



LABORATORY ANALYTICAL REPORT

Client: AMPP  
Project: Tongue River Monitoring  
Lab ID: H03100135-017  
Client Sample ID: T2/BD-10-(0-2)

Report Date: 02/03/04  
Collection Date: 10/21/03 17:00  
Date Received: 10/27/03  
Matrix: Soil

Analyses	Result	Units	Qual	MCL/		Method	Analysis Date / By
				RL	QCL		
<b>SATURATED PASTE</b>							
pH, Saturated Paste	7.1	s.u.		0.1		ASAM10-3.2	12/09/03 08:48 / jdh
Conductivity, Paste Extract	0.88	mmhos/cm		0.01		ASAM10-3	12/09/03 08:48 / jdh
Saturation	77.2	wt%		0.1		USDA27a	12/09/03 08:48 / jdh
Calcium, Saturated Paste	3.8	meq/l		0.1		SW6010B	11/17/03 12:17 / jdh
Magnesium, Saturated Paste	1.8	meq/l		0.1		SW6010B	11/17/03 12:17 / jdh
Sodium, Saturated Paste	0.8	meq/l		0.1		SW6010B	11/17/03 12:17 / jdh
Sodium Adsorption Ratio (SAR)	0.5	unitless		0.1		Calculation	12/09/03 08:48 / jdh
Alkalinity, Saturated Paste	7.2	meq/L		1.0		ASA10-3	11/25/03 00:00 / jdh
<b>PHYSICAL CHARACTERISTICS</b>							
Sand	18	wt%		1.0		ASA15-5	12/09/03 08:48 / jdh
Silt	52	wt%		1.0		ASA15-5	12/09/03 08:48 / jdh
Clay	30	wt%		1.0		ASA15-5	12/09/03 08:48 / jdh
Texture	SiCL	unitless				ASA15-5	12/09/03 08:48 / jdh
<b>CHEMICAL CHARACTERISTICS</b>							
Cation Exchange Capacity	54.5	meq/100g		0.1		SW6010B	11/17/03 01:54 / jdh
Exchangeable Sodium Percentage	1.1	%		0.1		USDA20b	12/09/03 08:48 / jdh
Lime as CaCO3	4.4	wt%		0.1		USDA23c	11/13/03 00:00 / nh
<b>METALS, AMMONIUM ACETATE EXTRACTABLE</b>							
Sodium, Extractable	0.7	meq/100g		0.1		SW6010B	11/24/03 04:24 / jdh

Report Definitions: RL - Analyte reporting limit.  
QCL - Quality control limit.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Client: AMPP  
 Project: Tongue River Monitoring  
 Lab ID: H03100135-018  
 Client Sample ID: T2/BD-10-(0-6)

Report Date: 02/03/04  
 Collection Date: 10/21/03 17:00  
 Date Received: 10/27/03  
 Matrix: Soil

