COMMISSION GÉOLOGIQUE DU CANADA

GEOLOGICAL SURVEY OF CANADA

MINISTÈRE DE L'ÉNERGIE, DES MINES ET DES RESSOURCES
DEPARTMENT OF ENERGY, MINES AND RESOURCES

RECONNAISSANCE GEOCHEMICAL DATA FOR TILL AND OTHER SURFICIAL SEDIMENTS, SOUTHWESTERN NEW BRUNSWICK

I.M. Kettles and P.H. Wyatt

OPEN FILE
DOSSIER PUBLIC
1313

GEOLOGICAL SURVEY OF CANADA
COMMISSION GÉOLOGIQUE DU CANADA
OTTAWA
1986

COMMISSION GÉOLOGIQUE DU CANADA

GEOLOGICAL SURVEY OF CANADA

MINISTÈRE DE L'ÉNERGIE, DES MINES ET DES RESSOURCES
DEPARTMENT OF ENERGY, MINES AND RESOURCES

RECONNAISSANCE GEOCHEMICAL DATA FOR TILL AND OTHER SURFICIAL SEDIMENTS, SOUTHWESTERN NEW BRUNSWICK

I.M. Kettles and P.H. Wyatt

OPEN FILE
DOSSIER PUBLIC
1313

GEOLOGICAL SURVEY OF CANADA
COMMISSION GÉOLOGIQUE DU CANADA
OTTAWA
1986

RECONNAISSANCE GEOCHEMICAL DATA FOR TILL AND OTHER SURFICIAL SEDIMENTS, SOUTHWESTERN NEW BRUNSWICK

I.M. Kettles and P.H. Wyatt

A systematic till sampling program was undertaken in southwestern New Brunswick in 1983 to quantify regional variations in drift composition in order to provide baseline data that might be used in assessing the effects of acid rain. The distribution of two groups of sediment compositional characteristics – (1) texture and carbonate content and (2) concentrations of naturally occurring trace and minor elements – was mapped. The former properties are related to potential buffering capacity; the latter might be harmful if released into the environment by acid leaching or exchange reactions. This particular part of the Appalachian Highlands was chosen for this study because it is underlain by bedrock of contrasting buffering potential, interbedded noncalcareous and calcareous sedimentary rock and carbonate-poor crystalline rock. In this respect the region is similar to the Frontenac Arch and adjacent West and Central St. Lawrence Lowland areas in eastern Ontario where a similar study was undertaken between 1980 and 1982 (Shilts, 1982; Kettles and Shilts, 1983a, b).

More than 170 samples were collected from road and stream cuts, as well as from sand and gravel pits, over an area of approximately 6000 km^2. Till was collected wherever possible because, as the debris load carried by the last glacier, it serves as the primary source or parent material for soils and postglacially produced sediments. Care was taken to sample below both the postglacial solum

and any signs of frost disturbance to ensure that samples were uncontaminated. An attempt was made to collect samples every 3-5 km, but the sampling pattern was dependent upon the degree of road access.

The silt plus clay fraction (<63 m) of the samples collected was analyzed for carbonate content (calculated as $\%CaCO_3$ equivalent) using a Leco Carbon Analyzer after the method described by Foscolos and Barefoot (1970). The clay-sized fraction (<2 μm) was separated by centrifugation and analyzed by Bondar-Clegg Ltd. for Cu, Pb, Zn, Co, Ni, Ag, Cr, Mo, Cd, Fe, Mn, and Hg using standard atomic absorption techniques after treatment with a hot (HNO_3-HCl) leach. As and U were analyzed using colorimentric and fluorimetric techniques, respectively. Texutral composition of the <2 mm fraction was determined using standard sieve and hydrometer procedures.

In this report the results of trace element and textural analyses are presented along with a table explaining these data and a map (Fig. 1) showing sample locations. More detailed discussion of bedrock and surficial geology, results and interpretation of the geochemical data, and a series of computer contoured maps depicting trace element distribution in surficial sediments over the study area have been released as part of Geological Survey of Canada, Paper 85-1B (Kettles and Wyatt, 1985).

The results of carbonate analyses for each sample are not presented in the data list. Concentrations are, on average, very low (<1%); only five samples had carbonate contents greater than 2%. These results are thought not to be representative of the distribution of carbonate minerals in unweathered till in this

part of New Brunswick because samples were for the most part collected at depths of about 1.5 metres in tan-coloured, presumably oxidized and leached till. In the Appalachian Highlands depths of leaching in till are commonly at least 2.0 metres (Shilts, 1978).

References

Anderson, F.D.

1968: Woodstock, Millville, and Coldstream map-areas, Carleton and York Counties, New Brunswick; Geological Survey of Canada, Memoir 353, 69 P.

Foscolos, A.E. and Barefoot, R.R.

1970: A rapid determination of total organic and inorganic carbon in shales and carbonates; Geological Survey of Canada, Paper 70-11.

Kettles, I.M. and Shilts, W.W.

1983a: Reconnaissance geochemical data for till and other surficial sediments, Frontenac Arch and surrounding areas, Ontario; Geological Survey of Canada, Open File 947.

1983b: Drift composition of Frontenac Arch area, Ontario: Implications for evaluating effects of acid rain; Abstracts with Programs, Geological Society of America, v. 15, p. 612.

Kettles, I.M. and Wyatt, P.H.

1985: Applications of till geochemistry in southwestern New Brunswick: acid rain sensitivity and mineral exploration; in Current Research, Part B, Geological Survey of Canada, Paper 85-1B, p. 413-422.

Potter, R.R., Hamilton, J.B., and Davies, J.L.

1979: Geological map – New Brunswick; New Brunswick Department of Natural Resources, Geological Map NR-1.

Shilts, W.W.

1978: Detailed sedimentological study of till sheets in a stratigraphic section, Samson River, Quebec; Geological Survey of Canada, Bulletin 285, 30 p.

1982: Potential effects of acid rain on glaciated terrain; in Groundwater as a Geomorphic Agent, ed. R.G. LaFleur; Binghamton Symposia in Geomorphology; International Series, no. 13, Allen and Unwin, Inc., Boston.

DATA LIST LEGEND

Data List Legend – Trace Elements (clay-sized fraction)

Columns	Category	Explanation	
2-6	MAP	National Topographic System (NTS)-Lettered Quadrangle (Scale 1:50,000)	
8-17	ID	Sample Number – year (2), grid (3) and number (4)	
20-36	UTM COORDINATES	Universal Transverse Mercator (UTM) co-ordinate system	
20-21	ZN	Zone	
23-28	EAST	Easting (metres)	
30-36	NORTH	Northing (metres)	
38-42	SAMP TYPE	Sample type	
38		Type of Material	T - till F - ice contact and outwash sand and/or gravel
41		Representivity of sample	1 - most representative sample for site 0 - other or a non-representative sample for site
42		Sampling at site	0 - only sample at site, or where more than one at site, not from same stratigraphic sequence 1 - part of sampling profile through one or more types of material.

Data List Legend – Trace Elements (clay-sized fraction) (cont.)

Columns	Category	Explanation
44-49	SAMP DEPTH	Sampling depth in metres from surface. No sample depth indicates exposure < 2 m.
51-54	BDRK TYPE	Underlying bedrock type (as noted in Anderson (1968) or Potter et al.(1979)) ARGL-argillite BSLT-basalt CGLM-conglomerate CLCS-calcareous shale CSDM-calcareous and argilliceous sedimentary rock GRCK-graywacke GRNT-granite SCST-schist SLTE-slate
55-60	CU PPM	Copper by atomic absorption spectroscopy (ppm) (NA - not analyzed) *1 **.5
61-65	PB PPM	Lead by atomic absorption spectroscopy (ppm) (NA - not analyzed) 2 1
66-71	ZN PPM	Zinc by atomic absorption spectroscopy (ppm) (NA - not analyzed) 1 .5
72-76	CO PPM	Cobalt by atomic absorption spectroscopy (ppm) (NA - not analyzed) 1 .5

Data List Legend – Trace Elements (clay-sized fraction) (cont.)

