APPENDIX 14

Acid Sulfate Soil Testing Data

Acid Sulfate Soil Testing

Hydrogen peroxide strength: 30 %

pH Meter: Hanna 9025

Tested by: Bill Porter

Location: Dean Forest Road Landfill

Procedure: P1 (see documentation)

Sample & Test No.	Date/ Time	Elapsed Time	pH	T (°C)	Comments
	(in field)				
AST-1	5/11/06				1 part soil, 3 parts distilled water
	1500		4.55	26.1	
	1503	0:00:00	*4.55*		add H2O2 (~1/4 part)
	1508	0:05:00	4.34		strong foaming reaction begins
	1518	0:15:00	3.96	27.3	
	1529	0:26:00	3.61	27.8	
	1543	0:40:00	3.32	28.6	
	1606	1:03:00	2.98	28.9	
	1617	1:14:00	2.86	27.9	
AST-2	5/11/06				1 part soil, 4 parts water
	1517		4.75	25.6	
	1521		4.71	26.1	
	1522	0:00:00	*4.71*		add H2O2 (less than AST-1 test above)
	1525	0:03:00	4.47	26.7	
	1542	0:20:00	4.15	26.8	
	1605	0:43:00	3.78	27.5	
	1616	0:54:00	3.14	25.8	
	1640	1:18:00	3.38	27.1	
	1656	1:34:00	3.14	27.5	Inverted & shook all jars 1652
AST-3	5/11/06				1 part soil, 4 parts water
	1551		4.43	26.3	
	1552	0:00:00	*4.43*		add H2O2
	1603	0:11:00	4.37	26.6	
	1615	0:23:00	3.95	25.3	
	1639	0:37:00	4.28	24.9	
	1655	0:53:00	4.24	25.3	Inverted & shook all jars 1652
AST-4	5/11/06		3.38		1 part soil, 4 parts water
	1642		5.66	25.0	
	1644	0:00:00	*5.66*		add H2O2
	1649	0:07:00	5.51	25.2	
	1654	0:10:00	5.42	25.0	Inverted & shook all jars 1652
	1707	0:23:00	5.36	25.2	

Acid Sulfate Soil Testing

Hydrogen peroxide strength: 30 %

pH Meter: Hanna 9025

Tested by: Bill Porter

Location: Dean Forest Road Landfill

Procedure: P1 (see documentation)

Sample & Test No.	Date/ Time	Elapsed Time	pH	T (°C)	Comments
	6/8/06				
Blank			5.98	26.8	Filtered water
add H2O2		0:10:00	5.80	26.5	(to test pH reaction in absence of soil)
AST-5	6/8/06				Upper few mm of soil tan-light orange (oxidized)
			3.38	26.0	Made water paste (1 pt soil, 1.5 - 2 parts water)
		0:00:00	*3.38*		add H2O2
		0:02:00	1.45	41.0	violent bubbling - strong exothermic reaction
		0:02:20	1.35	44.0	becomes too hot, violent for pH measurements
		0:04:30			reaction ends suddenly
		0:06:05		68.9	(temp = 156°F)
		0:08:30	1.70	64.3	
		0:10:00	1.70		Sediment now light grey/yellow except for thin
					dark gray layer at bottom (unreacted).
AST-6	6/8/06				
			2.08	26.5	Made water paste (1 pt soil, 2 parts water)
			2.14	26.8	eight minutes after mixing
		0:00:00	*2.14*		add H2O2; reaction much weaker than above test
		0:01:00	1.97	27.5	
		0:03:00	1.93	28.3	
		0:05:00	1.97	28.5	approx. end moderately strong reaction
recalibrate			3.96		pH 4.01 buffer
			7.01		pH 7.01 buffer
					(high temperature above did not affect calibration)
AST-2	6/8/06				(Tested with more water dilution in field, 5/11/06)
			3.82	26.3	Made water paste (1 pt soil, 1.5 - 2 parts water)
		0:00:00	*3.82*		add H2O2; weak reaction starts
		0:01:40	3.65	27.0	
		0:03:00	3.65	27.2	
		0:04:30	3.55	27.5	
		0:08:00	3.37	27.5	
		0:20:00	2.97	27.5	
		0:35:00	2.68	27.6	
		1:15:00	2.16	27.6	

Acid Sulfate Soil Testing

Hydrogen peroxide strength: 30 %

pH Meter: Hanna 9025

Tested by: Bill Porter

Location: Dean Forest Road Landfill

Procedure: P2 (see documentation)

Sample & Test No.	Date/ Time	Elapsed Time	pH	T (°C)	Comments
	6/27/06				
Blank			5.68	26.2	Filtered water
AST-9	6/27/06	0:00:00	*3.74*	25.5	10 mL soil + 10 mL filtered water
		0:01:30	3.60	26.5	Foaming after add 5.0 mL H2O2.
		0:03:00	3.57	26.4	Small pieces of organic matter floating.
		0:05:00	3.51	26.7	
		0:11:00	3.25	27.8	
		0:15:00	3.14	27.2	
		0:20:00	2.97	27.5	
		0:23:00	2.94	27.9	
		1:38:00	2.37	28.2	Very frothy after being unstirred for 1 hour.
		3:45:00	1.99	25.7	
		6:10:00	1.95	27.9	Still some bubbling. SC = 3.76 µS/cm
Blank			6.29	24.9	Distilled water (used for tests AST-8, AST-10 to 18)
AST-8	6/27/06	0:00:00	*3.72*	25.1	10 mL soil + 10 mL distilled water
		0:01:30	3.25	25.6	No visible reaction after add 5.0 mL H2O2.
		0:03:30	3.28	26.0	
		0:07:00	3.32	25.6	
		0:22:00	3.36	26.9	
		1:31:00	3.21	27.4	
		2:01:00	3.05	27.7	
		3:27:00	3.19	27.8	SC = 281 µS/cm
		4:41:00	3.39	27.8	
AST-10a	6/27/06				Subsample (a). All subsamples visually identical.
		0:00:00	*3.49*	26.8	10 mL soil + 10 mL distilled water
		0:00:30	1.99	29.0	Violent reaction after add 5.0 mL H2O2.
		0:02:00	1.15	32.5	
		0:03:30	1.64	60.0	
		0:08:00	1.66	50.4	Reaction slower.
		0:16:00	1.66	36.2	Check pH calibration: 4.03 & 7.03 (OK)
		0:41:00	1.66	29.3	
		1:05:00	1.66	27.2	Green floc present.
		2:54:00	1.67	27.5	SC = 11.46 µS/cm
		3:33:00	1.27	27.3	
		4:30:00	1.22	27.0	
		5:30:00	1.23	26.7	

