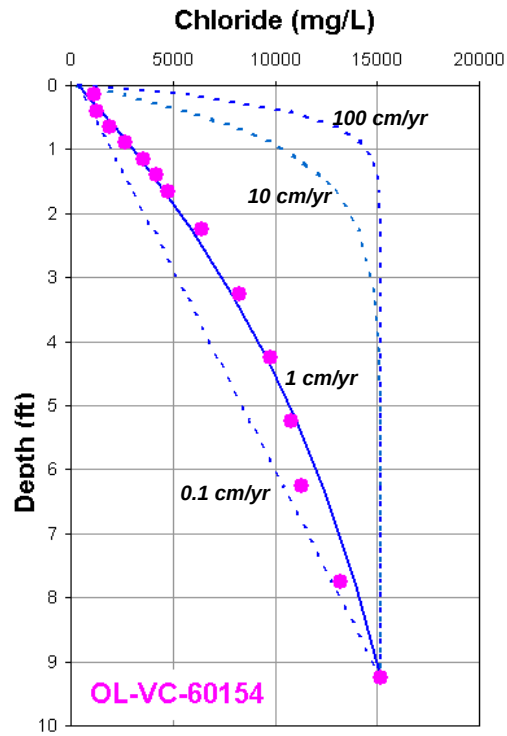
For the selection of an appropriate dispersion length for shallow sediments in Onondaga Lake it is important to understand the physical meaning of a dispersion length. The dispersion length is a measure of the variability in the velocity distribution in sediments; a small dispersion length implies that the velocity variations are small and a large dispersion length indicates that there are significant velocity variations. The variations in velocity are a function of heterogeneities in the hydraulic conductivity distribution; a homogeneous media has a very small dispersion length whereas a very heterogeneous media has a larger dispersion length. Therefore, it is important to understand sediment heterogeneity to select an appropriate dispersion length.

Before assessing sediment heterogeneities, it is necessary to understand the depth interval of interest for estimating the dispersion length. The depth interval of interest is defined as that interval over which dispersive transport of chloride is significant. This interval can be determined by examining the dispersive flux equation

$$flux = -D\frac{\partial C}{\partial z} \qquad (1)$$

where: D = sum of dispersion and diffusion coefficients, C = chloride concentration, and z = vertical distance.

From this equation it is obvious that the magnitude of the dispersive flux is dependent on the change in chloride concentration with depth, and that the dispersive flux is zero if the chloride concentration is constant with depth.



The expected change in chloride concentration is illustrated on the plot to the right for velocities of 0.1 cm/year, 10 cm/year and 100 cm/year, respectively. The expected change in chloride concentrations is a function of the upwelling velocity; at an upwelling velocity of 1 cm/year the rate of change in chloride concentration with depth is relatively constant over the depth interval 0 to 9 feet, at an upwelling velocity of 10 cm/year, the chloride concentration is changing significantly with depth only in the upper three feet, and at an upwelling velocity of 100 cm/year the chloride concentration is only changing significantly with depth in the upper foot. Therefore, it can be concluded that the appropriate depth intervals for evaluating the dispersion length for velocities of 10 cm/year and 100 cm/year are approximately 3 feet and 1 foot, respectively as at deeper depths there is no significant dispersive transport as the term $\frac{\partial C}{\partial z}$ in equation 1 is approximately zero.

The dispersion coefficient is defined as

$$D = \omega D^* + \alpha_L v \qquad (2)$$

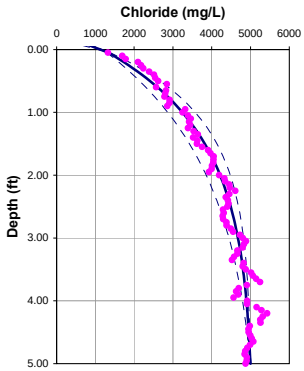
where: D^* is the diffusion coefficient, ω is coefficient related to tortuosity, v is the upwelling velocity and α_L is dispersion length. When the upwelling velocity is small, the term $\alpha_L v$ approaches zero and the dispersion coefficient is mainly a function of the diffusion coefficient. Therefore, the depth interval of interest for estimating the dispersion length for purposes of analyzing upwelling velocities is only the upper few feet of sediments (deeper depths are not of interest either because chloride concentrations are not changing with depth when upwelling velocities are more than a few centimeters per year or because the term $\alpha_L v$ is small relative to the diffusion coefficient when upwelling velocities are low).

A review of the boring logs for the many borings that have been advanced in the lake indicate that typically the lithologic characteristics of the upper few feet of sediment are relatively uniform; typically silt with a little clay and trace fine sand. As a result, the general observation is that heterogeneity with respect to composition of sediments is small.

A few researchers have specially looked at dispersion in lacustrine sediments. A study by Cornett and others (1989), where chloride and tritium depth profiles within the sediments of Perch Lake in Ontario were used to estimate groundwater upwelling velocities in the range of 0 to 5 cm/year, specified that dispersion was approximately equal to diffusion for the fine-grained sediments in this lake. This conclusion was similar to that reached by Lerman (1979). Another study by Roychoudhury (2001) that specifically looked at dispersion in unconsolidated aquatic sediments also concluded that dispersion is approximately equal to diffusion for the range of upelling velocities that we examined in Onondaga Lake. These studies indicated that the appropriate dispersion length for evaluation of fine-grained lake lacustrine sediments is very small.