Analyses	Result	Units	Qual	MCL/		Method	Analysis Date / By
				RL	QCL		
<b>SATURATED PASTE</b>							
pH, Saturated Paste	7.2	s.u.		0.1		ASAM10-3.2	12/09/03 08:48 / jdh
Conductivity, Paste Extract	0.83	mmhos/cm		0.01		ASAM10-3	12/09/03 08:48 / jdh
Saturation	67.3	wt%		0.1		USDA27a	12/09/03 08:48 / jdh
Calcium, Saturated Paste	4.1	meq/l		0.1		SW6010B	11/17/03 12:22 / jdh
Magnesium, Saturated Paste	2.1	meq/l		0.1		SW6010B	11/17/03 12:22 / jdh
Sodium, Saturated Paste	1.1	meq/l		0.1		SW6010B	11/17/03 12:22 / jdh
Sodium Adsorption Ratio (SAR)	0.6	unitless		0.1		Calculation	12/09/03 08:48 / jdh
Alkalinity, Saturated Paste	7.0	meq/L		1.0		ASA10-3	11/25/03 00:00 / jdh
Nitrate as N, Saturated Paste	ND	mg/L		0.1		ASA10-3	12/08/03 16:18 / cwh
Sulfate, Saturated Paste	0.6	meq/L		0.2		ASA10-3	11/18/03 01:24 / jdh
<b>PHYSICAL CHARACTERISTICS</b>							
Sand	17	wt%		1.0		ASA15-5	12/09/03 08:48 / jdh
Silt	54	wt%		1.0		ASA15-5	12/09/03 08:48 / jdh
Clay	29	wt%		1.0		ASA15-5	12/09/03 08:48 / jdh
Texture	SiCL	unitless				ASA15-5	12/09/03 08:48 / jdh
<b>CHEMICAL CHARACTERISTICS</b>							
Fluoride	ND	mg/kg		1.0		A4500-F C	11/19/03 14:45 / ddb
Potassium, NH4OAc Extractable	427	mg/kg		1		AAA13-3	01/15/04 00:00 / jdh
Organic Matter	4.40	wt%		0.02		ASA29-3	12/09/03 08:48 / jdh
Cation Exchange Capacity	40.7	meq/100g		0.1		SW6010B	11/17/03 01:56 / jdh
Exchangeable Sodium Percentage	1.2	%		0.1		USDA20b	12/09/03 08:48 / jdh
Lime as CaCO3	5.3	wt%		0.1		USDA23c	11/13/03 00:00 / nh
Phosphorus	13	mg/kg		0.1		ASA24-5	11/18/03 09:21 / jdh
<b>METALS, AMMONIUM ACETATE EXTRACTABLE</b>							
Sodium, Extractable	0.6	meq/100g		0.1		SW6010B	11/24/03 04:27 / jdh
<b>METALS, HOT WATER EXTRACTABLE</b>							
Barium	9	mg/kg		5		SW6010B	11/24/03 16:15 / rjh
Boron	ND	mg/kg		1		SW6010B	11/24/03 16:15 / rjh
Selenium	ND	mg/kg		0.05		SW6020	11/25/03 11:30 / car
<b>METALS, DTPA EXTRACTABLE</b>							
Zinc	1.17	mg/kg		0.02		SW6010B	11/25/03 12:40 / jdh

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 ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

**Client:** AMPP  
**Project:** Tongue River Monitoring  
**Lab ID:** H03100135-019  
**Client Sample ID:** T2/BD-10-(6-12)

**Report Date:** 02/03/04  
**Collection Date:** 10/21/03 17:00  
**Date Received:** 10/27/03  
**Matrix:** Soil

Analyses	Result	Units	Qual	MCL/		Method	Analysis Date / By
				RL	QCL		
<b>SATURATED PASTE</b>							
pH, Saturated Paste	7.6	s.u.		0.1		ASAM10-3.2	12/09/03 08:48 / jdh
Conductivity, Paste Extract	0.73	mmhos/cm		0.01		ASAM10-3	12/09/03 08:48 / jdh
Saturation	60.7	wt%		0.1		USDA27a	12/09/03 08:48 / jdh
Calcium, Saturated Paste	2.8	meq/l		0.1		SW6010B	11/17/03 12:25 / jdh
Magnesium, Saturated Paste	1.6	meq/l		0.1		SW6010B	11/17/03 12:25 / jdh
Sodium, Saturated Paste	1.3	meq/l		0.1		SW6010B	11/17/03 12:25 / jdh
Sodium Adsorption Ratio (SAR)	0.8	unitless		0.1		Calculation	12/09/03 08:48 / jdh
Alkalinity, Saturated Paste	5.5	meq/L		1.0		ASA10-3	11/25/03 00:00 / jdh
Nitrate as N, Saturated Paste	0.1	mg/L		0.1		ASA10-3	12/08/03 16:20 / cwh
Sulfate, Saturated Paste	0.7	meq/L		0.2		ASA10-3	11/18/03 01:27 / jdh
<b>PHYSICAL CHARACTERISTICS</b>							
Sand	5.0	wt%		1.0		ASA15-5	12/09/03 08:48 / jdh
Silt	62	wt%		1.0		ASA15-5	12/09/03 08:48 / jdh
Clay	33	wt%		1.0		ASA15-5	12/09/03 08:48 / jdh
Texture	SiCL	unitless				ASA15-5	12/09/03 08:48 / jdh
<b>CHEMICAL CHARACTERISTICS</b>							
Cation Exchange Capacity	35.9	meq/100g		0.1		SW6010B	11/17/03 01:59 / jdh
Exchangeable Sodium Percentage	1.5	%		0.1		USDA20b	12/09/03 08:48 / jdh
Lime as CaCO3	7.3	wt%		0.1		USDA23c	11/13/03 00:00 / nh
<b>METALS, AMMONIUM ACETATE EXTRACTABLE</b>							
Sodium, Extractable	0.6	meq/100g		0.1		SW6010B	11/24/03 04:30 / jdh