Acid Sulfate Soil Testing

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Procedure: P2 (see documentation)

Sample & Test No.	Date/ Time	Elapsed Time	pH	T (°C)	Comments
AST-10b	6/27/06				Subsample (b). All subsamples visually identical.
		0:00:00	*3.50*	(10a)	10 mL soil + 10 mL dist. water. SC = 905 µS/cm
		0:01:30	1.92	28.7	Violent reaction after add 5.0 mL H2O2.
		0:02:30	1.64	38.6	
		0:04:00	1.58	48.4	
		0:05:00	1.48		
		0:06:00	0.87	37.8	
		0:08:00	0.91	39.6	
		0:10:10	0.90	40.6	
		0:15:00	1.01	34.0	SC = 11.12 µS/cm (at 18 min)
		0:21:00	1.15	32.6	Green floc distinct - photos.
		0:31:00	1.27	29.3	
		0:40:30	1.30	27.1	SC = 11.60 µS/cm (at 43 min)
		0:45:00	7.30		pH adj. by adding 1.25 mL sodium bicarbonate!
		0:50:00			SC > 2000 µS/cm
AST-10c	6/27/06				Subsample (c). All subsamples visually identical.
		0:00:00	*3.50*	(10a)	10 mL soil + 10 mL dist. water. SC = 685 µS/cm
		0:01:45	1.96	28.7	Violent reaction after add 5.0 mL H2O2.
		0:02:45	1.58	38.8	
		0:04:15	1.68	45.8	
		0:05:15	1.05	37.2	
		0:06:20	0.93		
		0:08:30	1.01	41.6	
		0:11:00	1.01	44.0	
		0:16:00	1.02	34.5	SC = 10.09 µS/cm (19 min.) Green floc - photos.
		0:22:00	1.16	32.9	
		0:32:00	1.24	29.1	
		0:41:00	1.28	27.1	SC = 10.60 µS/cm (43 min.)
		1:05:00	*1.91*	26.2	Stirred shortly before measurement.
		1:38:00	1.27	27.0	Not stirred.
		1:39:00	1.27	27.0	Stirred immediately before measurement.
		2:30:00	*2.15*	27.2	Not stirred before reading; stirred immediately after.
		2:34:00	1.27	27.2	
		3:25:00	1.26	27.6	
		5:43:00	1.29	28.4	SC = 9.76 µS/cm

Acid Sulfate Soil Testing

Hydrogen peroxide strength: 30 %

pH Meter: Hanna 9025

Tested by: Bill Porter

Location: Dean Forest Road Landfill

Procedure: P2 (see documentation)

Sample & Test No.	Date/ Time	Elapsed Time	pH	T (°C)	Comments
AST-10d	7/3/06				Subsample (d). Airspace in jar from 6/27 testing.
					Some oxidation, but not in portions used for test.
		0:00:00			10 mL soil + 10 mL distilled water. Floc formed.
		0:00:00	*2.65*	27.1	SC = 3.0 µS/cm ORP = 380 mV
		0:01:00	1.70	31.7	Violent reaction after add 5.0 mL H2O2.
		0:01:30	1.54	35.1	
		0:02:00	1.40	37.6	
		0:02:30	1.31	40.7	
		0:03:00	1.25	44.0	
		0:03:30	1.22	47.6	
		0:04:00	1.20	51.7	
		0:04:30	1.20	56.3	
		0:05:00	1.25	63.2	
		0:05:30	1.27	67.2	
		0:06:00	1.28	68.1	
		0:06:30	1.26	66.6	
		0:07:00	1.25	64.8	
		0:07:30	1.25	63.7	Reaction suddenly abated - stirring has no effect.
		0:08:00	1.24	61.8	
		0:09:00	1.22	59.6	
		0:10:00	1.20	56.3	
		0:12:00	1.21	52.4	
		0:14:00	1.23	49.0	
		0:16:00	1.25	46.1	
		0:18:00	1.27	43.9	
		0:20:00	1.28	41.9	
		0:25:00	1.35	36.9	
		0:30:00	1.45	34.8	
		0:35:00	1.48	33.0	
		0:40:00	1.55	31.8	
		0:50:00	1.57	30.3	
		1:00:00	1.61	29.3	
		1:10:00	1.64	28.7	
		1:20:00	1.63	28.2	
		1:40:00	1.63	28.2	
		2:00:00	1.66	28.2	
		2:30:00	1.67	28.2	
		3:00:00	1.64	28.1	SC = 11.66 µS/cm ORP = 541 mV
					When heated in microwave, no renewed reaction
					and no sulfuric acid odor were noted.
AST-10e	7/3/06	0:00:00	*2.59*	28.8	

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pH Meter: Hanna 9025

Tested by: Bill Porter

Location: Dean Forest Road Landfill

Procedure: P2 (see documentation)

Sample & Test No.	Date/ Time	Elapsed Time	pH	T (°C)	Comments
AST-11	6/27/06	0:00:00	*2.08*	26.6	10 mL soil + 10 mL distilled water
		0:01:00	1.98	27.1	Bubbling & fizzing after add 5.0 mL H2O2.
		0:02:30	1.93	28.6	Moderate reaction.
		0:04:00	1.86	30.4	
		0:06:00	1.78	31.8	
		0:08:00	1.79	32.0	
		0:10:00	1.81	33.3	
		0:15:00	1.70	32.9	Still bubbling.
		0:25:00	1.67	30.8	Still bubbling - photos.
		0:30:00	1.75	30.4	Green floc present.
		1:00:00	1.90	29.7	Bubbles forming slowly in soil.
		2:56:00	1.96	28.1	SC = 4.69 µS/cm
		3:39:00	1.91	28.0	
		4:50:00	1.58	27.4	(not stirred)
		7:20:00	1.62	28.3	SC = 4.62 µS/cm
AST-12	6/27/06	0:00:00	*2.12*	26.8	10 mL soil + 10 mL distilled water
		0:00:30	1.66	37.0	Strong reaction after add 5.0 mL H2O2.
		0:01:00	1.27	43.0	
		0:03:00	0.93	64.3	Reaction subsiding.
		0:04:30	0.86	55.9	
		0:06:00	0.87	47.6	
		0:08:30	0.85	43.5	No visible bubbling.
		0:11:30	0.88	37.0	
		0:14:00	0.91	33.2	
		0:18:00	0.94	32.1	Greenish floc.
		0:22:00	1.06	29.3	
		0:28:00	1.05	28.9	
		0:37:00	1.06	27.2	
		0:45:00	1.08	26.7	
		1:03:00	1.08	28.0	
		1:18:00	1.06	28.4	
		2:32:00	1.19	26.7	SC = 11.39 µS/cm