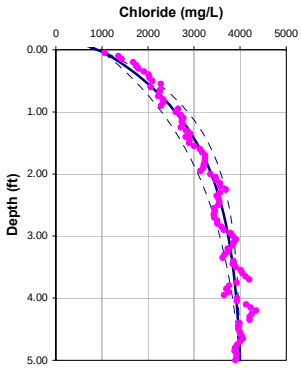
Several researchers have attempted to develop a general relationship between the scale of a problem and the dispersion length (Neuman 1990 and 2006, Xu and Eckstein 1995, and Schulze-Makuch 2005). These studies all relied on compilations of dispersion lengths determined by a large number of researchers, but in most case the dispersion lengths were determined for horizontal groundwater flow rather than vertical groundwater flow. Based on these studies, the estimated dispersion length, when the depth interval of interest is five feet, is in the range of 0.045 feet to 0.496 feet. The estimate based on the work of Neuman (1990), which in our opinion is the most rigorous of the evaluations, is about 0.1 foot. We have used this value in our evaluation of data from the upper five feet and in our opinion this value of the dispersion length likely overestimates the actual dispersion length at most locations because of the relatively uniform composition of shallow sediments. In the Lake RI, a dispersion length of 1 cm was used for a depth interval of interest of 3 meters which is significantly lower than the preferred value used in these analyses.

OL-GP-40168



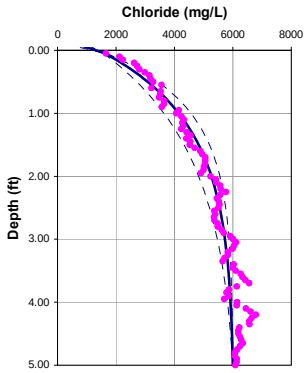
porosity = 0.75
dispersion length = 0.1 feet
Upwelling Velocity = -5.7 cm/year

OL-GP-40168-sen2



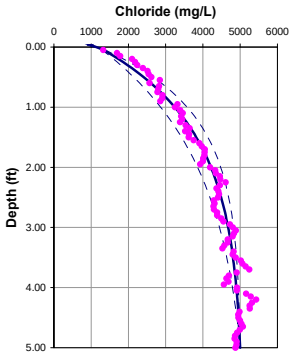
porosity = 0.75
dispersion length = 0.1 feet
Upwelling Velocity = -5.7 cm/year

OL-GP-40168-sen1



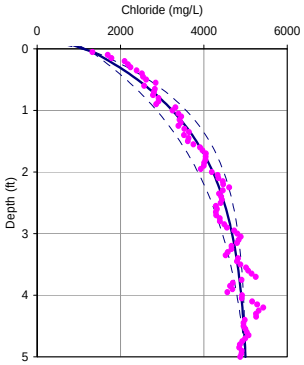
porosity = 0.75
dispersion length = 0.1 feet
Upwelling Velocity = -6.9 cm/year

OL-GP-40168



porosity = 0.52
dispersion length = 0.1 feet
Upwelling Velocity = -2.7 cm/year

OL-GP-40168.DAT

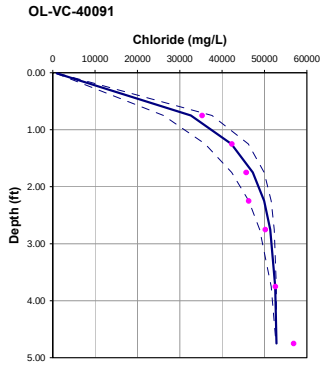


Porosity = 0.75
Dispersion length = 0.8 feet
Upwelling Velocity = -13.0 cm/year

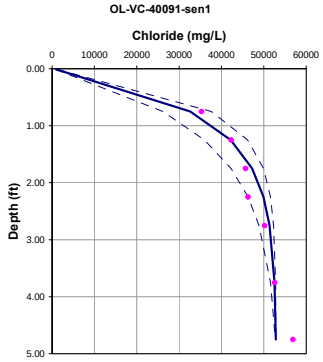
Comparison of Results

Locations	Chloride - Conductivity Factor	Porosity	Dispersion Length (feet)	Calculated Velocity (cm/year)
GP-40168	0.8	0.75	0.1	-5.7
GP-40168-sen2	1.0	0.75	0.1	-5.7
GP-40168-sen1	0.64	0.75	0.1	-6.9
GP-40168	0.8	0.52	0.1	-2.7
GP-40168	0.8	0.75	0.8	-13.0

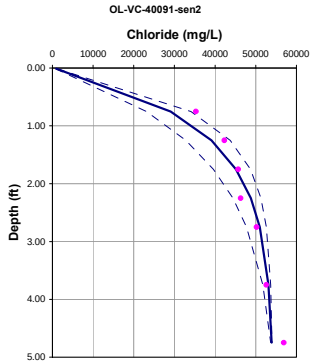
VC-40091



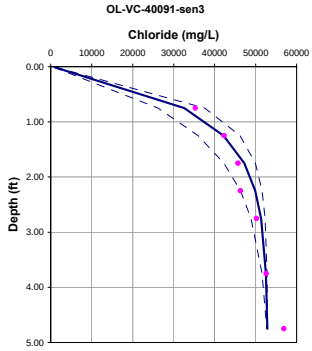
Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -10.3 cm/year