**Report Definitions:** RL - Analyte reporting limit.  
 QCL - Quality control limit.

MCL - Maximum contaminant level.  
 ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Client: AMPP  
 Project: Tongue River Monitoring  
 Lab ID: H03100135-020  
 Client Sample ID: T2/BD-10-(12-24)

Report Date: 02/03/04  
 Collection Date: 10/21/03 17:00  
 Date Received: 10/27/03  
 Matrix: Soil

Analyses	Result	Units	Qual	MCL/		Method	Analysis Date / By
				RL	QCL		
<b>SATURATED PASTE</b>							
pH, Saturated Paste	7.7	s.u.		0.1		ASAM10-3.2	12/09/03 08:48 / jdh
Conductivity, Paste Extract	2.86	mmhos/cm		0.01		ASAM10-3	12/09/03 08:48 / jdh
Saturation	60.4	wt%		0.1		USDA27a	12/09/03 08:48 / jdh
Calcium, Saturated Paste	7.5	meq/l		0.1		SW6010B	11/17/03 12:28 / jdh
Magnesium, Saturated Paste	6.8	meq/l		0.1		SW6010B	11/17/03 12:28 / jdh
Sodium, Saturated Paste	7.0	meq/l		0.1		SW6010B	11/17/03 12:28 / jdh
Sodium Adsorption Ratio (SAR)	2.6	unitless		0.1		Calculation	12/09/03 08:48 / jdh
Alkalinity, Saturated Paste	4.4	meq/L		1.0		ASA10-3	11/25/03 00:00 / jdh
Nitrate as N, Saturated Paste	1.3	mg/L		0.1		ASA10-3	12/08/03 16:26 / cwh
Sulfate, Saturated Paste	20.1	meq/L		0.2		ASA10-3	11/18/03 01:30 / jdh
<b>PHYSICAL CHARACTERISTICS</b>							
Sand	7.0	wt%		1.0		ASA15-5	12/09/03 08:48 / jdh
Silt	64	wt%		1.0		ASA15-5	12/09/03 08:48 / jdh
Clay	29	wt%		1.0		ASA15-5	12/09/03 08:48 / jdh
Texture	SiCL	unitless				ASA15-5	12/09/03 08:48 / jdh
<b>CHEMICAL CHARACTERISTICS</b>							
Cation Exchange Capacity	34.6	meq/100g		0.1		SW6010B	11/17/03 02:07 / jdh
Exchangeable Sodium Percentage	2.9	%		0.1		USDA20b	12/09/03 08:48 / jdh
Lime as CaCO3	8.0	wt%		0.1		USDA23c	11/13/03 00:00 / nh
<b>METALS, AMMONIUM ACETATE EXTRACTABLE</b>							
Sodium, Extractable	1.4	meq/100g		0.1		SW6010B	11/24/03 04:38 / jdh

Report Definitions: RL - Analyte reporting limit.  
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MCL - Maximum contaminant level.  
 ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

**Client:** AMPP  
**Project:** Tongue River Monitoring  
**Lab ID:** H03100135-021  
**Client Sample ID:** T2/BD-10-(24-36)