Acid Sulfate Soil Testing

Hydrogen peroxide strength: 30 %

pH Meter: Hanna 9025

Tested by: Bill Porter

Location: Dean Forest Road Landfill

Procedure: P2 (see documentation)

Sample & Test No.	Date/ Time	Elapsed Time	pH	T (°C)	Comments
AST-13	6/27/06	0:00:00	*3.24*	28.4	10 mL soil + 10 mL distilled water
		0:01:00	2.42	29.2	Weak reaction after add 5.0 mL H2O2.
		0:02:00	1.75	31.9	Stronger reaction at 1:30
		0:03:00	1.38	36.5	Strong reaction
		0:04:30	1.07	41.3	
		0:05:30	1.04	44.0	
		0:07:00	0.98	45.7	Reaction slows slightly at 8:00
		0:10:00	1.01	46.3	
		0:11:00	0.96	43.6	
		0:13:00	1.01	44.6	
		0:17:00	1.00	40.3	
		0:20:00	1.03	38.2	
		0:25:00	1.09	35.6	
		0:28:00	1.13	34.1	
		0:32:00	1.17	32.6	
		0:42:00	1.29	30.2	
		0:55:00	1.39	28.5	
		1:05:00	1.43	27.8	
		1:15:00	1.43	27.6	
		1:50:00	1.59	27.9	
		33:15:00	2.28	27.3	
AST-15	6/29/06	0:00:00	*4.72*	27.3	10 mL soil + 10 mL dist. water. SC = 227 µS/cm
		0:01:30	4.46	27.5	Disaggregated instantly after add 5.0 mL H2O2.
		0:02:30	4.44	27.5	
		0:03:30	4.38	27.9	No visible reaction.
		0:04:30	4.32	27.8	
		0:05:30	4.27	27.7	
		0:07:30	4.21	27.7	
		0:10:00	4.14	27.6	Only a few bubbles visible.
		0:16:00	4.13	27.6	
		0:20:00	4.12	27.6	
		0:25:00	4.08	27.6	
		0:36:00	4.14	27.8	Bubbles present.
		1:28:00	4.18	27.8	
		3:09:00	4.03	27.9	Bubbles present.
		8:25:00	3.80	29.1	SC = 250 µS/cm
					Tan med-thick slurry still bubbles. No settling!
					When heated in microwave to dry residue, bubbles
					vigorously again. Forms large mud bubbles at top
					of jar, rises due to high viscosity. No distinct odor.

Acid Sulfate Soil Testing

Hydrogen peroxide strength: 30 %

pH Meter: Hanna 9025

Tested by: Bill Porter

Location: Dean Forest Road Landfill

Procedure: P2 (see documentation)

Sample & Test No.	Date/ Time	Elapsed Time	pH	T (°C)	Comments
AST-14a	6/29/06	0:00:00	*3.40*	27.3	10 mL soil + 10 mL dist. water. SC = 1865 µS/cm
		0:01:30	2.10	28.9	Mild fizz after add 5.0 mL H2O2.
		0:02:30	2.29	31.8	Stronger reaction - medium.
		0:03:15	2.06	34.1	Yet stronger reaction.
		0:04:00	1.91	35.4	
		0:04:30	1.83	36.5	
		0:05:00	1.77	37.2	
		0:05:30	1.72	37.8	
		0:06:00	1.66	38.1	
		0:06:30	1.63	39.1	
		0:07:00	1.61	39.2	
		0:07:30	1.57	39.8	
		0:08:00	1.55	39.8	
		0:09:00	1.51	40.4	
		0:10:00	1.49	41.1	
		0:11:00	1.50	41.4	
		0:12:30	1.49	41.4	
		0:15:00	1.49	40.5	
		0:17:00	1.48	38.4	Still moderate reaction - fizzing.
		0:20:00	1.49	38.1	
		0:25:00	1.52	38.9	
		0:31:00	1.66	33.1	
		0:37:00	1.70	31.4	
		0:50:00	1.80	29.4	Slow reaction.
		1:00:00	1.86	28.4	
		1:32:00	2.10	27.6	
		2:34:00	2.03	27.3	Still bubbling.
		4:18:00	2.20	27.2	Floc present, no bubbles. Clear water above.
		9:28:00	2.26	29.3	SC = 5.35 µS/cm
					When heated in microwave to dry residue, bubbles
					slowly form in sediment and are released when
					jar is tapped. Odor is distinctly that of sulfuric acid,
					burns nasal passages.

Acid Sulfate Soil Testing

Hydrogen peroxide strength: 30 %

pH Meter: Hanna 9025

Tested by: Bill Porter

Location: Dean Forest Road Landfill

Procedure: P2 (see documentation)

Sample & Test No.	Date/ Time	Elapsed Time	pH	T (°C)	Comments
AST-14b	7/4/06				Subsample (b). Airspace in jar from 6/29 testing.
					Some oxidation, avoided in removing test sample.
		0:00:00	*3.29*	27.4	10 mL soil + 10 mL dist. water. SC = 2.10 µS/cm
		0:01:30	2.64	28.1	Moderate reaction after add 5.0 mL H2O2.
		0:02:00	2.43	28.6	
		0:02:30	2.29	29.1	
		0:03:00	2.19	29.7	
		0:04:00	2.08	30.2	
		0:05:00	1.95	31.2	
		0:06:00	1.84	31.6	
		0:07:00	1.77	32.1	
		0:08:00	1.75	32.5	
		0:09:00	1.73	33.2	
		0:10:00	1.71	32.4	
		0:20:00	1.73	33.2	No reaction apparent.
		0:25:00	1.77	32.6	
		0:30:00	1.82	32.2	
		0:35:00	1.85	31.4	
		0:40:00	1.89	30.6	
		1:00:00	2.01	29.4	No reaction.
		1:30:00	2.06	28.4	SC = 2.10 µS/cm. ORP = 409 mV
AST-16	6/29/06	0:00:00	*5.18*	26.7	10 mL soil + 10 mL dist. water. SC = 32.4 µS/cm
		0:01:30	4.87	27.8	Bubbling after add 5.0 mL H2O2.
		0:02:15	4.93	28.3	
		0:03:00	4.89	28.7	
		0:04:00	4.85	29.0	Moderately vigorous reaction.
		0:05:00	4.79	29.3	
		0:06:00	4.75	29.5	
		0:07:00	4.72	29.8	
		0:08:00	4.67	30.1	
		0:10:00	4.65	30.4	
		0:15:00	4.61	30.9	More vigorous bubbling! No apparent reason.
		0:20:00	4.61	31.1	
		0:25:00	4.62	30.9	
		0:30:00	4.63	30.8	
		0:45:00	4.66	30.1	
		2:27:00	4.55	27.7	Tan, turbid slurry (thin). Settling.
		7:46:00	4.92	28.8	SC = 115 µS/cm. Still bubbling.
					When heated in microwave, no renewed reaction
					and no sulfuric acid odor were noted.