Columns	Category	Explanation	
77-81	NI PPM	Nickel by atomic absorption spectroscopy (ppm) 2 1	(NA - not analyzed)
82-87	AG PPM	Silver by atomic absorption spectroscopy (ppm) .1 .05	(NA - not analyzed)
88-92	CR PPM	Chromium by atomic absorption spectroscopy (ppm) 2 1	(NA - not analyzed)
93-99	U PPM	Uranium fluorimetrically (ppm) .1 .05	(NA - not analyzed)
100-104	MO PPM	Molybdenum by atomic absorption spectroscopy (ppm) 1 .5	(NA - not analyzed)
105-111	MN PPM	Manganese by atomic absorption spectroscopy (ppm) 1 .5	(NA - not analyzed)
112-117	FE PCT	Iron by atomic absorption spectroscopy (percent) .1 .05	(NA - not analyzed)
118-123	CD PPM	Cadmium by atomic absorption spectroscopy (ppm) .2 .1	(NA - not analyzed)
124-130	AS PPM	Arsenic colourimetrically (ppm) 2 1	(NA - not analyzed)
131-135	HG PPB	Mercury by atomic absorption spectroscopy (ppb) 5 2	(NA - not analyzed)

* Detection Limit
** Value assigned when below detection limit.

Data List Legend – Grain Size Composition (< 2mm)

Columns	Category	Explanation	
2-6	MAP	National Topographic System (NTS)-Lettered Quadrangle (Scale 1:50,000)	
8-17	ID	Sample Number – year (2), grid (3) and number (4)	
20-36	UTM COORDINATES	Universal Transverse Mercator (UTM) co-ordinate system	
20-21	ZN	Zone	
23-28	EAST	Easting (metres)	
30-36	NORTH	Northing (metres)	
38-42	SAMP TYPE	Sample type	
38		Type of Material	T - till F - ice contact and outwash sand and/or gravel
41		Representivity of sample	1 - most representative sample for site 0 - other or a non representative sample for site
42		Sampling at site	0 - only sample at site, or where more than one at site, not from same stratigraphic sequence 1 - part of sampling profile through one or more types of material.

Data List Legend – Grain Size Composition (cont.)

Columns	Category	Explanation
44-49	SAMP DEPTH	Sampling depth in metres from surface. No sample depth indicates exposure < 2 m.
51-54	BDRK TYPE	Underlying bedrock type (as noted by Anderson (1968) or Potter et al.(1979)) ARGL-argillite BSLT-basalt CGLM-conglomerate CLCS-calcareous shale CSDM-calcareous and argilliceous sedimentary rock GRCK-graywacke GRNT-granite SCST-schist SLTE-slate

Data List Legend – Grain Size Composition (cont.)

Columns	Category	Explanation
75-82	G.T. 2MM	sample matrix greater than 2mm
87-105	L.T. 2MM	sample matrix less than 2mm
87-91	% Sand	percent sample matrix 63-200 µm
94-98	% Silt	percent sample matrix 63-4 µm
101-105	% Clay	percent sample matrix less than 4 µm.

DATA LIST

MAP	ID	UTM ZN	COORDINATES EAST	NORTH	SAMP TYPE	SAMP DEPTH	BDRK TYPE	CU PPM	PB PPM	ZN PPM	CO PPM	NI PPM	AG PPM	CR PPM	U PPM	MO PPM	MN PPM	FE PCT	CD PPM	AS PPM	HG PPB
21J05	83KAR1400	19	605200	5126225	F 10		CSDM	69.	33.	122.	34.	128.	.05	108.	.05	1.0	2600.	7.00	.20	28.0	95.
21J05	83KAR1401	19	602900	5127450	TO 10		CSDM	58.	27.	134.	21.	96.	.05	78.	.50	.5	1800.	7.20	.10	18.0	190.
21J05	83KAR1402	19	595550	5130650	TO 10	.50	CSDM	54.	23.	123.	21.	101.	.05	79.	.60	.5	1600.	6.70	.10	21.0	95.
21J05	83KAR1403	19	604250	5133850	TO 10		CSDM	52.	19.	126.	19.	112.	.05	93.	.40	1.0	1100.	7.00	.10	28.0	105.
21J05	83KAR1404	19	605650	5137150	TO 10		CSDM	47.	21.	129.	19.	108.	.05	82.	1.20	.5	1450.	6.80	.10	24.0	95.
21J03	83KAR1405	19	607480	5138130	F 10		CSDM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
21J05	83KAR1406	19	602450	5143450	TO 10	.50	CSDM	46.	29.	126.	19.	115.	.05	96.	1.30	.5	840.	6.70	.20	23.0	155.
21J05	83KAR1407	19	596160	5142950	F 10		CSDM	162.	61.	164.	36.	144.	.05	101.	.20	1.0	7000.	12.50	.20	45.0	135.
21J05	83KAR1408	19	596800	5143540	TN 10		CSDM	87.	35.	168.	26.	122.	.05	86.	.70	.5	3450.	9.20	.10	34.0	235.
21J05	83KAR1409	19	599700	5148700	T 10		CSDM	56.	26.	121.	20.	99.	.05	75.	.70	.5	1450.	6.90	.10	25.0	115.
21J12	83KAR1410	19	599270	5152875	TO 10		CSDM	54.	21.	141.	19.	100.	.05	78.	.60	.5	1300.	7.20	.10	24.0	110.
21J12	83KAR1411	19	596050	5151750	F 10		CSDM	59.	32.	134.	43.	115.	.05	74.	.05	.5	3000.	6.30	.40	36.0	160.
21J12	83KAR1412	19	594050	5160150	TO 10		CSDM	53.	35.	117.	23.	121.	.05	107.	1.30	1.0	1900.	8.10	.10	31.0	245.
21J12	83KAR1413	19	594900	5163350	TO 10		GRCK	55.	26.	127.	20.	68.	.05	49.	.60	.5	1100.	6.10	.10	46.0	115.
21J12	83KAR1414	19	593875	5167720	TO 10		CSDM	59.	32.	142.	21.	95.	.05	76.	1.10	.5	1850.	7.50	.10	26.0	135.
21J12	83KAR1415	19	594050	5171600	TO 10		GRCK	50.	23.	144.	21.	103.	.05	78.	.40	.5	1800.	6.80	.10	21.0	110.
21J12	83KAR1416	19	596750	5172710	TO 11	3.00	CSDM	51.	19.	134.	20.	96.	.05	69.	.60	1.0	1100.	6.60	.10	16.0	110.
21J12	83KAR1416A	19	596750	5172710	TO 01		CSDM	51.	17.	141.	18.	91.	.05	68.	.40	1.0	1000.	6.40	.10	20.0	100.
21J03	83KAR1417	19	606550	5145600	F 10		CSDM	56.	30.	137.	29.	115.	.05	85.	.40	.5	1900.	6.60	.20	40.0	95.
21J12	83KAR1418	19	598600	5174420	F 10		GRCK	51.	23.	127.	24.	95.	.05	67.	.05	.5	1350.	6.40	.10	22.0	160.
21J12	83KAR1419	19	602600	5171375	TO 10		GRCK	59.	33.	136.	23.	96.	.05	74.	.50	1.0	2000.	6.80	.10	25.0	185.
21J12	83KAR1420	19	607150	5171000	TO 10	2.50	GRCK	55.	25.	128.	22.	92.	.05	71.	1.10	2.0	1500.	6.30	.10	29.0	140.
21J12	83KAR1421	19	606800	5166850	TO 10		GRCK	62.	39.	106.	26.	97.	.05	92.	.80	2.0	1850.	5.70	.10	22.0	290.
21J12	83KAR1422	19	603100	5165680	TN 10		GRCK	55.	24.	130.	20.	92.	.05	74.	.60	1.0	1200.	6.50	.10	28.0	175.
21J12	83KAR1423	19	598750	5162380	F 10		CSDM	64.	41.	149.	28.	105.	.10	89.	.90	1.0	4050.	8.40	.30	38.0	325.
21J12	83KAR1424	19	601250	5155880	TO 11	5.00	CSDM	76.	33.	150.	29.	105.	.05	70.	.80	.5	3000.	7.40	.20	56.0	355.
21J12	83KAR1424A	19	601250	5155880	F 01	1.00	CSDM	66.	37.	148.	30.	104.	.05	78.	.90	1.0	2300.	7.00	.20	74.0	225.
21J12	83KAR1425	19	608600	5153100	TO 10		CSDM	69.	47.	140.	24.	119.	.05	88.	.40	3.0	2950.	8.10	.10	36.0	255.
21J12	83KAR1426	19	609640	5155680	TO 10	3.00	CSDM	57.	24.	142.	21.	107.	.05	72.	.40	.5	1550.	7.10	.10	37.0	155.
21J12	83KAR1427	19	604650	5162180	TO 10		GRCK	57.	24.	121.	20.	86.	.05	74.	.05	.5	875.	6.50	.10	18.0	105.
21J12	83KAR1428	19	611000	5162850	TO 10		CSDM	63.	28.	129.	21.	97.	.10	76.	.05	.5	1800.	6.50	.10	37.0	165.
21J12	83KAR1429	19	613070	5159590	TO 10		CSDM	47.	23.	119.	18.	89.	.05	80.	.20	.5	1200.	6.50	.10	23.0	75.
21J11	83KAR1430	19	615000	5164550	TO 10		CSDM	53.	23.	129.	20.	93.	.05	76.	.05	.5	1250.	6.50	.10	23.0	125.
21J11	83KAR1431	19	616275	5160700	T 10		GRCK	43.	25.	112.	19.	86.	.05	77.	.60	.5	1400.	6.30	.10	35.0	145.
21J12	83KAR1432	19	613600	5153210	F 10		GRCK	72.	35.	150.	27.	108.	.05	82.	.05	.5	2250.	7.80	.10	34.0	155.
21J12	83KAR1433	19	614075	5152150	F 10		GRCK	76.	29.	143.	23.	115.	.05	87.	.80	2.0	2300.	9.10	.10	26.0	305.
21J11	83KAR1434	19	617520	5152320	T 10		GRCK	47.	20.	88.	19.	83.	.05	90.	1.80	3.0	1850.	3.20	.10	25.0	110.
21J11	83KAR1435	19	621050	5156125	T 10		GRCK	47.	35.	100.	24.	80.	.05	88.	1.80	2.0	2500.	6.20	.10	33.0	140.
21J11	83KAR1436	19	619900	5153200	T 10	2.75	GRCK	53.	22.	116.	21.	86.	.05	80.	.80	2.0	2500.	6.40	.10	32.0	50.
21J11	83KAR1437	19	626125	5151140	T 10	3.00	GRCK	57.	35.	102.	22.	91.	.05	94.	1.80	.5	1750.	6.20	.10	45.0	110.
21J11	83KAR1438	19	626800	5158060	TO 10		GRCK	51.	36.	153.	20.	92.	.05	102.	1.40	3.0	950.	6.20	.10	31.0	145.
21J11	83KAR1439	19	627175	5155000	T 10		GRCK	48.	24.	110.	21.	88.	.05	78.	1.60	.5	1070.	6.00	.10	36.0	70.
21J11	83KAR1440	19	633250	5155670	T 10		GRCK	42.	28.	103.	20.	84.	.05	78.	.60	2.0	1650.	6.00	.10	13.0	65.
21J11	83KAR1441	19	629850	5154000	F 10		GRCK	55.	40.	131.	20.	95.	.05	83.	1.40	2.0	1500.	6.40	.20	34.0	130.
21J05	83KAR1442	19	611450	5134350	TO 10		CSDM	59.	32.	117.	24.	100.	.05	94.	1.10	1.0	2500.	7.80	.10	18.0	225.
21J05	83KAR1443	19	613900	5136460	T 10		GRCK	53.	38.	139.	19.	86.	.05	88.	1.10	.5	1300.	7.30	.10	17.0	170.
21J05	83KAR1444	19	611930	5139500	T 10		GRCK	46.	22.	109.	17.	94.	.05	98.	1.10	1.0	930.	6.80	.10	15.0	185.
21J05	83KAR1445	19	612650	5147100	F 10		GRCK	83.	47.	121.	26.	101.	.05	102.	.80	1.0	4400.	8.30	.20	36.0	195.
21J05	83KAR1446	19	613650	5147100	T 10		GRCK	79.	31.	141.	24.	94.	.05	86.	.60	2.0	2730.	8.00	.10	28.0	140.
21J06	83KAR1447	19	620400	5143340	TO 10		SLTE	61.	24.	117.	23.	98.	.05	80.	.60	3.0	2170.	7.00	.10	22.0	125.
21J06	83KAR1448	19	624675	5144325	F 10		SLTE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