**Report Date:** 02/03/04  
**Collection Date:** 10/21/03 17:00  
**Date Received:** 10/27/03  
**Matrix:** Soil

Analyses	Result	Units	Qual	MCL/		Method	Analysis Date / By
				RL	QCL		
<b>SATURATED PASTE</b>							
pH, Saturated Paste	7.8	s.u.		0.1		ASAM10-3.2	12/09/03 08:48 / jdh
Conductivity, Paste Extract	3.65	mmhos/cm		0.01		ASAM10-3	12/09/03 08:48 / jdh
Saturation	60.3	wt%		0.1		USDA27a	12/09/03 08:48 / jdh
Calcium, Saturated Paste	11.1	meq/l		0.1		SW6010B	11/17/03 12:33 / jdh
Magnesium, Saturated Paste	11.5	meq/l		0.1		SW6010B	11/17/03 12:33 / jdh
Sodium, Saturated Paste	14.3	meq/l		0.1		SW6010B	11/17/03 12:33 / jdh
Sodium Adsorption Ratio (SAR)	4.3	unitless		0.1		Calculation	12/09/03 08:48 / jdh
Alkalinity, Saturated Paste	3.6	meq/L		1.0		ASA10-3	11/25/03 00:00 / jdh
<b>PHYSICAL CHARACTERISTICS</b>							
Sand	12	wt%		1.0		ASA15-5	12/09/03 08:48 / jdh
Silt	63	wt%		1.0		ASA15-5	12/09/03 08:48 / jdh
Clay	25	wt%		1.0		ASA15-5	12/09/03 08:48 / jdh
Texture	SiL	unitless				ASA15-5	12/09/03 08:48 / jdh
<b>CHEMICAL CHARACTERISTICS</b>							
Cation Exchange Capacity	31.9	meq/100g		0.1		SW6010B	11/17/03 02:12 / jdh
Exchangeable Sodium Percentage	4.0	%		0.1		USDA20b	12/09/03 08:48 / jdh
Lime as CaCO3	8.4	wt%		0.1		USDA23c	11/13/03 00:00 / nh
<b>METALS, AMMONIUM ACETATE EXTRACTABLE</b>							
Sodium, Extractable	2.1	meq/100g		0.1		SW6010B	11/24/03 04:43 / jdh

**Report** RL - Analyte reporting limit.  
**Definitions:** QCL - Quality control limit.

MCL - Maximum contaminant level.  
 ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

**Client:** AMPP  
**Project:** Tongue River Monitoring  
**Lab ID:** H03100135-022  
**Client Sample ID:** T2/BD-10-(36-60)