Acid Sulfate Soil Testing

Hydrogen peroxide strength: 30 %

pH Meter: Hanna 9025

Tested by: Bill Porter

Location: Dean Forest Road Landfill

Procedure: P2 (see documentation)

Sample & Test No.	Date/ Time	Elapsed Time	pH	T (°C)	Comments
AST-17	6/29/06	0:00:00	*4.48*	28.8	10 mL soil + 10 mL dist. water. SC = 205 µS/cm
		0:01:00	3.77	28.9	Thick mud formed. Add 5.0 mL H2O2.
		0:02:00	3.64	30.0	Large bubbles form, but moderate reaction.
		0:03:00	3.55	30.7	
		0:04:00	3.49	31.3	
		0:05:00	3.42	31.8	More vigorous reaction, very large bubbles.
		0:06:00	3.37	32.5	
		0:07:00	3.30	32.7	
		0:08:00	3.24	32.8	
		0:09:00	3.19	32.9	
		0:10:00	3.18	32.7	
		0:12:00	3.13	33.3	
		0:15:00	3.06	33.6	
		0:20:00	3.01	34.0	
		0:27:00	3.02	32.5	
		0:30:00	3.02	31.2	
		0:35:00	3.03	30.2	
		0:40:00	3.04	29.3	
	2112	1:30:00	3.12	27.9	Check pH calibration: 4.01 & 6.99 (OK)
		6:53:00	3.12	29.2	SC = 210 µS/cm. Thick, dark tan mud.
					When heated in microwave, no renewed reaction
					and no sulfuric acid odor were noted.
AST-18	6/29/06	0:00:00	*4.59*	27.2	10 mL soil + 10 mL dist. water. SC = 48.4 µS/cm
		0:01:05	4.03	27.7	Moderate bubbling after add 5.0 mL H2O2.
		0:02:00	3.97	28.0	
		0:03:00	3.94	28.2	
		0:04:00	3.92	28.3	
		0:05:00	3.90	28.4	
		0:06:00	3.86	28.6	
		0:07:00	3.84	28.7	
		0:10:00	3.82	29.1	
		0:15:00	3.78	29.6	
		0:20:00	3.75	30.0	Still moderate bubbling.
		0:30:00	3.72	30.3	Reaction slower.
		0:40:00	3.71	30.3	
		1:00:00	3.60	30.2	
		1:20:00	3.68	30.2	
		6:10:00	3.86	29.6	A few slow bubbles. SC = 105 µS/cm.
					Orange med-thick slurry (thinner than AST-15).
					When heated in microwave to dry residue, bubbles
					vigorously again. No distinct odor.

Acid Sulfate Soil Testing

Hydrogen peroxide strength: 30 %

pH Meter: Hanna 9025

Tested by: Bill Porter

Location: Dean Forest Road Landfill

Procedure: P2, P3 & P4 (see documentation)

Sample & Test No.	Date/ Time	Elapsed Time	pH	T (°C)	Comments
	8/10/06				*Bench test 24 hrs after sample collected.*
ASL-1	1510	Reaction	None		Fizz test: 15% HCl (~ 5 M)
	1551	Sp. Cond.	280	µS/cm	
ASL-1 (a)	1555	0:00:00	*5.18*	29.1	10 mL soil + 10 mL distilled water
		0:01:00	4.49	32.8	Mod. fizzing after add 5 mL H2O2 (P2)
		0:02:00	3.35	33.9	
		0:03:00	2.62	36.0	
		0:04:00	2.05	40.8	Mod. strong reaction.
		0:05:00	1.80	52.7	Very strong reaction.
		0:06:00	1.76	59.0	Reaction slowing.
		0:07:00	1.74	57.9	
		0:09:00	1.79	54.3	
		0:10:00	1.78	52.2	
		0:13:00	1.80	48.8	
		0:15:00	1.74	46.6	Stirred.
		0:27:00	1.78	39.0	
		0:40:00	1.79	34.3	
	1656	Sp. Cond.	7.5	µS/cm	Green-yellow "pea soup" colored water & flocs.
	1658	1:03:00			***Add 5 ml H2O2 (testing for unreacted pyrite)
		1:04:00	2.12	32.7	Very strong reaction. (P3)
		1:05:00	2.11	34.3	Very strong reaction but slowing.
		1:06:00	2.00	36.6	
		1:07:00	1.84	38.9	
		1:08:00	1.77	40.6	
		1:10:00	1.71	42.7	Bubbling.
		1:12:00	1.69	43.9	
		1:13:00	1.66	41.4	***Add 5 ml H2O2 - vigorous reaction again.
		1:16:00	1.54	44.4	Very strong reaction.
		1:19:00	1.51	46.6	Strong bubbling.
		1:23:00	1.45	46.1	Moderate bubbling.
	8/10/06				
ASL-1 (b)	1620	0:00:00			5 mL soil + 5 mL H2O2 (P4)
		0:01:00	2.86	36.9	Strong reaction.
		0:02:00	1.74	51.9	Violent reaction - fumes.
		0:03:00	1.65	69.6	Strong reaction.
		0:04:00	1.57	63.9	Weak reaction.
		0:05:00	1.36	58.3	No visible bubbling.
		0:06:00	1.28	55.0	
		0:07:00	1.25	51.0	
		0:08:00	1.25	48.8	
		0:12:00	1.60	39.8	(Delayed auto-buffering reaction?)
		0:20:00	1.50	34.7	(Dec. pH again - buffering element consumed?)