MAP	ID	UTM ZN	COORDINATES EAST	NORTH	SAMP TYPE	SAMP DEPTH	BDRK TYPE	CU PPM	PB PPM	ZN PPM	CO PPM	NI PPM	AG PPM	CR PPM	U PPM	MO PPM	MN PPM	FE PCT	CD PPM	AS PPM	HG PPB
21J06	83KAR1449	19	624850	5146000	T 10		SLTE	56.	27.	91.	19.	84.	.05	86.	1.10	3.0	3550.	6.20	.10	39.0	175.
21J06	83KAR1450	19	630660	5145775	T 10		SLTE	53.	56.	152.	20.	89.	.05	86.	.90	1.0	1400.	6.30	.20	48.0	95.
21J06	83KAR1451	19	620800	5148300	T 10	2.00	SLTE	87.	42.	138.	26.	105.	.20	88.	.60	3.0	4500.	8.80	.10	30.0	275.
21J06	83KAR1452	19	616100	5143625	T 10		SLTE	61.	27.	104.	23.	94.	.05	83.	.80	3.0	2000.	6.90	.10	17.0	375.
21J06	83KAR1453	19	618500	5137880	F 10		SLTE	74.	37.	141.	28.	106.	.05	96.	1.00	3.0	5000.	8.20	.40	29.0	155.
21J06	83KAR1454	19	619800	5134240	T 10		SLTE	54.	20.	123.	17.	94.	.05	74.	.30	1.0	950.	7.00	.10	14.0	55.
21J06	83KAR1455	19	624000	5133875	F 10		SLTE	59.	25.	102.	20.	82.	.20	112.	1.30	3.0	2875.	7.60	.10	26.0	295.
21J06	83KAR1456	19	624100	5135250	F 10		SLTE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
21J06	83KAR1457	19	629200	5136900	F 10		CGLM	14.	27.	81.	11.	45.	.05	83.	2.70	3.0	2300.	4.60	.50	54.0	110.
21J06	83KAR1458	19	628350	5137275	T 10	2.00	CGLM	44.	35.	53.	14.	43.	.05	44.	.60	3.0	7900.	4.00	.50	39.0	195.
21J06	83KAR1459	19	626250	5137900	T 10	3.00	SLTE	53.	23.	109.	20.	72.	.05	57.	.80	2.0	2320.	6.30	.10	16.0	430.
21J06	83KAR1460	19	626350	5128550	T 10		CGLM	19.	20.	78.	16.	63.	.05	64.	6.00	2.0	1880.	6.90	.10	62.0	140.
21J06	83KAR1461	19	626200	5126630	F 10		CGLM	24.	33.	47.	19.	35.	.05	37.	2.60	1.0	3200.	5.10	.10	26.0	50.
21J06	83KAR1462	19	625850	5125840	T 11		CGLM	48.	20.	98.	17.	84.	.05	74.	.80	3.0	1050.	6.30	.10	16.0	115.
21J06	83KAR1462A	19	625850	5125840	T 01		CGLM	8.	20.	52.	6.	18.	.05	43.	.80	3.0	355.	5.30	.10	15.0	155.
21J06	83KAR1463	19	620700	5126750	T 10		CGLM	43.	14.	87.	17.	88.	.05	71.	1.10	3.0	1400.	5.80	.10	15.0	50.
21J06	83KAR1464	19	617150	5127250	T 10		SLTE	50.	21.	108.	19.	91.	.05	80.	.80	2.0	1300.	6.60	.10	18.0	95.
21J05	83KAR1465	19	608850	5123650	F 10		CSDM	80.	51.	128.	33.	117.	.05	102.	.60	3.0	6400.	9.40	.10	46.0	385.
21J04	83KAR1466	19	613925	5119850	F 10		SLTE	68.	29.	122.	32.	110.	.05	70.	.40	2.0	1750.	6.70	.30	77.0	75.
21J04	83KAR1467	19	607000	5117450	T 10		CLCS	65.	26.	120.	23.	108.	.05	67.	.80	1.0	1600.	7.20	.10	29.0	145.
21J04	83KAR1468	19	601540	5120580	T 10	2.00	SLTE	55.	23.	119.	20.	102.	.05	76.	.60	1.0	1350.	6.60	.10	27.0	80.
21J04	83KAR1469	19	597750	5121920	T 10		CLCS	70.	29.	142.	39.	108.	.05	76.	.05	1.0	1720.	7.60	.10	38.0	50.
21J04	83KAR1470	19	597575	5119675	T 10		CLCS	96.	38.	131.	29.	85.	.05	71.	.70	.5	2580.	9.00	.10	37.0	335.
21J04	83KAR1471	19	599400	5116125	TD 10		SLTE	64.	44.	111.	29.	95.	.10	89.	1.10	1.0	4500.	8.20	.10	29.0	150.
21J04	83KAR1472	19	596600	5114600	TD 10	2.00	SLTE	44.	22.	190.	20.	94.	.05	84.	.30	2.0	1220.	6.40	.10	17.0	90.
21J04	83KAR1473	19	602075	5112175	T 10	3.00	SLTE	56.	22.	134.	22.	82.	.05	72.	.90	.5	1370.	6.60	.10	21.0	75.
21J04	83KAR1474	19	596100	5110540	T 10	1.50	SLTE	61.	26.	112.	21.	81.	.05	73.	2.10	.5	1650.	6.80	.10	20.0	130.
21J04	83KAR1475	19	598680	5103950	T 10		SLTE	59.	25.	106.	21.	98.	.05	90.	.70	1.0	1150.	6.80	.10	18.0	130.
21J04	83KAR1476	19	600750	5098470	T 10		SLTE	79.	26.	118.	22.	103.	.05	78.	.70	1.0	1900.	6.60	.10	26.0	170.
21J04	83KAR1477	19	603000	5103000	T 10		SLTE	86.	30.	175.	23.	120.	.05	73.	.60	1.0	1600.	6.50	.10	39.0	140.
21J04	83KAR1478	19	605000	5106200	T 10	1.25	SLTE	65.	22.	121.	20.	96.	.05	76.	.60	.5	1300.	6.70	.10	32.0	115.
21J04	83KAR1479	19	607950	5108075	TD 10		SLTE	61.	23.	110.	20.	95.	.05	76.	.30	2.0	1420.	6.80	.10	26.0	105.
21J04	83KAR1480	19	610825	5101075	T 10		SLTE	102.	36.	156.	22.	77.	.05	63.	.60	1.0	1650.	7.20	.10	29.0	105.
21J04	83KAR1481	19	605950	5099450	T 10		SCST	62.	30.	101.	21.	73.	.05	69.	.40	1.0	1580.	6.70	.10	27.0	130.
21J04	83KAR1482	19	605350	5096900	T 10	2.00	GRNT	63.	26.	126.	21.	84.	.05	77.	.30	.5	1620.	6.50	.10	27.0	105.
21J04	83KAR1483	19	609350	5095800	T 10	2.00	SLTE	58.	20.	113.	16.	77.	.05	68.	.60	.5	1050.	6.50	.10	22.0	80.
21J04	83KAR1484	19	613800	5095700	T 10	2.00	SLTE	86.	25.	130.	19.	78.	.05	71.	.60	2.0	1250.	7.00	.10	26.0	100.
21J04	83KAR1485	19	615450	5112500	T 10		SLTE	51.	20.	126.	19.	91.	.20	76.	.60	.5	1050.	6.50	.10	20.0	95.
21J03	83KAR1486	19	621380	5111110	T 10	1.50	SLTE	51.	19.	119.	20.	91.	.05	81.	.80	.5	980.	6.90	.10	19.0	95.
21J03	83KAR1487	19	627100	5108110	T 10	1.25	SLTE	56.	22.	104.	19.	81.	.05	76.	1.30	1.0	1050.	6.60	.10	23.0	85.
21J03	83KAR1488	19	630000	5107850	T 10		SLTE	50.	18.	114.	17.	83.	.05	75.	1.00	.5	1050.	6.30	.10	20.0	65.
21J03	83KAR1489	19	633500	5108410	T 10		SLTE	57.	21.	133.	21.	80.	.05	73.	1.00	1.0	1300.	6.90	.10	25.0	70.
21J03	83KAR1490	19	636500	5112200	TD 10		SLTE	57.	38.	112.	26.	66.	.05	82.	1.30	1.0	2330.	6.90	.10	88.0	135.
21J03	83KAR1491	19	632700	5118750	T 10		BSLT	38.	16.	59.	16.	50.	.20	114.	2.00	2.0	630.	6.30	.10	23.0	215.
21J03	83KAR1492	19	636350	5115100	T 10	.33	SLTE	65.	35.	118.	25.	145.	.05	110.	1.00	.5	1000.	7.20	.10	67.0	75.
21J03	83KAR1493	19	641025	5111650	T 10	1.50	SLTE	42.	47.	120.	22.	77.	.05	106.	1.80	.5	930.	5.90	.10	34.0	170.
21J03	83KAR1494	19	640220	5108730	T 10		SCST	55.	21.	131.	18.	88.	.05	87.	1.20	.5	890.	7.00	.10	37.0	75.
21J03	83KAR1495	19	650800	5120580	T 10	2.50	GRNT	52.	31.	122.	15.	38.	.10	46.	9.30	1.0	1250.	5.30	.10	32.0	130.
21J03	83KAR1496	19	649220	5119100	C 10		GRNT	34.	39.	87.	11.	15.	.20	33.	12.20	1.0	1900.	4.10	.10	11.0	75.
21J03	83KAR1497	19	647850	5116420	T 10		GRNT	51.	39.	113.	17.	35.	.05	60.	9.00	.5	1720.	6.20	.10	19.0	75.
21J03	83KAR1498	19	645850	5114280	F 10		GRNT	62.	35.	94.	17.	43.	2.40	108.	11.60	2.0	2200.	5.60	.10	16.0	75.