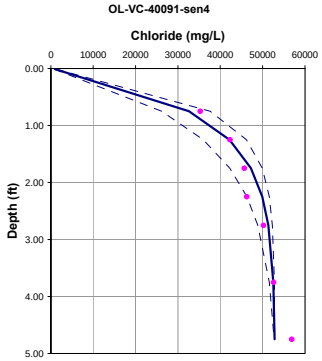
Porosity = 0.75
Dispersion length = 0.5 feet
Upwelling Velocity = -24.4 cm/year



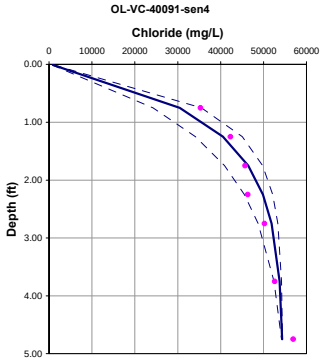
Porosity = 0.75
Dispersion length = 0.8 feet
Upwelling Velocity = -37.5 cm/year



Porosity = 0.52
Dispersion length = 0.1 feet
Upwelling Velocity = -4.8 cm/year



Porosity = 0.52
Dispersion length = 0.5 feet
Upwelling Velocity = -11.5 cm/year

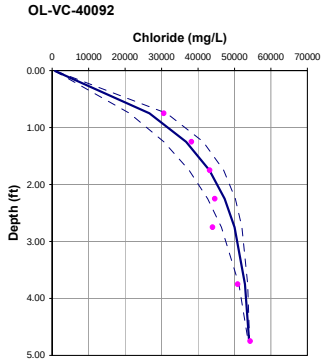


Porosity = 0.52
Dispersion length = 0.8 feet
Upwelling Velocity = <-37.5 cm/year

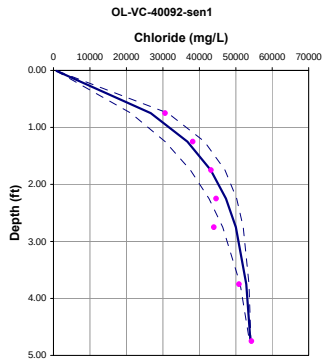
Comparison of Results

Locations	Porosity	Dispersion Length (feet)	Calculated Velocity (cm/year)
VC-40091	0.75	0.1	-10.3
VC-40091-sen1	0.75	0.5	-24.4
VC-40091-sen2	0.75	0.8	<-37.5
VC-40091-sen3	0.52	0.1	-4.8
VC-40091-sen4	0.52	0.5	-11.5
VC-40091-sen5	0.52	0.8	<-37.5

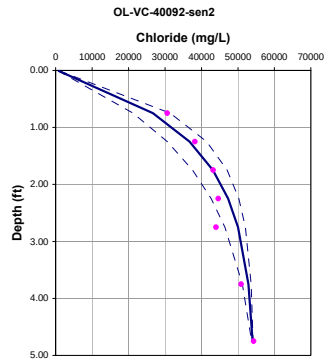
VC-40092



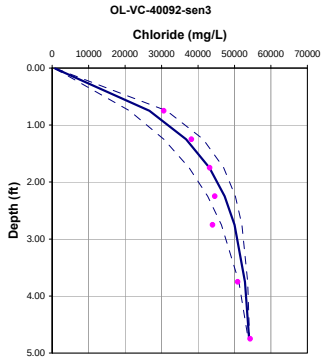
Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -6.8 cm/year



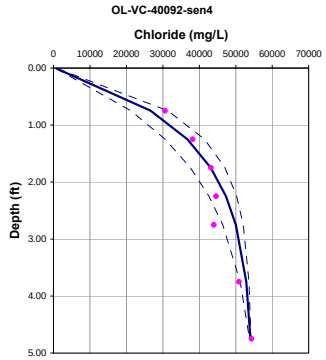
Porosity = 0.75
Dispersion length = 0.5 feet
Upwelling Velocity = -11.0 cm/year



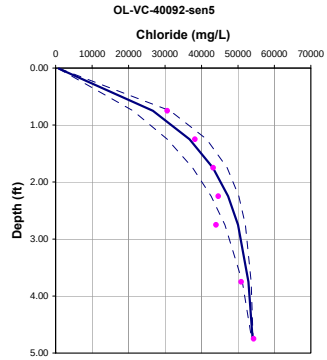
Porosity = 0.75
Dispersion length = 0.8 feet
Upwelling Velocity = -20.8 cm/year