Acid Sulfate Soil Testing

Hydrogen peroxide strength: 30 %

pH Meter: Hanna 9025

Tested by: Bill Porter

Location: Dean Forest Road Landfill

Procedure: P2, P3 & P4 (see documentation)

Sample & Test No.	Date/ Time	Elapsed Time	pH	T (°C)	Comments
	8/10/06				*Bench test 24 hrs after sample collected.*
ASL-2	1653	Reaction	None		Fizz test: 15% HCl (~ 5 M)
	1655	Sp. Cond.	180	µS/cm	
ASL-2 (a)	1718	0:00:00	*5.48*	28.6	10 mL soil + 10 mL distilled water
		0:01:00	4.46	32.1	Strong reaction after add 5 mL H2O2 (P2)
		0:02:00	3.67	33.4	
		0:03:00	2.93	34.2	
		0:04:30	2.33	36.3	
		0:06:00	2.06	38.7	Very strong reaction.
		0:07:30	1.97	42.3	Strong reaction.
		0:10:00	2.09	47.6	Moderately strong reaction.
		0:11:00	1.69	49.4	***Added 5 ml H2O2 at 10 min.
		0:13:00	1.75	54.7	Moderately strong reaction.
		0:20:00	1.67	50.2	
	1744	Sp. Cond.	8.3	µS/cm	Green-yellow "pea soup" colored water & flocs.
	8/10/06				
ASL-2 (b)	1740	0:00:00			5 mL soil + 5 mL H2O2 (P4)
		0:01:00	4.29	35.8	Very strong reaction.
		0:02:00	1.36	65.3	Violent reaction - fumes.
		0:02:30	1.17	70.4	Violent reaction - fumes.
		0:03:00	1.21	68.7	Strong reaction
		0:04:00	1.22	62.5	No visible reaction.
		0:05:00	1.22	58.3	No visible reaction.
		0:07:00	1.38	50.6	
		0:12:00	1.45	42.0	(Auto-buffering reaction? Decreasing temp. role?)

Acid Sulfate Soil Testing

Hydrogen peroxide strength: 30 %

pH Meter: Hanna 9025

Tested by: Bill Porter

Location: Dean Forest Road Landfill

Procedure: P3 & P4 (see documentation)

Sample & Test No.	Date/ Time	Elapsed Time	pH	T (°C)	Comments
	8/10/06				*Bench test 24 hrs after sample collected.*
ASL-3	1753	Reaction	None		Fizz test: 15% HCl (~ 5 M)
	1755	Sp. Cond.	132	µS/cm	
ASL-3 (a)	1718	0:00:00	*5.73*	26.1	10 mL soil + 10 mL distilled water
		0:01:00	5.79	29.3	Moderate reaction after add 10 mL H2O2 (P3)
		0:02:00	4.83	30.9	Strong reaction.
		0:03:00	3.72	32.1	Strong to very strong reaction.
		0:04:00	2.62	35.9	Very strong reaction.
		0:05:00	2.28	42.7	Stronger reaction.
		0:06:00	1.86	52.7	Violent reaction - fumes.
		0:07:00	1.84	59.7	Violent reaction - fumes.
		0:08:00	1.84	62.6	Moderately strong reaction.
		0:09:00	1.57	61.9	Weak reaction.
		0:10:00	1.45	61.4	No visible reaction.
		0:17:00	1.56	61.1	
		0:35:00	2.02	38.2	
	1744	Sp. Cond.	9.2	µS/cm	Green-yellow "pea soup" colored water & flocs.
	8/10/06				
ASL-3 (b)	1820	0:00:00			5 mL soil + 5 mL H2O2 (P4)
		0:01:00	3.21	36.8	Strong reaction
		0:02:00	1.35	51.4	Violent reaction - fumes.
		0:02:30	1.21	64.9	Strong reaction
		0:03:00	1.24	68.9	
		0:04:00	1.24	64.6	No visible reaction.
		0:05:00	1.25	60.4	
		0:25:00	1.90	33.7	

Acid Sulfate Soil Testing

Hydrogen peroxide strength: 30 %

pH Meter: Hanna 9025

Tested by: Bill Porter

Location: Dean Forest Road Landfill

Procedure: P3 & P4 (see documentation)

Sample & Test No.	Date/ Time	Elapsed Time	pH	T (°C)	Comments
	8/10/06				*Bench test 24 hrs after sample collected.*
ASL-4	1832	Reaction	None		Fizz test: 15% HCl (~ 5 M)
	1835	Sp. Cond.	235	µS/cm	
ASL-4 (a)	1836	0:00:00	*6.17*	29.5	10 mL soil + 10 mL distilled water
		0:01:00	6.15	32.3	Moderate reaction after add 10 mL H2O2 (P3)
		0:01:30	5.54	33.2	Moderately strong reaction.
		0:02:00	4.45	34.0	
		0:03:00	3.17	34.9	Strong reaction.
		0:04:00	2.62	35.9	Strong reaction.
		0:05:00	2.22	37.1	
		0:06:00	1.96	39.0	
		0:07:00	1.87	40.6	
		0:08:00	1.82	41.6	Moderate reaction.
		0:10:00	1.82	43.1	Moderate reaction.
		0:17:00	1.88	43.0	Moderate reaction.
		0:28:00	2.05	39.5	Slight reaction.
	1920	Sp. Cond.	4.8	µS/cm	Brown-yellow water & flocs (but sl. less prominent).
					Long-persisting reaction - still bubbling at 2000!
	8/10/06				
ASL-4 (b)	1905	0:00:00			5 mL soil + 5 mL H2O2 (P4)
		0:01:00	5.73	32.8	
		0:01:30	4.78	34.2	Strong reaction
		0:02:00	4.34	35.0	
		0:03:00	2.33	38.2	
		0:04:00	2.05	42.5	Strong reaction
		0:05:00	1.78	48.1	
		0:06:00	1.78	50.5	
		0:07:00	1.65	53.1	Strong reaction
		0:08:00	1.63	54.7	Moderate reaction.
		0:10:00	1.67	54.0	Weak reaction.
		0:12:00	1.57	50.9	Weak reaction.
		0:15:00	1.50	47.9	No visible reaction.
		0:18:00	1.59	41.8	

Acid Sulfate Soil Testing

Hydrogen peroxide strength: 30 %

pH Meter: Hanna 9025

Tested by: Bill Porter

Location: Dean Forest Road Landfill

Procedure: P3 & P4 (see documentation)