MAP	ID	UTM ZN	COORDINATES EAST	NORTH	SAMP TYPE	SAMP DEPTH	BDRK TYPE	CU PPM	PB PPM	ZN PPM	CO PPM	NI PPM	AG PPM	CR PPM	U PPM	MO PPM	MN PPM	FE PCT	CD PPM	AS PPM	HG PPB
21J03	83KAR1499	19	645400	5109900	F 10		GRNT	95.	40.	164.	22.	90.	.10	62.	1.00	1.0	2000.	7.10	.10	58.0	115.
21J03	83KAR1500	19	642750	5107550	F 10		GRNT	22.	35.	97.	17.	20.	.05	49.	9.60	1.0	1450.	4.80	.20	15.0	160.
21J03	83KAR1501	19	647625	5108540	TO 10		GRCK	127.	45.	128.	22.	71.	.50	78.	7.40	3.0	635.	7.50	.10	41.0	170.
21J03	83KAR1502	19	652000	5106180	TO 10		GRCK	42.	36.	107.	17.	52.	.10	71.	2.30	5.0	475.	6.30	.10	39.0	165.
21J03	83KAR1503	19	653850	5103720	TN 10		GRNT	49.	29.	100.	19.	64.	.05	66.	1.40	2.0	1020.	6.40	.10	32.0	65.
21J02	83KAR1504	19	658450	5102450	F 10		GRCK	84.	47.	111.	32.	102.	.40	115.	5.40	6.0	2300.	5.90	.10	118.0	195.
21J02	83KAR1505	19	659400	5101500	F 10		GRNT	46.	29.	136.	17.	51.	.05	71.	3.90	1.0	1050.	6.50	.10	35.0	40.
21J02	83KAR1506	19	661650	5098000	T 10	1.50	GRCK	58.	23.	115.	17.	74.	.05	80.	1.10	3.0	1000.	6.40	.10	40.0	80.
21J02	83KAR1507	19	661810	5103325	T 10		GRCK	72.	32.	142.	22.	92.	.05	83.	2.50	3.0	1100.	7.00	.10	192.0	55.
21J04	83KAR1508	19	612575	5115860	T 10		SLTE	81.	32.	116.	24.	75.	.05	67.	1.00	3.0	1950.	6.60	.10	30.0	105.
21J04	83KAR1509	19	614770	5114780	T 10		SLTE	43.	16.	106.	17.	98.	.05	77.	.60	3.0	880.	6.50	.10	19.0	80.
21J03	83KAR1510	19	618170	5116400	T 10		SLTE	41.	21.	117.	20.	91.	.05	86.	1.00	3.0	1300.	6.60	.10	17.0	80.
21J03	83KAR1511	19	619850	5115150	T 10		SLTE	48.	16.	121.	17.	100.	.05	83.	.60	3.0	770.	6.80	.10	18.0	75.
21J03	83KAR1512	19	624000	5116600	T 10	2.00	SLTE	63.	23.	139.	20.	90.	.05	80.	.80	2.0	1250.	7.60	.10	26.0	95.
21J03	83KAR1513	19	621410	5116210	T 10	.50	SLTE	44.	14.	111.	16.	83.	.05	72.	.30	1.0	1000.	6.20	.10	15.0	45.
21J03	83KAR1514	19	615900	5118325	T 10	1.50	SLTE	101.	22.	107.	21.	93.	.05	86.	.60	3.0	1190.	7.30	.10	20.0	90.
21J03	83KAR1515	19	622925	5109580	T 10		SLTE	58.	27.	94.	27.	85.	.05	93.	1.00	3.0	1700.	5.70	.10	25.0	225.
21J03	83KAR1516	19	629150	5103250	T 10		SLTE	55.	19.	120.	19.	80.	.05	71.	.80	2.0	1000.	6.00	.10	16.0	60.
21J03	83KAR1517	19	629550	5099380	T 10		SLTE	42.	9.	107.	15.	74.	.05	70.	.80	3.0	730.	5.80	.10	11.0	40.
21J03	83KAR1518	19	629775	5098300	T 10		GRNT	53.	18.	122.	23.	84.	.05	68.	1.00	1.0	1250.	6.30	.10	28.0	70.
21J03	83KAR1519	19	634600	5096750	T 10		GRNT	54.	24.	106.	20.	79.	.10	68.	.60	2.0	1300.	6.30	.10	18.0	75.
21J03	83KAR1520	19	634850	5095900	T 11	1.50	GRNT	42.	19.	117.	18.	72.	.10	64.	.05	2.0	1250.	6.10	.10	11.0	45.
21J03	83KAR1520A	19	634850	5095900	T 01	.50	GRNT	59.	19.	119.	18.	81.	.10	70.	.05	2.0	920.	6.60	.10	22.0	75.
21J03	83KAR1521	19	634575	5103500	T 10		SCST	52.	20.	131.	17.	82.	.05	82.	1.00	1.0	930.	5.70	.10	15.0	125.
21J03	83KAR1522	19	636500	5101225	F 10		GRNT	54.	35.	110.	21.	77.	.20	108.	.80	2.0	1480.	6.70	.10	37.0	175.
21J03	83KAR1523	19	636500	5103750	T 10		GRNT	71.	25.	112.	18.	77.	.10	67.	.70	1.0	1250.	6.30	.10	27.0	75.
21J03	83KAR1524	19	643150	5104150	T 10		GRCK	65.	38.	115.	26.	82.	.05	93.	.60	4.0	1000.	7.50	.10	41.0	95.
21J03	83KAR1525	19	642250	5099325	T 10		GRCK	54.	22.	129.	19.	87.	.05	86.	.20	3.0	1100.	6.90	.10	36.0	60.
21J03	83KAR1526	19	646800	5099550	T 10		GRCK	54.	24.	136.	20.	71.	.05	73.	2.60	6.0	1320.	6.80	.10	39.0	50.
21J03	83KAR1527	19	653700	5095825	T 10		GRNT	55.	22.	125.	17.	70.	.05	68.	.90	4.0	890.	6.30	.10	43.0	40.
21G14	83KAR1528	19	653110	5092500	T 10		GRNT	61.	26.	126.	16.	65.	.10	71.	2.30	4.0	950.	6.50	.10	45.0	65.
21G14	83KAR1529	19	654160	5088660	T 10		GRCK	60.	27.	141.	18.	69.	.05	74.	1.40	3.0	1160.	6.50	.10	33.0	55.
21G14	83KAR1530	19	650600	5088300	T 10	2.00	GRNT	68.	43.	120.	20.	82.	.05	74.	2.70	2.0	1300.	6.40	.10	42.0	75.
21G14	83KAR1531	19	646025	5091525	T 10		GRNT	63.	30.	137.	18.	65.	.10	85.	12.00	3.0	1100.	7.30	.10	39.0	50.
21G14	83KAR1532	19	641525	5093225	T 10		GRCK	59.	29.	116.	22.	87.	.05	70.	.70	1.0	1500.	6.30	.10	22.0	85.
21G14	83KAR1533	19	627850	5091320	F 10		GRNT	114.	42.	148.	26.	76.	.10	67.	1.00	3.0	3300.	7.30	.20	48.0	140.
21J04	83KAR1534	19	615025	5108075	TO 10		SLTE	175.	29.	191.	15.	78.	.10	78.	.80	4.0	465.	6.60	.10	24.0	260.
21J04	83KAR1535	19	611000	5111225	T 10		ARGL	57.	34.	123.	23.	98.	.05	82.	1.20	2.0	1950.	6.60	.10	24.0	135.
21G14	83KAR1536	19	618450	5093500	T 10		ARGL	75.	32.	138.	29.	82.	.05	70.	1.40	1.0	2220.	7.30	.10	43.0	70.
21G14	83KAR1537	19	617900	5090400	T 10	1.25	GRCK	78.	26.	113.	20.	75.	.05	66.	1.20	1.0	1700.	6.10	.10	28.0	130.
21G14	83KAR1538	19	619250	5083180	T 10	2.00	GRCK	93.	29.	88.	27.	194.	.05	96.	1.90	3.0	1250.	5.30	.10	27.0	135.
21G14	83KAR1539	19	616400	5078850	T 10		GRCK	66.	25.	100.	22.	83.	.05	74.	1.40	2.0	1800.	6.30	.10	25.0	95.
21G14	83KAR1540	19	611420	5075530	TO 10		GRNT	91.	37.	106.	29.	122.	.05	98.	4.00	2.0	3200.	7.20	.10	64.0	155.
21G14	83KAR1541	19	609200	5073820	T 10		GRNT	65.	21.	124.	21.	78.	.10	80.	1.60	1.0	1600.	7.00	.10	31.0	70.
21G14	83KAR1542	19	610050	5071160	T 10		GRNT	51.	18.	111.	19.	73.	.05	70.	1.20	2.0	1330.	6.10	.10	20.0	50.
21G14	83KAR1543	19	610000	5068200	T 10		GRNT	74.	22.	118.	20.	84.	.05	63.	1.40	3.0	2050.	6.50	.10	33.0	85.
21G14	83KAR1544	19	605030	5076450	T 10		GRCK	36.	20.	141.	20.	73.	.05	72.	1.70	3.0	1650.	5.90	.10	17.0	95.
21G14	83KAR1545	19	601700	5077720	T 10		GRCK	46.	24.	139.	20.	71.	.05	75.	2.10	2.0	980.	6.30	.10	20.0	185.
21G14	83KAR1546	19	601480	5082425	T 10		GRCK	66.	28.	93.	22.	67.	.05	57.	1.40	3.0	2200.	6.30	.10	28.0	130.
21G14	83KAR1547	19	599625	5086350	F 10		ARGL	129.	65.	153.	35.	88.	.05	92.	2.00	3.0	6900.	13.00	.10	72.0	500.
21G14	83KAR1548	19	604500	5088450	T 11		ARGL	112.	28.	138.	23.	89.	.05	76.	1.20	1.0	1900.	7.70	.10	42.0	150.