Porosity = 0.52
Dispersion length = 0.1 feet
Upwelling Velocity = -3.2 cm/year



Porosity = 0.52
Dispersion length = 0.5 feet
Upwelling Velocity = -5.2 cm/year

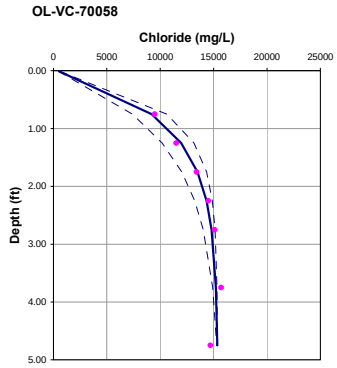


Porosity = 0.52
Dispersion length = 0.8 feet
Upwelling Velocity = -9.9 cm/year

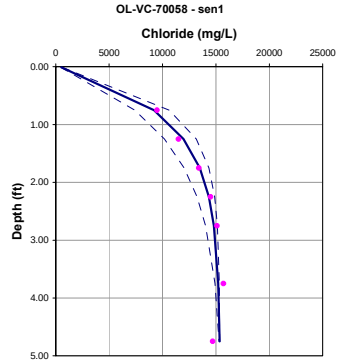
Comparison of Results

Locations	Porosity	Dispersion Length (feet)	Calculated Velocity (cm/year)
VC-40092	0.75	0.1	-6.8
VC-40092-sen1	0.75	0.5	-11.0
VC-40092-sen2	0.75	0.8	-20.8
VC-40092-sen3	0.52	0.1	-3.2
VC-40092-sen4	0.52	0.5	-5.2
VC-40092-sen5	0.52	0.8	-9.9

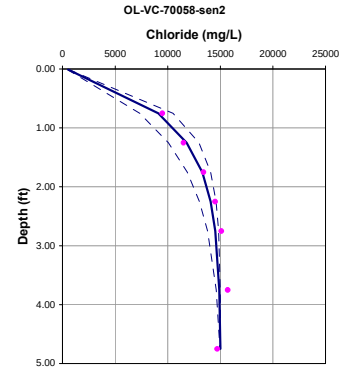
VC-70058



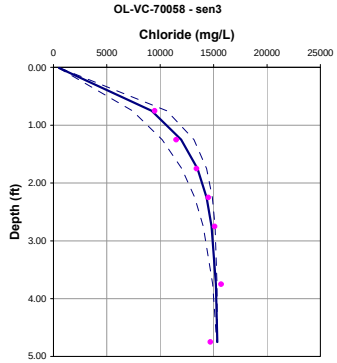
Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -8.2 cm/year



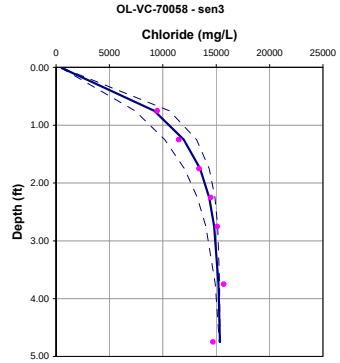
Porosity = 0.70
Dispersion length = 0.5 feet
Upwelling Velocity = -17.5 cm/year



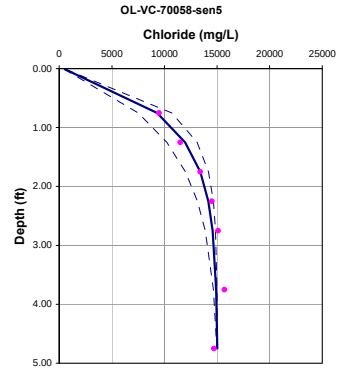
Porosity = 0.70
Dispersion length = 0.8 feet
Upwelling Velocity = <-50 cm/year



Porosity = 0.60
Dispersion length = 0.1 feet
Upwelling Velocity = -5.9 cm/year



Porosity = 0.60
Dispersion length = 0.5 feet
Upwelling Velocity = -12.7 cm/year



Porosity = 0.60
Dispersion length = 0.8 feet
Upwelling Velocity = <-50 cm/year

Comparison of Results

Locations	Porosity	Dispersion Length (feet)	Calculated Velocity (cm/year)
VC-70058	0.70	0.1	-8.2
VC-70058-sen1	0.70	0.5	-17.5
VC-70058-sen2	0.70	0.8	<-50
VC-70058-sen3	0.60	0.1	-5.9
VC-70058-sen4	0.60	0.5	-12.7
VC-70058-sen5	0.60	0.8	<-50

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Xu, M. and Y. Eckstein, 1995. Use of Weighted Least-Squares Method in Evaluation of the Relationship Between Dispersivity and Field Scale. v. 33: 905-916.

Attachment XII

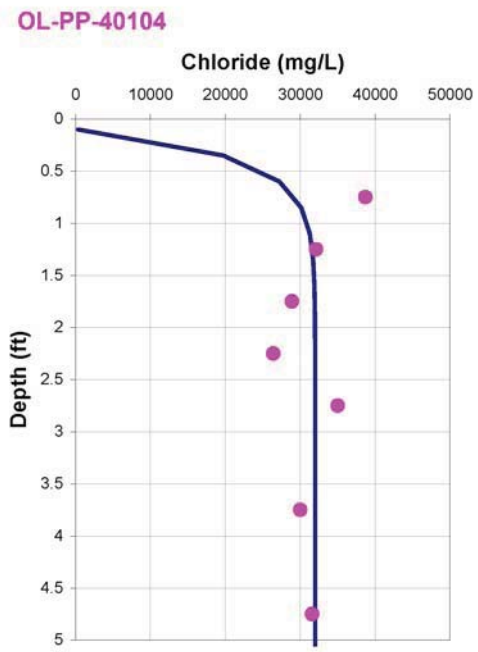
Results from Diffusion Samples – Phase III