Sample & Test No.	Date/ Time	Elapsed Time	pH	T (°C)	Comments
	8/10/06				*Bench test 24 hrs after sample collected.*
ASL-5	1915	Reaction	None		Fizz test: 15% HCl (~ 5 M)
	1917	Sp. Cond.	95	µS/cm	
ASL-5 (a)	1922	0:00:00	*5.70*	29.0	10 mL soil + 10 mL distilled water
		0:01:00	6.13	27.9	Moderate reaction after add 10 mL H2O2 (P3)
		0:01:30	5.19	29.0	
		0:02:00	5.75	29.6	
		0:02:30	5.52	30.3	Moderately strong reaction.
		0:03:00	5.09	31.0	Strong reaction.
		0:04:00	5.74	32.2	Moderate reaction.
		0:05:00	5.25	33.7	
		0:06:00	4.56	35.6	Large bubbles (organics?)
		0:07:00	3.69	37.4	Large bubbles (organics?)
		0:08:00	2.82	40.7	Moderately strong reaction.
		0:09:00	2.08	44.6	Strong reaction.
		0:10:00	2.00	53.7	Violent reaction - fumes.
		0:11:00	1.93	67.0	Violent reaction - fumes.
		0:12:00	1.85	71.5	Moderately strong reaction (slowing).
		0:13:00	1.73	68.9	No visible reaction!
		0:14:00	1.73	66.2	No reaction - may have consumed H2O2.
		0:15:00	1.72	63.4	
	1957	Sp. Cond.	6.4	µS/cm	Green-yellow "pea soup" colored water & flocs.
	38939				
ASL-5 (b)	1940	0:00:00			5 mL soil + 5 mL H2O2 (P4)
		0:01:00	6.10	36.6	
		0:02:00	5.89	41.1	Strong reaction
		0:02:30	5.25	47.7	Very strong reaction.
		0:03:00	2.20	55.0	Violent reaction - fumes (faintly sulfuric).
		0:04:00	1.57	73.8	Moderate reaction.
		0:05:00	1.52	66.0	No visible reaction.
		0:06:00	1.54	60.7	
		0:08:00	1.51	51.2	
		0:11:00	1.63	47.7	
					ASL-1 through ASL-5: Dried samples in microwave,
					all have fairly weak odors but ASL-3 slightly
					stronger and different. All dried residues are med-
					grey in color except ASL-4 (tan).

Acid Sulfate Soil Testing

Hydrogen peroxide strength: _____ %

pH Meter: Hanna 9025

Tested by: Bill Porter

Location:

Procedure: Calibrations etc.

Sample & Test No.	Date/ Time	Elapsed Time	pH	T (°C)	Comments
	8/10/06	1430			*Check on pH buffer solutions.*
A: pH 4.01			4.48	29.9	Working solution A (from older stock)
A: pH 7.01			7.06	30.2	Working solution A (from older stock)
B: pH 4.01			4.29	30.0	Working solution B (from older stock)
B: pH 7.01			7.11	30.1	Working solution B (from older stock)
C: pH 4.01			4.03	29.3	Fresh working solution (from older stock)
C: pH 7.01			7.03	29.2	Fresh working solution (from older stock)
D: pH 4.01			4.01	29.1	Fresh working solution (from new stock)
D: pH 7.01			7.10	29.3	Fresh working solution (from new stock)
					Will use new stock buffers only with HI-9025.
Calibration	8/10/06	1440			Repeated 2-point calibration 4 times.
pH 4.01			4.01	28.3	Check against working buffers.
pH 7.01			7.02	28.4	Check against working buffers.
H2O2	8/10/06	1530	3.70		pH of raw 30% solution.
			5.50		pH of 30% solution after adjustment with NaOH.
					(Target pH range is between 4.5 and 5.5)
Check	8/10/06	1826			
pH 4.01			3.97	30.1	
pH 7.01			6.92	31.1	
Calibration	8/10/06	1827			Repeated 2-point calibration 2 times.
pH 4.01			4.01	30.2	Check against working buffers.
pH 7.01			7.02	30.5	Check against working buffers.
Check	8/10/06	2008			(After all tests on ASL-1 thru ASL-5 completed)
pH 4.01			4.05	30.6	
pH 7.01			7.02	30.5	

Interpreting Results from Field pH_{FOX} Test *

pH value and reaction	Result	Comments
A strong reaction of soil with peroxide – X or V.	A useful indicator but cannot be used alone.	Organic matter, coffee rock, and other soil constituents such as manganese oxides can also cause a reaction. Care must be exercised in interpreting a reaction on surface soils and high organic matter soils such as peats and coffee rocks, and some mangrove/estuarine muds and marine clays.
pH_{FOX} value at least one unit below field pH_F and reaction to peroxide.	May indicate PASS but depends on the initial and resultant pH.	The greater the difference between the two measurements (?pH), the more indicative the value is of a PASS. The lower the final pH_{FOX}, the better the indication of a positive result (eg. a 1 unit change from pH 8 to 7 would not indicate PASS, however a 1 unit change from pH 3.5 to 2.5 would be indicative).
pH_{FOX} <3, strong reaction with peroxide, and large ?pH.	Strongly indicates PASS – potential for the soil to produce sulfidic acid upon oxidation.	The lower the pH_{FOX} below 3, the more positive the likely presence of sulfides. A combination of all three parameters (reaction strength, unit pH change, and final pH_{FOX} result) is most confirmatory.
A pH_{FOX} 3–4 and reaction to peroxide.	The test is less positive and is a borderline result.	Sulfides may be present, however organic matter may also be responsible for the decrease in pH. Laboratory analyses are required to confirm if sulfides are present.
pH_{FOX} 4–5	The test is neither positive nor negative.	Sulfides may be present either in small quantities and be poorly reactive under quick test field conditions, or the sample may contain shell/carbonate, which neutralises some or all acid produced by oxidation. Equally the pH_{FOX} value may be due to the production of organic acids and there may be no sulfides present in this situation. In such cases, the chromium reducible sulfur method would be best to check for the presence of iron sulfides.
pH_{FOX} >5 and little or no drop in pH from pH_F but reaction to peroxide.	Little net acidifying ability is indicated.	On soils with neutral to alkaline field pH and shell or white concretions present, the fizz test with 1M HCl should be used to test for carbonates. The SPOCAS method should be used to check for any oxidisable sulfides and the presence of self-neutralising ability.

* Table A2 from "(Draft) Identification and Investigation of Acid Sulfate Soils", Acid Sulfate Soils Guideline Series, Land and Water Quality Branch, Department of Environment (Australia), May 2006.

GALBRAITH.
LABORATORIES, INC.

August 28, 2006

Mr. Bill Porter
Advanced Environmental
1484 Wessyngton Rd. NE
Atlanta, GA 30306

Dear Mr. Porter:

Enclosed is the Raw Data that you requested for GLI Lab ID#s Z-8330 thru Z-8334 (Sample IDs: ASL-1,2,3,4, & 5). Please do not hesitate to contact us if you have any questions.