MAP	ID	UTM ZN	COORDINATES EAST	NORTH	SAMP TYPE	SAMP DEPTH	BDRK TYPE	CU PPM	PB PPM	ZN PPM	CO PPM	NI PPM	AG PPM	CR PPM	U PPM	MO PPM	MN PPM	FE PCT	CD PPM	AS PPM	HG PPB
21G14	83KAR1548A	19	604500	5088450	F	01	ARGL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
21G14	83KAR1549	19	605800	5084500	T	10	GRCK	46.	36.	149.	17.	63.	.05	77.	2.60	4.0	1000.	6.60	.10	22.0	150.
21G14	83KAR1550	19	609025	5081360	F	10	GRCK	118.	49.	129.	28.	89.	.05	90.	1.60	5.0	3880.	8.20	.10	51.0	260.
21G14	83KAR1551	19	599640	5090450	T	10	ARGL	89.	27.	109.	24.	98.	.05	68.	1.20	3.0	2700.	7.20	.10	35.0	110.
21J04	83KAR1552	19	596125	5097600	TO	10	SLTE	94.	27.	142.	31.	130.	.05	67.	1.50	4.0	2150.	7.40	.10	36.0	270.
21G14	83KAR1553	19	612925	5092680	T	10	ARGL	46.	26.	126.	19.	72.	.05	71.	.60	1.0	1250.	6.10	.10	16.0	130.
21G14	83KAR1554	19	609240	5093580	T	10	ARGL	58.	26.	111.	20.	60.	.05	55.	1.10	.5	1100.	6.00	.10	16.0	60.
21G14	83KAR1555	19	608750	5092650	T	10	ARGL	40.	28.	106.	16.	78.	.05	84.	1.50	3.0	980.	5.70	.10	21.0	150.
21G14	83KAR1556	19	611300	5085740	T	10	ANDS	81.	28.	116.	23.	86.	.05	86.	1.40	1.0	1750.	6.70	.10	32.0	55.
21G14	83KAR1557	19	617300	5083725	TO	10	GRCK	79.	23.	139.	21.	96.	.05	74.	1.40	2.0	1600.	6.70	.10	43.0	90.
21G14	83KAR1558	19	619325	5078850	T	10	GRCK	82.	26.	97.	20.	105.	.05	80.	1.40	2.0	1350.	5.90	.10	76.0	100.
21G14	83KAR1559	19	619850	5073470	T	10	GRNT	67.	28.	117.	22.	94.	.05	85.	1.50	2.0	1950.	6.70	.10	38.0	80.
21G14	83KAR1560	19	619650	5071860	T	10	GRNT	65.	28.	104.	21.	75.	.05	77.	1.60	3.0	1100.	5.90	.10	26.0	150.
21G14	83KAR1560A	19	619650	5071860	T	00	GRNT	59.	27.	125.	19.	90.	.05	87.	2.10	3.0	1450.	6.30	.10	49.0	125.
21G14	83KAR1561	19	622950	5086550	T	10	GRCK	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
21G14	83KAR1562	19	626850	5083180	TO	10	GRNT	66.	20.	123.	19.	69.	.05	70.	1.20	2.0	1200.	6.80	.10	31.0	70.
21G14	83KAR1563	19	626200	5089650	T	10	GRCK	59.	13.	115.	18.	77.	.05	72.	1.10	1.0	1400.	6.50	.10	23.0	50.
21G14	83KAR1564	19	648770	5081600	T	10	GRNT	36.	22.	94.	16.	60.	.05	76.	1.20	.5	640.	5.80	.10	19.0	65.
21G14	83KAR1565	19	651675	5073080	T	10	GRCK	53.	22.	107.	17.	68.	.05	75.	2.00	2.0	1000.	6.00	.10	18.0	70.
21G14	83KAR1566	19	643325	5073025	T	10	GRCK	47.	25.	112.	17.	61.	.05	68.	2.30	2.0	1000.	6.10	.10	18.0	75.
21G14	83KAR1567	19	644470	5074325	T	10	GRCK	66.	25.	120.	16.	64.	.05	62.	2.60	3.0	1050.	6.10	.10	25.0	90.
21G14	83KAR1568	19	650760	5085450	T	10	SDST	53.	20.	109.	17.	67.	.05	81.	1.60	3.0	1050.	6.20	.10	32.0	70.
21G14	83KAR1569	19	644450	5089450	T	10	GRNT	38.	18.	90.	16.	68.	.05	70.	1.10	1.0	920.	5.60	.10	14.0	70.
21G14	83KAR1570	19	633110	5086900	T	10	GRNT	56.	22.	137.	22.	68.	.05	74.	.90	2.0	1100.	6.40	.10	14.0	100.
21G14	83KAR1571	19	634025	5082740	T	10	GRNT	53.	21.	117.	18.	66.	.05	70.	1.10	1.0	1170.	6.20	.10	12.0	105.