Attachment XII
Results from Diffusion Samplers – Phase III

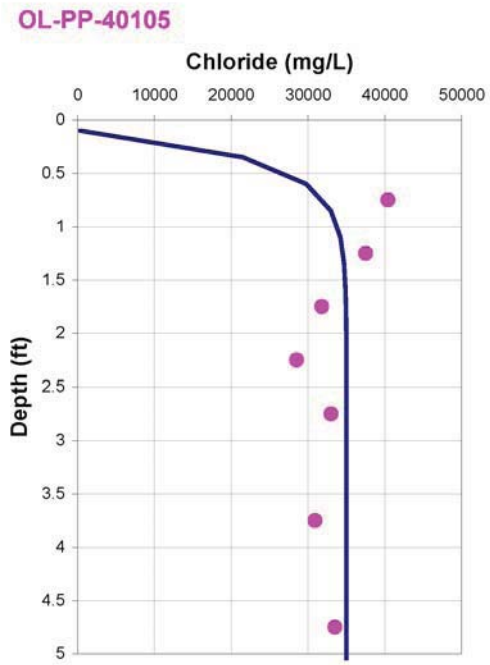
This attachment contains chloride-depth profiles determined from the diffusion samplers (extended peepers) installed at each of the seepage meter clusters in the Phase III investigation in 2007. Attached is one figure for each of the five seepage meter clusters with the chloride-depth profiles for the diffusion samples as well as a chloride-depth profile for a nearby vibracore location. Also shown on each figure is a location map in the vicinity of the seepage meter cluster with a reference circle with a radius of 25 feet.

Seepage Meter Cluster 4-1

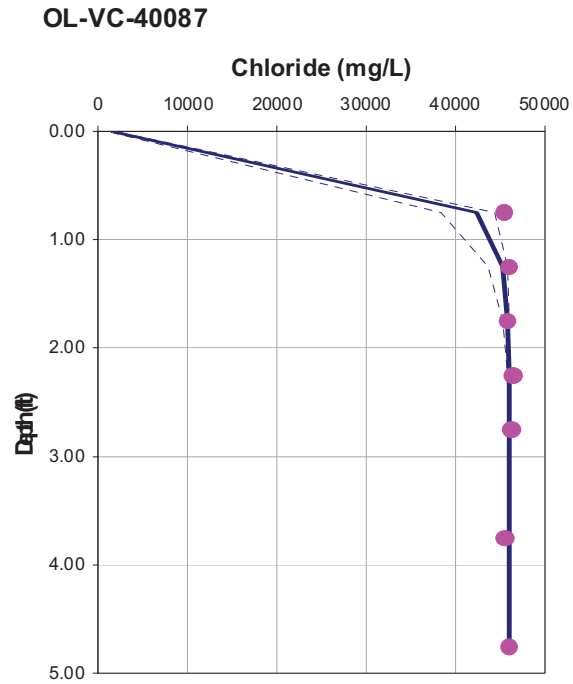
S.S. Papadopulos & Associates, Inc.



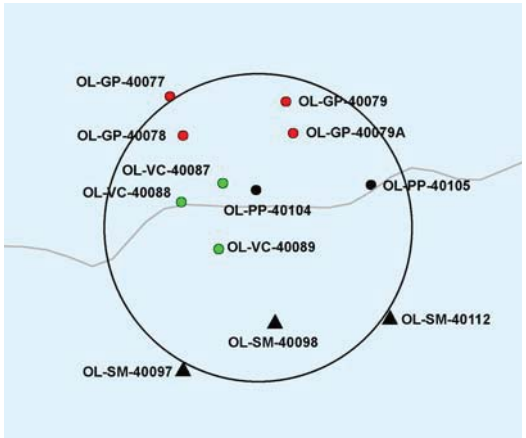
porosity = 0.65
dispersion length = 0.1 feet
Upwelling Velocity = -32.5 cm/year