**Report Date:** 02/03/04  
**Collection Date:** 10/21/03 17:00  
**Date Received:** 10/27/03  
**Matrix:** Soil

Analyses	Result	Units	Qual	MCL/		Method	Analysis Date / By
				RL	QCL		
<b>SATURATED PASTE</b>							
pH, Saturated Paste	8.0	s.u.		0.1		ASAM10-3.2	12/09/03 08:48 / jdh
Conductivity, Paste Extract	3.24	mmhos/cm		0.01		ASAM10-3	12/09/03 08:48 / jdh
Saturation	47.0	wt%		0.1		USDA27a	12/09/03 08:48 / jdh
Calcium, Saturated Paste	10	meq/l		0.1		SW6010B	11/17/03 12:35 / jdh
Magnesium, Saturated Paste	10.6	meq/l		0.1		SW6010B	11/17/03 12:35 / jdh
Sodium, Saturated Paste	16.0	meq/l		0.1		SW6010B	11/17/03 12:35 / jdh
Sodium Adsorption Ratio (SAR)	5.0	unitless		0.1		Calculation	12/09/03 08:48 / jdh
Alkalinity, Saturated Paste	2.9	meq/L		1.0		ASA10-3	11/25/03 00:00 / jdh
<b>PHYSICAL CHARACTERISTICS</b>							
Sand	20	wt%		1.0		ASA15-5	12/09/03 08:48 / jdh
Silt	58	wt%		1.0		ASA15-5	12/09/03 08:48 / jdh
Clay	22	wt%		1.0		ASA15-5	12/09/03 08:48 / jdh
Texture	SiL	unitless				ASA15-5	12/09/03 08:48 / jdh
<b>CHEMICAL CHARACTERISTICS</b>							
Fluoride	ND	mg/kg		1.0		A4500-F C	11/19/03 14:45 / ddb
Cation Exchange Capacity	27.2	meq/100g		0.1		SW6010B	11/17/03 02:15 / jdh
Exchangeable Sodium Percentage	4.6	%		0.1		USDA20b	12/09/03 08:48 / jdh
Lime as CaCO3	8.1	wt%		0.1		USDA23c	11/13/03 00:00 / nh
<b>METALS, AMMONIUM ACETATE EXTRACTABLE</b>							
Sodium, Extractable	2.2	meq/100g		0.1		SW6010B	11/24/03 04:46 / jdh
<b>METALS, HOT WATER EXTRACTABLE</b>							
Barium	ND	mg/kg		5		SW6010B	11/24/03 16:19 / rjh
Boron	ND	mg/kg		1		SW6010B	11/24/03 16:19 / rjh
Selenium	ND	mg/kg		0.05		SW6020	11/20/03 11:18 / car
<b>METALS, DTPA EXTRACTABLE</b>							
Zinc	0.50	mg/kg		0.02		SW6010B	11/25/03 12:43 / jdh

**Report Definitions:** RL - Analyte reporting limit.  
 QCL - Quality control limit.

MCL - Maximum contaminant level.  
 ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

**Client:** AMPP  
**Project:** Tongue River Monitoring  
**Lab ID:** H03100135-023  
**Client Sample ID:** T2/BD-10-(60-96)

**Report Date:** 02/03/04  
**Collection Date:** 10/21/03 17:00  
**Date Received:** 10/27/03  
**Matrix:** Soil

Analyses	Result	Units	Qual	MCL/		Method	Analysis Date / By
				RL	QCL		
<b>SATURATED PASTE</b>							
pH, Saturated Paste	8.1	s.u.		0.1		ASAM10-3.2	12/09/03 08:48 / jdh
Conductivity, Paste Extract	2.68	mmhos/cm		0.01		ASAM10-3	12/09/03 08:48 / jdh
Saturation	41.2	wt%		0.1		USDA27a	12/09/03 08:48 / jdh
Calcium, Saturated Paste	3.1	meq/l		0.1		SW6010B	11/17/03 12:38 / jdh
Magnesium, Saturated Paste	5.7	meq/l		0.1		SW6010B	11/17/03 12:38 / jdh
Sodium, Saturated Paste	14.4	meq/l		0.1		SW6010B	11/17/03 12:38 / jdh
Sodium Adsorption Ratio (SAR)	6.9	unitless		0.1		Calculation	12/09/03 08:48 / jdh
Alkalinity, Saturated Paste	3.2	meq/L		1.0		ASA10-3	11/25/03 00:00 / jdh
<b>PHYSICAL CHARACTERISTICS</b>							
Sand	51	wt%		1.0		ASA15-5	12/09/03 08:48 / jdh
Silt	36	wt%		1.0		ASA15-5	12/09/03 08:48 / jdh
Clay	13	wt%		1.0		ASA15-5	12/09/03 08:48 / jdh
Texture	L	unitless				ASA15-5	12/09/03 08:48 / jdh
<b>CHEMICAL CHARACTERISTICS</b>							
Cation Exchange Capacity	18.7	meq/100g		0.1		SW6010B	11/17/03 02:17 / jdh
Exchangeable Sodium Percentage	6.3	%		0.1		USDA20b	12/09/03 08:48 / jdh
Lime as CaCO3	6.9	wt%		0.1		USDA23c	11/13/03 00:00 / nh
<b>METALS, AMMONIUM ACETATE EXTRACTABLE</b>							
Sodium, Extractable	1.8	meq/100g		0.1		SW6010B	11/24/03 04:48 / jdh