MAP	ID	UTM ZN	COORDINATES EAST	NORTH	SAMP TYPE	SAMP DEPTH	BDRK TYPE	G.T. 2MM %	%SAND	L.T. 2MM %SILT	%CLAY
21J05	83KAR1400	19	605200	5126225	F 10		CSDM	40.2	97.0	2.0	1.0
21J05	83KAR1401	19	602900	5127450	TO 10		CSDM	45.0	58.0	28.0	14.0
21J05	83KAR1402	19	595550	5130650	TO 10	.50	CSDM	34.0	39.0	45.0	16.0
21J05	83KAR1403	19	604250	5133850	TO 10		CSDM	26.9	29.0	34.0	37.0
21J05	83KAR1404	19	605650	5137150	TO 10		CSDM	18.3	26.0	40.5	33.5
21J03	83KAR1405	19	607480	5138130	F 10		CSDM	83.5	92.0	3.8	4.2
21J05	83KAR1406	19	602450	5143450	TO 10	.50	CSDM	37.9	39.5	39.4	21.1
21J05	83KAR1407	19	596160	5142950	F 10		CSDM	61.5	79.6	15.8	4.6
21J05	83KAR1408	19	596800	5143540	TN 10		CSDM	44.5	64.6	24.6	10.8
21J05	83KAR1409	19	599700	5148700	T 10		CSDM	31.7	47.5	29.8	22.6
21J12	83KAR1410	19	599270	5152875	TO 10		CSDM	42.0	35.2	31.6	33.2
21J12	83KAR1411	19	596050	5151750	F 10		CSDM	33.9	94.0	4.4	11.6
21J12	83KAR1412	19	594050	5160150	TO 10		CSDM	46.6	78.0	15.7	6.3
21J12	83KAR1413	19	594900	5163350	TO 10		GRCK	43.0	45.9	29.6	24.6
21J12	83KAR1414	19	593875	5167720	TO 10		CSDM	28.7	39.4	47.7	13.0
21J12	83KAR1415	19	594050	5171600	TO 10		GRCK	47.5	45.7	34.5	19.8
21J12	83KAR1416	19	596750	5172710	TO 11	3.00	CSDM	28.5	39.0	37.0	24.0
21J12	83KAR1416A	19	596750	5172710	TO 01		CSDM	33.0	33.7	42.5	23.8
21J03	83KAR1417	19	606550	5145600	F 10		CSDM	59.2	91.4	4.9	3.7
21J12	83KAR1418	19	598600	5174420	F 10		GRCK	68.8	89.8	4.4	5.8
21J12	83KAR1419	19	602600	5171375	TO 10		GRCK	44.5	64.2	26.9	8.9
21J12	83KAR1420	19	607150	5171000	TO 10	2.50	GRCK	58.7	50.2	34.0	15.7
21J12	83KAR1421	19	606800	5166850	TO 10		GRCK	59.5	56.6	32.1	11.3
21J12	83KAR1422	19	603100	5165680	TN 10		GRCK	58.0	45.1	36.8	18.1
21J12	83KAR1423	19	598750	5162380	F 10		CSDM	36.4	92.7	4.9	2.4
21J12	83KAR1424	19	601250	5155880	TO 11	5.00	CSDM	45.8	79.0	16.7	4.3
21J12	83KAR1424A	19	601250	5155880	F 01	1.00	CSDM	37.8	96.2	2.0	1.8
21J12	83KAR1425	19	608600	5153100	TO 10		CSDM	54.5	69.3	22.1	8.6
21J12	83KAR1426	19	609640	5155680	TO 10	3.00	CSDM	43.6	48.6	32.0	19.4
21J12	83KAR1427	19	604650	5162180	TO 10		GRCK	2.6	16.3	49.5	34.2
21J12	83KAR1428	19	611000	5162850	TO 10		CSDM	45.3	55.0	30.2	14.8
21J12	83KAR1429	19	613070	5159590	TO 10		CSDM	1.0	10.4	53.7	35.9
21J11	83KAR1430	19	615000	5164550	TO 10		CSDM	46.3	21.0	35.5	43.5
21J11	83KAR1431	19	616275	5160700	T 10		GRCK	32.0	45.7	38.3	16.0
21J12	83KAR1432	19	613600	5153210	F 10		GRCK	44.8	85.8	7.0	7.3
21J12	83KAR1433	19	614075	5152150	F 10		GRCK	52.8	78.0	9.6	12.4
21J11	83KAR1434	19	617520	5152320	T 10		GRCK	40.1	56.6	35.0	8.4
21J11	83KAR1435	19	621050	5156125	T 10		GRCK	44.1	52.8	42.2	5.0
21J11	83KAR1436	19	619900	5153200	T 10	2.75	GRCK	35.5	39.8	35.7	24.4
21J11	83KAR1437	19	626125	5151140	T 10	3.00	GRCK	55.0	42.8	34.7	22.6
21J11	83KAR1438	19	626800	5158060	TO 10		GRCK	52.0	33.2	21.7	45.1
21J11	83KAR1439	19	627175	5155000	T 10		GRCK	43.4	38.3	40.0	21.7
21J11	83KAR1440	19	633250	5155670	T 10		GRCK	32.9	33.9	46.9	19.2
21J11	83KAR1441	19	629850	5154000	F 10		GRCK	44.1	48.2	26.0	25.8
21J05	83KAR1442	19	611450	5134350	TO 10		CSDM	33.3	37.6	45.6	16.9
21J05	83KAR1443	19	613900	5136460	T 10		GRCK	46.9	47.0	35.9	17.2
21J05	83KAR1444	19	611930	5139500	T 10		GRCK	40.2	48.1	42.3	9.6
21J05	83KAR1445	19	612650	5147100	F 10		GRCK	40.5	92.3	5.2	2.5
21J05	83KAR1446	19	613650	5147100	T 10		GRCK	55.3	84.4	7.9	7.7
21J06	83KAR1447	19	620400	5143340	TO 10		SLTE	52.7	39.3	40.3	20.4
21J06	83KAR1448	19	624675	5144325	F 10		SLTE	87.1	95.8	1.6	2.6