Thank you,

Kristal Tate
Raw Data Clerk

David R. Vernon
Quality Assurance Inspector

COOLER - RTN

Attention: Bill Longmire

GALBRAITH LABORATORIES, INC.
REQUEST FOR ANALYSIS FORM

Z -8330

2323 Sycamore Drive, Knoxville, TN 37921
Toll Free: 877-449-8797 - labinfo@galbraith.com

FREEZER

PLEASE PRINT
COMPLETE ALL SECTIONS OF FORM

SUBMITTER INFORMATION

Sample I.D. ASL-12345
Amount of Sample 5 bags
Report To: Dr. / Mr. / Ms. (Circle One) Bill Porter
Title
Company Address: 1484 Wessyngton Rd. NE
(Line 1)
(Line 2)
City Atlanta State/Province GA
Country USA Postal Code 30306
Phone 404-323-3576 Ext. Fax
E-mail porterwm@mindspring.com

METHOD OF PAYMENT REQUIRED

Purchase Order # Account
Prepayment Check # Account
Quotation # (if applicable)
Credit Card: ☑ Visa ☐ MasterCard ☐ American Express
Card Holder Name William M. Porter
Acct # 4366 1630 3948 1896
Expiration Date May 2008
Signature
Address: 1484 Wessyngton Rd NE
(Line 1)
(Line 2)
City Atlanta State/Province GA
Country USA Postal Code 30306

RUSH

TYPE OF SERVICE

Turnaround	Data Delivery	QA Level	Replicates
☐ Regular	☑ Phone	☑ Basic	☐ Single
☑ 3-5 Day Rush*	☐ Overnight Delivery via Carrier*	☐ Intermediate*	☐ Duplicate*
☐ 24-48 Hour Rush*	☐ Raw Data Copies*	☐ Regulatory*	☐ Duplicate only if 1st analysis disagrees with theory or range*
		☐ Custom*	
		☐ Email Results	☐ Other*

SAMPLE TYPE

☐ Black Liquor	☐ Medical Device	☐ Paper/Pulp	☑ Soil
☐ Coal/Coke	☐ Organic	☐ Petroleum	☐ Water
☐ Drug	☐ Organometallic	☐ Polymer	☐ Wood
☐ Food	☐ Paint/Ink	☐ Protein	☐ Other
☐ Inorganic		☐ RDF	

HANDLING & PREPARATION

☐ Dry before analysis* hrs °C vacuum
☑ Freeze @ -18 to -25°C* ☐ Sensitive to
☐ Grind* See attached Methodology
☐ Hygroscopic ☐ Weigh under N_2*
☐ Refrigerate @ 2 - 8°C* ☐ Weigh under Ar*

SAMPLE CHARACTERISTICS

☐ Hazards Unknown ☐ Inhalation: Respiratory Protection (specify):
☑ Non-hazardous
☐ Hazardous
☐ Biohazardous* ☐ Skin Absorption: Gloves (specify):
☐ Carcinogenic/Toxic
☐ Explosive
☐ MSDS (Include) ☐ Other Protective Equipment (specify):
☐ Pyrophoric
☐ Volatile
☐ Other ☐ Reproductive Hazard
MP °C BP °C @ mmHg
Mol. Wt. Soluble in

LIST ANALYSES DESIRED

If repeat analyses are required due to lack of information, extra charges may apply. If sample size is limited, prioritize analyses requested. If the theory/range is a product specification for product release purposes, please note.

Test**	Theory/ Range**	Detection Limit Req'd**	Method (if Req'd)
Chromium Reducible Sulfur	(SCR)		22-B
(see attached methodology)			

STANDARD PACKAGING
HAZARDS UNKNOWN

AUG 11 2006

COMPOUND/STRUCTURE/OTHER ELEMENTS PRESENT

Pyrite

CONDITION RECEIVED
IN: BOX COOLER LETTER
ON: DRY ICE COOLER PACKS
OF ROOM TEMPERATURE

PURPOSE OF TESTING

Environmental/Ground Water Study at Municipal Landfill

REGULATED STUDIES

Check regulations only if they are specifically required for your current sample submission. *Extra charges apply.**

EPA		FDA (Choose one)	Other
☐ CERCLA	☐ RCRA	☐ GLP	☐ Other
☐ FIFRA	☐ TSCA	☐ GMP	
☐ GLP	NA		

AUTHORIZED RELEASE OF INFORMATION

Galbraith releases information regarding work received to only the submitter named on this form. With authorization, we may release information to others, such as work associates. If appropriate, please list names below.
☑ Yes ☐ No (please initial)
Darrell Webb (Advanced Environmental Mgt)

SAMPLE RETURN / DISPOSAL

This section MUST be completed.

The original sample remains the client's property at all times. We retain samples for 90 days prior to disposal or return. See reverse side for sample retain policy. *

This sample ☑ IS ☐ IS NOT suitable for disposal in a sanitary landfill or sewer without treatment or packaging.

Signature Date 8/09/06
Please include a return address if different from the report address:
(Line 1)
(Line 2)
City State/Province
Country Postal Code

PRW

COMMENTS

Attention: Bill Longmire.
Sample size is large, air is excluded from bags to minimize oxidation. Subsamples for analysis might best be taken from center of bulk soils, where less exposed to air.
Please freeze remainder of sample & retain until I receive results and advise.

*See notes on reverse side for additional charges that may apply.
**Required Fields
Form 3.1.1A (Rev. 9)

EXACT COPY OF RAW DATA

Z-8330 06¦¦06/08/11¦ Page 62 ¦Z-8330 06¦¦Z-8330 06¦¦Z-8330 06¦
RUSH*RUSH*RUSH*RUSH*RUSH*RUSH*RUSH*RUSH*RUSH*RUSH*RUSH*RUSH*RUSH*RUSH*RUSH*RUSH

OLV: Melt: .00 Boil: .00 S Wght 1.00 Gr
Wght: .00 @ .00 For .00 Hours

REC: DATA: SLD GRM
TTN: SNG QAR PREP: Prec: FRZ

-- Comments --

¦REQ: Cr Reducible S See Attached Method Soil Pyrite Nonhazardous ¦
¦ ¦

PRW¦PRJ:William ¦ SCR¦Sulfur,Chromium Redu¦ FRZ¦Freezer Storage ¦
UP1¦UPS Charges ¦ ESQ¦Equipment /Reagents ¦ ¦ ¦

¦PRW¦ .00 - .00 % ¦FRZ¦ .00 - .00 % ¦

C	H	N	WT.	TECH.	DATE	PAGE	XSPLX / XPROCX

TEST	PROC.	RESULT	WT.	TECH.	DATE	PAGE	XSPLX / XPROCX
SCR	method code 228	0.37%	1.2552g	wmc	8/16/06-8/17/06	V00466	AH 8/17/06