**Report** RL - Analyte reporting limit.  
**Definitions:** QCL - Quality control limit.

MCL - Maximum contaminant level.  
 ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

**Client:** AMPP  
**Project:** Tongue River Monitoring  
**Lab ID:** H03100135-025  
**Client Sample ID:** T2/BD-1-(0-8)

**Report Date:** 02/03/04  
**Collection Date:** 10/21/03 17:00  
**Date Received:** 10/27/03  
**Matrix:** Soil

Analyses	Result	Units	Qual	MCL/		Method	Analysis Date / By
				RL	QCL		
<b>SATURATED PASTE</b>							
pH, Saturated Paste	7.3	s.u.		0.1		ASAM10-3.2	12/09/03 08:48 / jdh
Conductivity, Paste Extract	0.88	mmhos/cm		0.01		ASAM10-3	12/09/03 08:48 / jdh
Saturation	75.1	wt%		0.1		USDA27a	12/09/03 08:48 / jdh
Calcium, Saturated Paste	4.2	meq/l		0.1		SW6010B	11/17/03 12:43 / jdh
Magnesium, Saturated Paste	2.0	meq/l		0.1		SW6010B	11/17/03 12:43 / jdh
Sodium, Saturated Paste	0.9	meq/l		0.1		SW6010B	11/17/03 12:43 / jdh
Sodium Adsorption Ratio (SAR)	0.5	unitless		0.1		Calculation	12/09/03 08:48 / jdh
Alkalinity, Saturated Paste	7.1	meq/L		1.0		ASA10-3	11/25/03 00:00 / jdh
Nitrate as N, Saturated Paste	ND	mg/L		0.1		ASA10-3	12/08/03 16:30 / cwh
Sulfate, Saturated Paste	1.6	meq/L		0.2		ASA10-3	11/18/03 01:42 / jdh
<b>PHYSICAL CHARACTERISTICS</b>							
Sand	5.0	wt%		1.0		ASA15-5	12/09/03 08:48 / jdh
Silt	59	wt%		1.0		ASA15-5	12/09/03 08:48 / jdh
Clay	36	wt%		1.0		ASA15-5	12/09/03 08:48 / jdh
Texture	SiCL	unitless				ASA15-5	12/09/03 08:48 / jdh
<b>CHEMICAL CHARACTERISTICS</b>							
Potassium, NH4OAc Extractable	520	mg/kg		1		AAA13-3	01/15/04 00:00 / jdh
Organic Matter	5.00	wt%		0.02		ASA29-3	12/09/03 08:48 / jdh
Cation Exchange Capacity	42.1	meq/100g		0.1		SW6010B	11/17/03 02:23 / jdh
Exchangeable Sodium Percentage	1.0	%		0.1		USDA20b	12/09/03 08:48 / jdh
Lime as CaCO3	4.4	wt%		0.1		USDA23c	11/13/03 00:00 / nh
Phosphorus	16	mg/kg		0.1		ASA24-5	11/18/03 09:24 / jdh
<b>METALS, AMMONIUM ACETATE EXTRACTABLE</b>							
Sodium, Extractable	0.5	meq/100g		0.1		SW6010B	11/24/03 04:53 / jdh
<b>METALS, DTPA EXTRACTABLE</b>							
Zinc	1.13	mg/kg		0.02		SW6010B	11/25/03 12:46 / jdh
<b>CLAY MINEROLOGY</b>							
Smectite	36	%		1		XrayDiffraction	11/07/03 00:00 / wjj
Illite	32	%		1		XrayDiffraction	11/07/03 00:00 / wjj
Kaolinite	32	%		1		XrayDiffraction	11/07/03 00:00 / wjj
Chlorite	<2	%		1		XrayDiffraction	11/07/03 00:00 / wjj

**Report** RL - Analyte reporting limit.  
**Definitions:** QCL - Quality control limit.

MCL - Maximum contaminant level.  
 ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Client: AMPP  
Project: Tongue River Monitoring  
Lab ID: H03100135-026  
Client Sample ID: T2/BD-1-(8-17)