MAP	ID	UTM ZN	COORDINATES EAST	NORTH	SAMP TYPE	SAMP DEPTH	BDRK TYPE	G.T. 2MM %	L.T. 2MM %SAND	%SILT	%CLAY
21J06	83KAR1449	19	624850	5146000	T 10		SLTE	46.7	50.4	37.6	12.1
21J06	83KAR1450	19	630660	5145775	T 10		SLTE	41.6	41.9	37.2	20.9
21J06	83KAR1451	19	620800	5148300	T 10	2.00	SLTE	77.0	85.6	8.7	5.7
21J06	83KAR1452	19	616100	5143625	T 10		SLTE	54.4	52.3	30.5	14.2
21J06	83KAR1453	19	618500	5137880	F 10		SLTE	69.1	80.8	14.1	5.2
21J06	83KAR1454	19	619800	5134240	T 10		SLTE	29.1	29.1	35.2	35.7
21J06	83KAR1455	19	624000	5133875	F 10		SLTE	61.5	84.0	11.1	4.9
21J06	83KAR1456	19	624100	5135250	F 10		SLTE	90.7	69.5	10.5	20.0
21J06	83KAR1457	19	629200	5136900	F 10		CGLM	76.6	84.4	6.5	9.2
21J06	83KAR1458	19	628350	5137275	T 10	2.00	CGLM	71.7	81.0	9.6	9.4
21J06	83KAR1459	19	626250	5137900	T 10	3.00	SLTE	35.0	33.3	35.2	31.5
21J06	83KAR1460	19	626350	5128550	T 10		CGLM	4.4	19.1	40.1	40.8
21J06	83KAR1461	19	626200	5126630	F 10		CGLM	6.0	88.0	9.1	2.9
21J06	83KAR1462	19	625850	5125840	T 11		CGLM	33.9	33.4	37.5	29.2
21J06	83KAR1462A	19	625850	5125840	T 01		CGLM	14.3	72.3	16.5	11.2
21J06	83KAR1463	19	620700	5126750	T 10		CGLM	37.0	46.2	31.5	22.4
21J06	83KAR1464	19	617150	5127250	T 10		SLTE	48.6	47.6	36.4	16.0
21J05	83KAR1465	19	608850	5123650	F 10		CSDM	20.3	86.9	9.8	3.3
21J04	83KAR1466	19	613925	5119850	F 10		SLTE	44.7	91.9	5.8	2.3
21J04	83KAR1467	19	607000	5117450	T 10		CLCS	33.9	29.6	43.3	27.1
21J04	83KAR1468	19	601540	5120580	T 10	2.00	SLTE	24.6	24.2	36.5	39.3
21J04	83KAR1469	19	597750	5121920	T 10		CLCS	64.0	48.8	39.1	12.1
21J04	83KAR1470	19	597575	5119675	T 10		CLCS	30.9	39.9	47.4	12.7
21J04	83KAR1471	19	599400	5116125	TO 10		SLTE	53.5	72.5	21.5	6.0
21J04	83KAR1472	19	596600	5114600	TO 10	2.00	SLTE	7.9	24.2	52.7	23.1
21J04	83KAR1473	19	602075	5112175	T 10	3.00	SLTE	28.5	30.9	37.9	31.2
21J04	83KAR1474	19	596100	5110540	T 10	1.50	SLTE	29.6	34.9	41.0	24.1
21J04	83KAR1475	19	598680	5103950	T 10		SLTE	25.1	33.0	37.9	29.1
21J04	83KAR1476	19	600750	5098470	T 10		SLTE	32.7	35.2	36.4	38.4
21J04	83KAR1477	19	603000	5103000	T 10		SLTE	36.5	39.5	33.6	26.9
21J04	83KAR1478	19	605000	5106200	T 10	1.25	SLTE	32.0	28.5	35.7	35.8
21J04	83KAR1479	19	607950	5108075	TO 10		SLTE	35.3	31.6	39.1	29.3
21J04	83KAR1480	19	610825	5101075	T 10		SLTE	35.2	35.8	41.7	22.5
21J04	83KAR1481	19	605950	5099450	T 10		SCST	32.6	34.1	39.1	26.8
21J04	83KAR1482	19	605350	5096900	T 10	2.00	GRNT	38.3	33.0	38.3	28.7
21J04	83KAR1483	19	609350	5095800	T 10	2.00	SLTE	14.7	32.7	35.4	31.9
21J04	83KAR1484	19	613800	5095700	T 10	2.00	SLTE	45.7	41.3	31.6	27.1
21J04	83KAR1485	19	615450	5112500	T 10		SLTE	18.0	27.5	37.2	35.4
21J03	83KAR1486	19	621380	5111110	T 10	1.50	SLTE	20.5	23.5	38.0	38.5
21J03	83KAR1487	19	627100	5108110	T 10	1.25	SLTE	19.3	37.8	37.7	24.5
21J03	83KAR1488	19	630000	5107850	T 10		SLTE	30.2	24.4	37.3	38.3
21J03	83KAR1489	19	633500	5108410	T 10		SLTE	20.1	27.5	36.6	35.9
21J03	83KAR1490	19	636500	5112200	TO 10		SLTE	62.4	77.7	12.7	9.6
21J03	83KAR1491	19	632700	5118750	T 10		BSLT	57.6	79.6	12.9	7.5
21J03	83KAR1492	19	636350	5115100	T 10	.33	SLTE	38.2	56.9	25.8	17.4
21J03	83KAR1493	19	641025	5111650	T 10	1.50	SLTE	35.2	50.5	34.5	15.0
21J03	83KAR1494	19	640220	5108730	T 10		SCST	32.4	43.6	29.7	25.6
21J03	83KAR1495	19	650800	5120580	T 10	2.50	GRNT	32.6	75.0	18.4	6.6
21J03	83KAR1496	19	649220	5119100	C 10		GRNT	21.0	91.5	6.7	1.8
21J03	83KAR1497	19	647850	5116420	T 10		GRNT	40.1	81.2	15.5	3.4
21J03	83KAR1498	19	645850	5114280	F 10		GRNT	41.9	89.7	9.3	1.0