porosity = 0.65
dispersion length = 0.1 feet
Upwelling Velocity = -32.5 cm/year

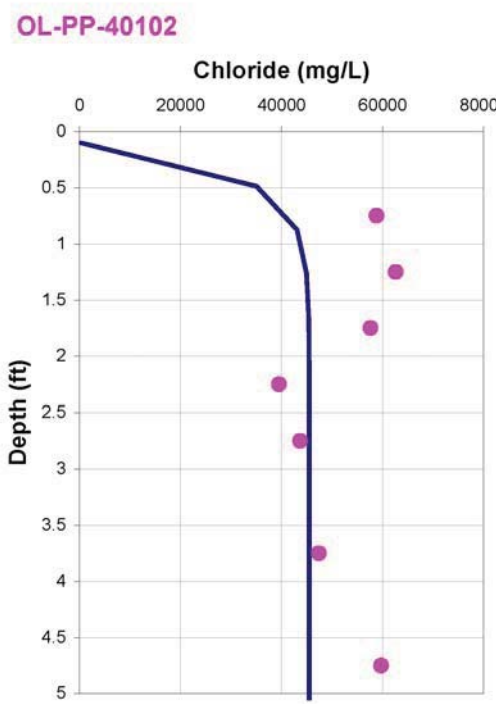


Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -37.5 cm/year

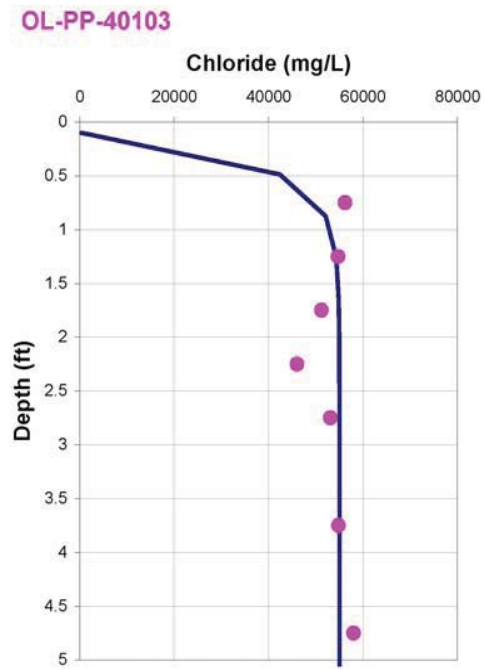


Seepage Meter Cluster 4-2

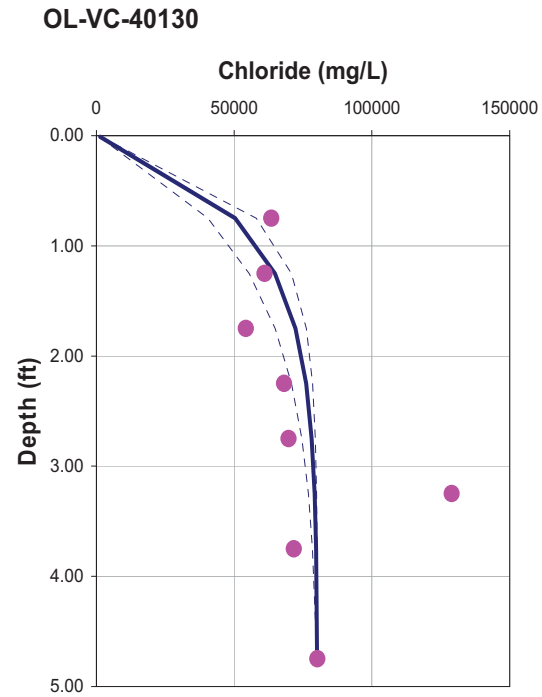
S.S. Papadopulos & Associates, Inc.



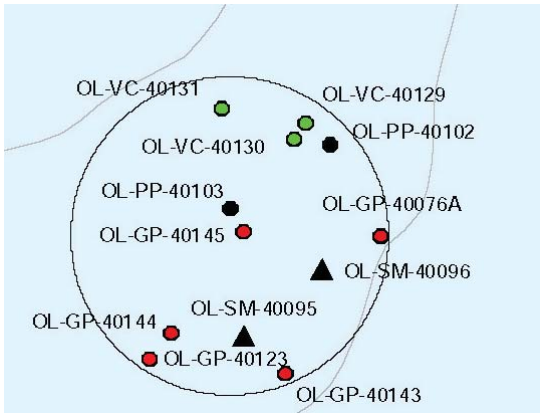
porosity = 0.65
dispersion length = 0.1 feet
Upwelling Velocity = -32.5 cm/year



porosity = 0.65
dispersion length = 0.1 feet
Upwelling Velocity = -32.5 cm/year

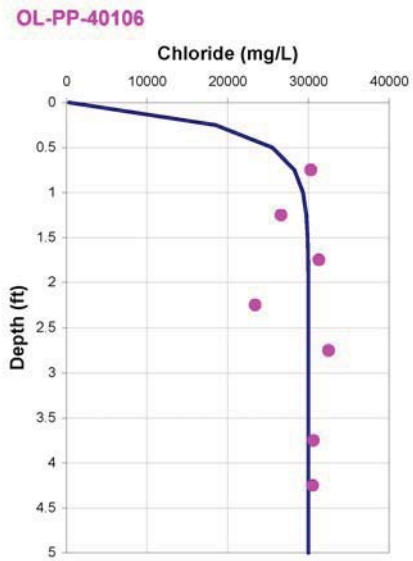


Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -10.7 cm/year

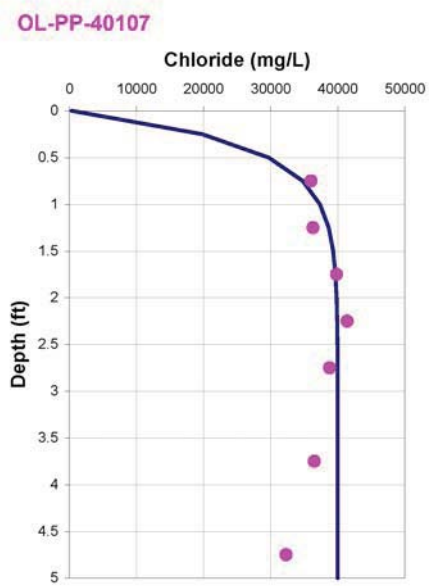


Seepage Meter Cluster 4-3

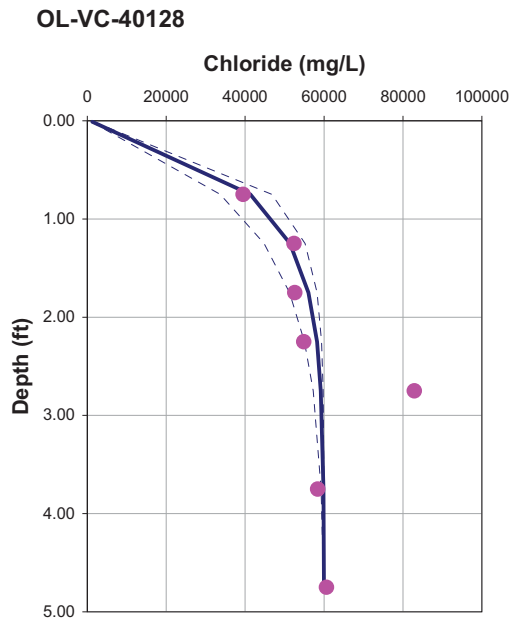
S.S. Papadopulos & Associates, Inc.



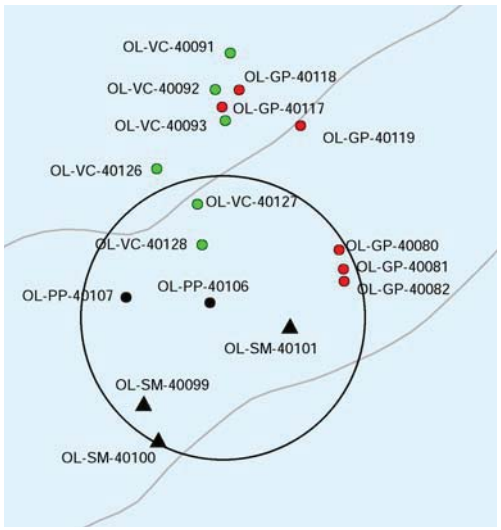
porosity = 0.65
dispersion length = 0.1 feet
Upwelling Velocity = -32.5 cm/year



porosity = 0.65
dispersion length = 0.1 feet
Upwelling Velocity = -19.5 cm/year

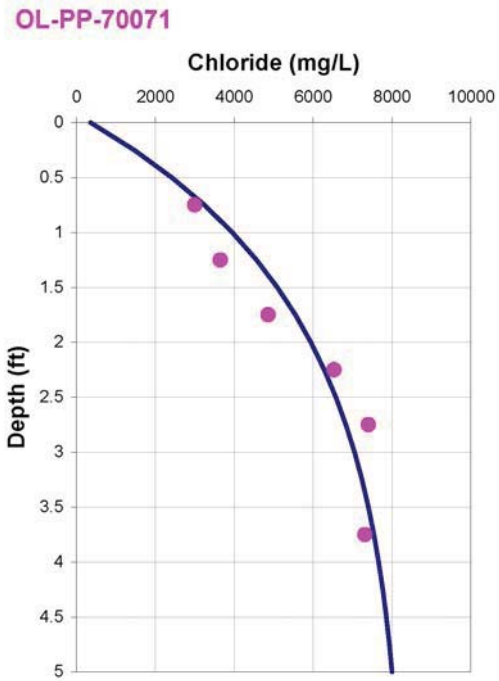


Porosity = 0.75
Dispersion length = 0.1 feet
Upwelling Velocity = -13.0 cm/year

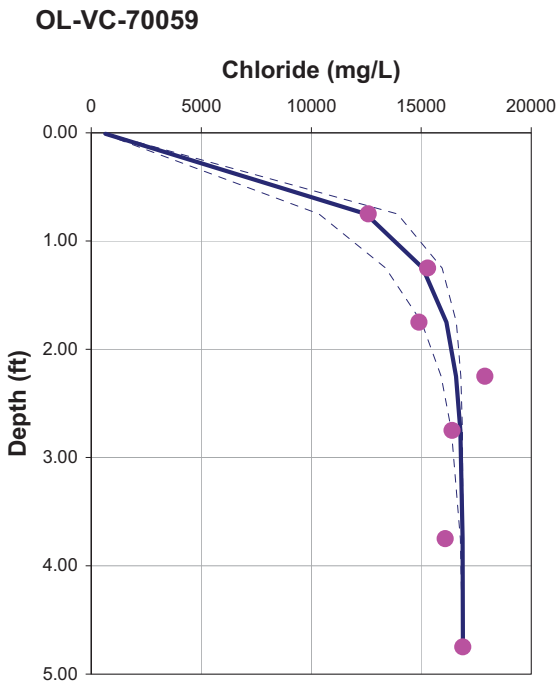


Seepage Meter Cluster 7-1

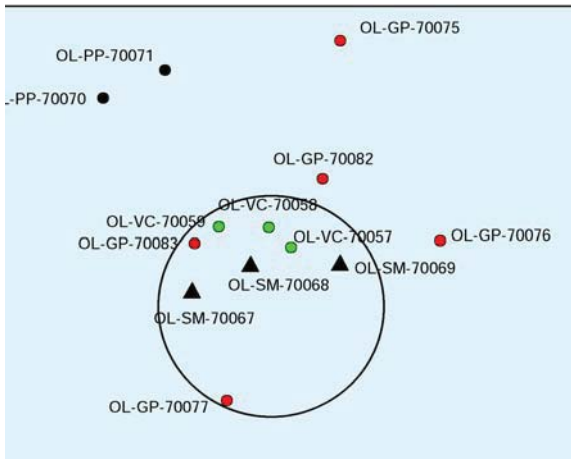
S.S. Papadopulos & Associates, Inc.