Report Date: 02/03/04  
Collection Date: 10/21/03 17:00  
Date Received: 10/27/03  
Matrix: Soil

Analyses	Result	Units	Qual	MCL/		Method	Analysis Date / By
				RL	QCL		
<b>SATURATED PASTE</b>							
pH, Saturated Paste	7.3	s.u.		0.1		ASAM10-3.2	12/09/03 08:48 / jdh
Conductivity, Paste Extract	2.90	mmhos/cm		0.01		ASAM10-3	12/09/03 08:48 / jdh
Saturation	35.5	wt%		0.1		USDA27a	12/09/03 08:48 / jdh
Calcium, Saturated Paste	21.2	meq/l		0.1		SW6010B	11/17/03 12:46 / jdh
Magnesium, Saturated Paste	9.4	meq/l		0.1		SW6010B	11/17/03 12:46 / jdh
Sodium, Saturated Paste	3.2	meq/l		0.1		SW6010B	11/17/03 12:46 / jdh
Sodium Adsorption Ratio (SAR)	0.8	unitless		0.1		Calculation	12/09/03 08:48 / jdh
Alkalinity, Saturated Paste	3.7	meq/L		1.0		ASA10-3	11/25/03 00:00 / jdh
Nitrate as N, Saturated Paste	0.2	mg/L		0.1		ASA10-3	12/08/03 16:32 / cwh
Sulfate, Saturated Paste	32.2	meq/L		0.2		ASA10-3	11/18/03 01:45 / jdh
<b>PHYSICAL CHARACTERISTICS</b>							
Sand	12	wt%		1.0		ASA15-5	12/09/03 08:48 / jdh
Silt	65	wt%		1.0		ASA15-5	12/09/03 08:48 / jdh
Clay	23	wt%		1.0		ASA15-5	12/09/03 08:48 / jdh
Texture	SiL	unitless				ASA15-5	12/09/03 08:48 / jdh
<b>CHEMICAL CHARACTERISTICS</b>							
Cation Exchange Capacity	31.9	meq/100g		0.1		SW6010B	11/17/03 02:30 / jdh
Exchangeable Sodium Percentage	2.0	%		0.1		USDA20b	12/09/03 08:48 / jdh
Lime as CaCO3	7.5	wt%		0.1		USDA23c	11/13/03 00:00 / nh
<b>METALS, AMMONIUM ACETATE EXTRACTABLE</b>							
Sodium, Extractable	0.7	meq/100g		0.1		SW6010B	11/24/03 04:56 / jdh

Report Definitions: RL - Analyte reporting limit.  
QCL - Quality control limit.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

**Client:** AMPP  
**Project:** Tongue River Monitoring  
**Lab ID:** H03100135-027  
**Client Sample ID:** T2/BD-1-(17-24)

**Report Date:** 02/03/04  
**Collection Date:** 10/21/03 17:00  
**Date Received:** 10/27/03  
**Matrix:** Soil

Analyses	Result	Units	Qual	MCL/		Method	Analysis Date / By
				RL	QCL		
<b>SATURATED PASTE</b>							
pH, Saturated Paste	7.7	s.u.		0.1		ASAM10-3.2	12/09/03 08:48 / jdh
Conductivity, Paste Extract	0.70	mmhos/cm		0.01		ASAM10-3	12/09/03 08:48 / jdh
Saturation	40.1	wt%		0.1		USDA27a	12/09/03 08:48 / jdh
Calcium, Saturated Paste	2.1	meq/l		0.1		SW6010B	11/17/03 12:49 / jdh
Magnesium, Saturated Paste	1.6	meq/l		0.1		SW6010B	11/17/03 12:49 / jdh
Sodium, Saturated Paste	2.0	meq/l		0.1		SW6010B	11/17/03 12:49 / jdh
Sodium Adsorption Ratio (SAR)	1.4	unitless		0.1		Calculation	12/09/03 08:48 / jdh
Alkalinity, Saturated Paste	4.3	meq/L		1.0		ASA10-3	11/25/03 00:00 / jdh
Nitrate as N, