

CLIENT SHELL CANADA PRODUCTS LIMITED (C44041)

PROJECT No. BCV61779.3

LOCATION 15428 Fraser Hwy, Surrey, BC

DATUM Geodetic Datum

DATES: BORING October 14, 2004

WATER LEVEL 9.519m 20/10/04

TPC ELEV. 95.929

DEPTH (m)	ELEVATION (m)	SOIL DESCRIPTION	SOIL SYMBOL	WATER LEVEL	DEPTH (ft)	VAPOUR CONCENTRATIONS			SAMPLES			WELL CONSTRUCTION		
						● %LEL	▲ ppm		TYPE	NUMBER	N-VALUE			
0	96.02					● 20	▲ 100	40	60	80				
	95.9	Asphalt												
	95.4	Brown SAND, some gravel, damp			2									
1		Dark brown SAND, some gravel, trace silt, damp			4									
2	93.9				6									
	93.6	Grey mottled SILT, some gravel, damp			8									
3		Grey SILT, occasional cobbles, some gravel, damp			10									
4					12									
5					14									
6					16									
7	89.2	Grey SILT, some sand, some gravel, occasional cobbles, damp			18									
8					20									
9	86.9	Grey, SAND, some silt, gravel and cobbles, damp - moist at 9.4 m - wet at 10.4 m			22									
10					24									
11					26									
12					28									
13					30									
14	82.3	Grey SAND, wet			32									
15	80.8	END OF BOREHOLE AT 15.2 m			34									
					36									
					38									
					40									
					42									
					44									
					46									
					48									
					50									
					52									
					54									
LABORATORY ANALYSES:						Soil: BH04-15-1 - BTEX/VPH, LEPH/HEPH								
						Groundwater - BTEX, LEPH/HEPH								



Hydraulic Conductivity, K (m/s) may be estimated according to the following relationship for single well response tests (Hvorslev, 1951):

$$K = \frac{r^2 \ln(L/r)}{2LT_0} \quad \text{where,} \quad r = \text{effective well radius}$$

$$L = \text{saturated length of screen}$$

$$T_0 = \text{basic time lag (see chart attached)}$$

For the data tabulated below (and plotted on the attached Figure ), the following values of r, L and T<sub>0</sub> were used to estimate K:

r =	5.829	cm
L =	1.45	m
T <sub>0</sub> =	3.33	s

$$K = \frac{r^2 \ln(L/r)}{2LT_0} = 1.1E-03$$

MW ID	Saturated Screen, L	Stratigraphy	Drilling Method	Effective Radius of Screen (cm)	Time Lag Coefficient			K1	K2	K3	geometric mean K
					test#1	test#2	test#3				
BH04-2	1.248	SAND, some gravel, cobbles	6" Solid Stem Auger	5.829	3.2	3.04	3.4	1.30E-03	1.40E-03	1.20E-03	0.001297
BH04-7	1.148	SAND and GRAVEL, trace silt or less	6" Solid Stem Auger	5.829	34.7	15.95	50.8	1.30E-04	2.80E-04	8.70E-05	0.000147
BH04-9	1.309	SAND and GRAVEL, trace silt or less	6" Solid Stem Auger	5.829	10.7	15.4	11.3	3.80E-04	2.60E-04	3.60E-04	0.000329
BH04-13	2.745	SAND and GRAVEL, trace silt or less	6" Solid Stem Auger	5.829		3.95	1.96		6.00E-04	1.20E-03	0.000849
BH04-15	1.45	SAND	6" Solid Stem Auger	5.829	3.45	3.04	3.33	1.10E-03	1.20E-03	1.10E-03	0.001132

all geometric mean 0.000554  
 BH04-7, BH04-9, BH04-13 0.000308

Conclusion: The response induced by the bailer slug appears inadequate to properly evaluate hydraulic conductivity (i.e. a larger scale test is required - either long term pumping at low rate or larger slug volume removed). The response is however consistent with empirical relationships (i.e. Hazen) based on the particle size distribution for the soils recovered during the investigation.