porosity = 0.65
dispersion length = 0.1 feet
Upwelling Velocity = -3.3 cm/year

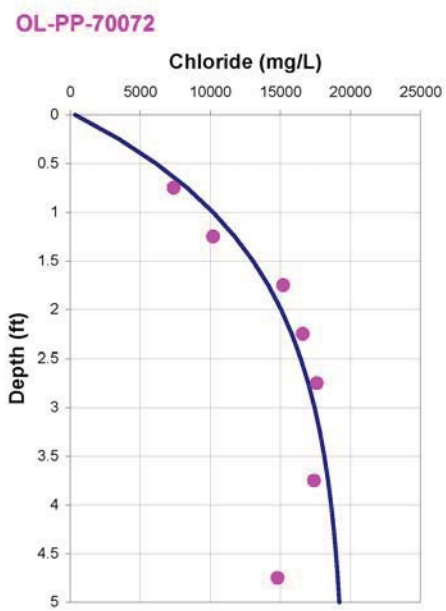


Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -13.1 cm/year

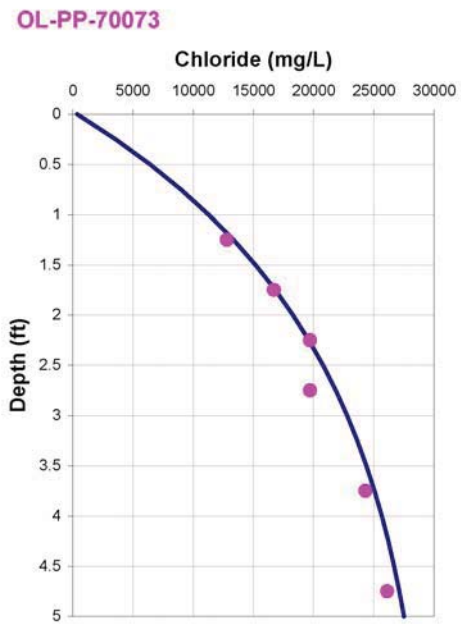


Seepage Meter Cluster 7-2

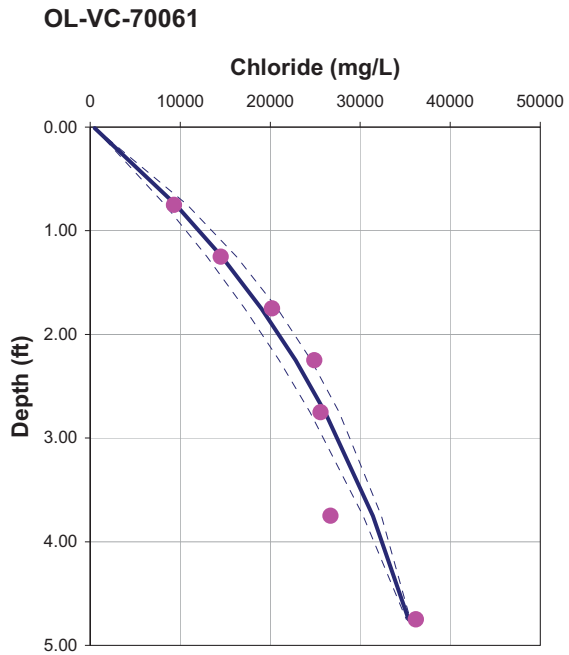
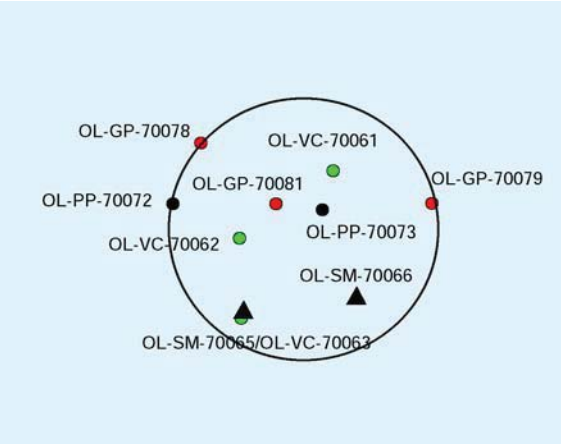
S.S. Papadopulos & Associates, Inc.



porosity = 0.65
dispersion length = 0.1 feet
Upwelling Velocity = -3.9 cm/year



porosity = 0.65
dispersion length = 0.1 feet
Upwelling Velocity = -2.4 cm/year



Porosity = 0.70
Dispersion length = 0.1 feet
Upwelling Velocity = -1.8 cm/year