EXACT COPY OF RAW DATA

KLR 8/28/07

Z-8331 06¦¦06/08/11¦ Page 63 ¦Z-8331 06¦¦Z-8331 06¦¦Z-8331 06¦

*RUSH*RUSH*RUSH*RUSH*RUSH*RUSH*RUSH*RUSH*RUSH*RUSH*RUSH*RUSH*RUSH*RUSH*RUSH*RUSH*RUSH

SOLV: Melt: .00 Boil: .00 S Wght 1.00 Gr
f Wght: .00 @ .00 For .00 Hours

PREC: DATA: SLD GRM
ATTN: SNG QAR PREP: Prec: FRZ

-- Comments --

¦REQ: Cr Reducible S See Attached Method Soil Pyrite Nonhazardous ¦

PRW¦PRJ:William ¦ SCR¦Sulfur,Chromium Redu¦ FRZ¦Freezer Storage ¦

C	H	N	WT.	TECH.	DATE	PAGE	XSPLX / XPROCX

TEST	PROC.	RESULT	WT.	TECH.	DATE	PAGE	XSPLX / XPROCX
SCR	melfat Cr22B	0.31%	1.1327g	WML	8/16/06-8/17/06	V00466	SH 8/17/06

EXACT COPY OF RAW DATA
KLB 8/28/06

Z-8332 06|06/08/11| Page 64 |Z-8332 06||Z-8332 06||Z-8332 06|
RUSH*RUSH*RUSH*RUSH*RUSH*RUSH*RUSH*RUSH*RUSH*RUSH*RUSH*RUSH*RUSH*RUSH*RUSH*RUSH

OLV: Melt: .00 Boil: .00 S Wght 1.00 Gr
Wght: .00 @ .00 For .00 Hours

REC: DATA: SLD GRM
TTN: SNG QAR PREP: Prec: FRZ

-- Comments --

|REQ: Cr Reducible S See Attached Method Soil Pyrite Nonhazardous |

PRW|PRJ:William | SCR|Sulfur,Chromium Redu| FRZ|Freezer Storage |

C	H	N	WT.	TECH.	DATE	PAGE	XSPLX / XPROCX

TEST	PROC.	RESULT	WT.	TECH.	DATE	PAGE	XSPLX / XPROCX
SCR	Method Code 22B	0.49%	1.1248g	WML	8/16/06 8/17/06	V00466	SH 8/17/06

EXACT COPY OF RAW DATA
KLH 8/28/06

Z-8333 06!!06/08/11! Page 65 !Z-8333 06!!Z-8333 06!!Z-8333 06!
RUSH*RUSH*RUSH*RUSH*RUSH*RUSH*RUSH*RUSH*RUSH*RUSH*RUSH*RUSH*RUSH*RUSH*RUSH*RUSH

OLV: Melt: .00 Boil: .00 S Wght 1.00 Gr
Wght: .00 @ .00 For .00 Hours

REC: DATA: SLD GRM
TTN: SNG QAR PREP: Prec: FRZ

-- Comments --

!REQ: Cr Reducible S See Attached Method Soil Pyrite Nonhazardous !
!

PRW!PRJ:William ! SCR!Sulfur,Chromium Redu! FRZ!Freezer Storage !

C	H	N	WT.	TECH.	DATE	PAGE	XSPLX / XPROCX

TEST	PROC.	RESULT	WT.	TECH.	DATE	PAGE	XSPLX / XPROCX
SCR	Method code 22B	0.24%	1.2032g	WML	8/16/06-8/17/06	V00466	JH 8/17/06

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KLK 8/28/07

Z-8334 06|06/08/11| Page 66 |Z-8334 06||Z-8334 06||Z-8334 06|
RUSH*RUSH*RUSH*RUSH*RUSH*RUSH*RUSH*RUSH*RUSH*RUSH*RUSH*RUSH*RUSH*RUSH*RUSH*RUSH

OLV: Melt: .00 Boil: .00 S Wght 1.00 Gr
Wght: .00 @ .00 For .00 Hours

REC: DATA: SLD GRM
TTN: SNG QAR PREP: Prec: FRZ

--- Comments ---

|REQ: Cr Reducible S See Attached Method Soil Pyrite Nonhazardous |
|

PRW|PRJ:William | SCR|Sulfur,Chromium Redu| FRZ|Freezer Storage |

C	H	N	WT.	TECH.	DATE	PAGE	XSPLX / XPROCX

TEST	PROC.	RESULT	WT.	TECH.	DATE	PAGE	XSPLX / XPROCX
SCR	Method Code 22B	0.36%	1.2917g	WML	8/16/06 8/17/06	V00466	SH 8/17/06

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Galbraith Laboratories, Inc.
OPEN FORM – VOLUMETRIC METHODS

BALANCE: 187

ANALYST: WMM

PROCEDURE: Chromium Reducible Sulfur (SCR)

V-000466

PROCEDURE #: Method Code 22B vol/co ~~23~~ SCR

DATE: 8/16/06 & 8/17/06 INSTRUMENT #

Sample #	K0000	Z-8330	Z-8331	Z-8332	Z-8333	Z-8334	K0000	Na_2S AES $\cdot 9H_2O$	$Na_2S \cdot 9H_2O$
Estimate								98.7%	98.4%
Material									
Run #	1	2	3	4	5	6	7	8	
Gross Wt. ( )								1104.70	
Tare Wt. ( )								1084.63	
Sample St. (g)	NA	1.2552	1.1327	1.1248	1.2032	1.2917	NA	20.07 mg	68.31 m
wt Cr (g)	2.04	2.00	1.99	2.03	2.07	2.02	2.00	2.10	No Cr used
N (I_2 soln)		0.01175	0.01175	0.01175	0.01175	0.01175	0.01175	0.01175	0.01175
Titrant Vol 1	1.00	13.50	10.50	15.92	8.85	13.50	1.30	6.30	18.80
Titrant Vol 2	avg blank	- 1.15	- 1.15	- 1.15	- 1.15	- 1.15		-1.15	0.20
Net. Vol.( )	1.15 ml	12.35	9.35	14.77	7.70	12.35		5.15	19.70
							calibrations		
	0.38 mg								
Results(%)	Calibration	0.37	0.31	0.49	0.24	0.36	0.48 mg	9.67% 72.3% R	10.89 81.5% R

COMMENTS: thiosulfate prepared from 0.1000N by diluting 50.00 ml to 200 ml.

ml of 0.025 M thio — ml of I_2 sol'n 0.0117 — 0.01175
25.00 — 20.60 = ~~0.0235 M~~ × ~~0.0237~~ M
25.00 — 20.40 = ~~0.0237~~ 0.0118
0.01175

$M(I_2) = \frac{\text{ml of thio} \times M(\text{thio})}{\text{ml of } I_2 \times 2}$ wc 8/17/0 calc error

CALCULATIONS:

$\% S_{(CR)} = \frac{(\text{ml of } I_2 - \text{Blank}) \times M(I_2) \times 3.2066}{\text{sample wt (g)}}$

EXACT COPY OF RAW DATA

KAF 8/28/06

Acid Sulfate Soils Laboratory 2.1
6. (SCR) 22B

Sample dried at 80-85°C before analysis

SH 8/17/06

Form G-65A Rev 1