MAP	ID	UTM ZN	COORDINATES EAST	NORTH	SAMP TYPE	SAMP DEPTH	BDRK TYPE	G.T. 2MM %	L.T. 2MM %SAND	%SILT	%CLAY
21J03	83KAR1499	19	645400	5109900	F 10		GRNT	68.9	64.8	18.7	16.5
21J03	83KAR1500	19	642750	5107550	F 10		GRNT	36.3	89.2	9.5	1.3
21J03	83KAR1501	19	647625	5108540	TO 10		GRCK	66.4	54.5	31.8	13.7
21J03	83KAR1502	19	652000	5106180	TO 10		GRCK	43.3	51.1	29.6	19.3
21J03	83KAR1503	19	653850	5103720	TN 10		GRNT	29.8	55.3	24.4	20.4
21J02	83KAR1504	19	658450	5102450	F 10		GRCK	59.5	89.9	6.4	3.7
21J02	83KAR1505	19	659400	5101500	F 10		GRNT	3.5	7.7	47.5	44.7
21J02	83KAR1506	19	661650	5098000	T 10	1.50	GRCK	16.2	30.8	35.5	33.7
21J02	83KAR1507	19	661810	5103325	T 10		GRCK	32.4	33.4	41.4	25.2
21J04	83KAR1508	19	612575	5115860	T 10		SLTE	33.2	44.3	36.5	19.2
21J04	83KAR1509	19	614770	5114780	T 10		SLTE	15.2	18.9	37.4	43.7
21J03	83KAR1510	19	618170	5116400	T 10		SLTE	28.0	30.0	40.5	29.5
21J03	83KAR1511	19	619850	5115150	T 10		SLTE	10.0	22.1	35.9	42.0
21J03	83KAR1512	19	624000	5116600	T 10	2.00	SLTE	22.7	23.1	36.5	40.4
21J03	83KAR1513	19	621410	5116210	T 10	.50	SLTE	33.1	36.8	31.5	31.7
21J03	83KAR1514	19	615900	5118325	T 10	1.50	SLTE	14.9	22.8	40.8	36.3
21J03	83KAR1515	19	622925	5109580	T 10		SLTE	45.9	50.7	36.7	12.6
21J03	83KAR1516	19	629150	5103250	T 10		SLTE	27.5	27.5	37.0	35.5
21J03	83KAR1517	19	629550	5099380	T 10		SLTE	9.4	24.3	37.7	38.0
21J03	83KAR1518	19	629775	5098300	T 10		GRNT	27.7	26.3	35.6	38.1
21J03	83KAR1519	19	634600	5096750	T 10		GRNT	17.2	26.7	38.9	31.4
21J03	83KAR1520	19	634850	5095900	T 11	1.50	GRNT	18.8	23.4	35.8	40.8
21J03	83KAR1520A	19	634850	5095900	T 01	.50	GRNT	20.0	23.1	36.2	40.7
21J03	83KAR1521	19	634575	5103500	T 10		SCST	6.1	42.8	37.4	19.8
21J03	83KAR1522	19	636500	5101225	F 10		GRNT	55.4	93.9	4.0	2.1
21J03	83KAR1523	19	636500	5103750	T 10		GRNT	15.9	34.8	33.3	31.9
21J03	83KAR1524	19	643150	5104150	T 10		GRCK	65.5	55.9	26.6	17.5
21J03	83KAR1525	19	642250	5099325	T 10		GRCK	18.5	29.0	31.4	39.6
21J03	83KAR1526	19	646800	5099550	T 10		GRCK	10.0	33.5	33.2	33.2
21J03	83KAR1527	19	653700	5095825	T 10		GRNT	13.7	36.7	30.7	32.6
21G14	83KAR1528	19	653110	5092500	T 10		GRNT	12.6	39.6	30.6	29.8
21G14	83KAR1529	19	654160	5088660	T 10		GRCK	17.4	41.6	32.3	26.1
21G14	83KAR1530	19	650600	5088300	T 10	2.00	GRNT	39.5	76.3	13.9	9.8
21G14	83KAR1531	19	646025	5091525	T 10		GRNT	13.5	38.0	36.5	25.8
21G14	83KAR1532	19	641525	5093225	T 10		GRCK	22.9	31.7	34.0	34.0
21G14	83KAR1533	19	627850	5091320	F 10		GRNT	50.6	80.5	14.7	4.8
21J04	83KAR1534	19	615025	5108075	TO 10		SLTE	25.5	25.9	46.1	28.0
21J04	83KAR1535	19	611000	5111225	T 10		ARGL	21.5	52.8	26.6	20.6
21G14	83KAR1536	19	618450	5093500	T 10		ARGL	17.5	32.9	35.3	31.8
21G14	83KAR1537	19	617900	5090400	T 10	1.25	GRCK	34.2	33.8	34.0	32.2
21G14	83KAR1538	19	619250	5083180	T 10	2.00	GRCK	36.1	45.6	45.6	8.8
21G14	83KAR1539	19	616400	5078850	T 10		GRCK	19.3	26.7	43.5	29.8
21G14	83KAR1540	19	611420	5075530	TO 10		GRNT	34.7	61.1	32.4	6.6
21G14	83KAR1541	19	609200	5073820	T 10		GRNT	8.4	29.8	39.1	31.1
21G14	83KAR1542	19	610050	5071160	T 10		GRNT	16.1	30.3	40.4	29.4
21G14	83KAR1543	19	610000	5068200	T 10		GRNT	24.8	27.5	41.6	30.9
21G14	83KAR1544	19	605030	5076450	T 10		GRCK	25.9	33.7	45.8	20.5
21G14	83KAR1545	19	601700	5077720	T 10		GRCK	35.0	26.9	50.4	22.7
21G14	83KAR1546	19	601480	5082425	T 10		GRCK	23.8	36.4	42.3	21.4
21G14	83KAR1547	19	599625	5086350	F 10		ARGL	55.0	76.6	17.9	5.5
21G14	83KAR1548	19	604500	5088450	T 11		ARGL	28.6	33.1	39.1	27.9

MAP	ID	UTM ZN	COORDINATES EAST	NORTH	SAMP TYPE	SAMP DEPTH	BDRK TYPE	G.T. 2MM %	L.T. 2MM %SAND	%SILT	%CLAY
21G14	83KAR1548A	19	604500	5088450	F	01	ARGL	50.3	95.9	1.8	2.3
21G14	83KAR1549	19	605800	5084500	T	10	GRCK	31.8	40.7	37.7	21.6
21G14	83KAR1550	19	609025	5081360	F	10	GRCK	54.2	63.0	24.8	8.2
21G14	83KAR1551	19	599640	5090450	T	10	ARGL	24.4	36.6	41.2	22.2
21J04	83KAR1552	19	596125	5097600	TO	10	SLTE	43.3	53.4	31.0	15.6
21G14	83KAR1553	19	612925	5092680	T	10	ARGL	24.1	30.4	42.6	27.0
21G14	83KAR1554	19	609240	5093580	T	10	ARGL	58.2	57.0	25.7	17.3
21G14	83KAR1555	19	608750	5092650	T	10	ARGL	36.2	45.6	33.2	21.2
21G14	83KAR1556	19	611300	5085740	T	10	ANDS	28.3	34.1	35.3	30.6
21G14	83KAR1557	19	617300	5083725	TO	10	GRCK	27.0	31.2	42.5	26.3
21G14	83KAR1558	19	619325	5078850	T	10	GRCK	33.1	35.2	42.9	21.9
21G14	83KAR1559	19	619850	5073470	T	10	GRNT	20.4	36.6	39.3	24.1
21G14	83KAR1560	19	619650	5071860	T	10	GRNT	28.6	34.8	42.7	22.4
21G14	83KAR1560A	19	619650	5071860	T	00	GRNT	27.8	39.9	40.8	19.4
21G14	83KAR1561	19	622950	5086550	T	10	GRCK				
21G14	83KAR1562	19	626850	5083180	TO	10	GRNT	21.8	32.3	37.6	30.1
21G14	83KAR1563	19	626200	5089650	T	10	GRCK	10.8	24.6	37.5	37.9
21G14	83KAR1564	19	648770	5081600	T	10	GRNT	9.3	34.2	30.9	34.9
21G14	83KAR1565	19	651675	5073080	T	10	GRCK	19.7	34.8	38.4	26.8
21G14	83KAR1566	19	643325	5073025	T	10	GRCK	26.8	47.0	30.4	22.6
21G14	83KAR1567	19	644470	5074325	T	10	GRCK	31.0	55.0	30.2	14.8
21G14	83KAR1568	19	650760	5085450	T	10	SDST	28.7	28.6	34.7	36.8
21G14	83KAR1569	19	644450	5089450	T	10	GRNT	14.5	27.8	44.3	28.0
21G14	83KAR1570	19	633110	5086900	T	10	GRNT	36.1	40.5	30.8	28.7
21G14	83KAR1571	19	634025	5082740	T	10	GRNT	30.0	43.1	32.1	24.9

********** INEZXCO //// END OF LIST ////
********** INEZXCO //// END OF LIST ////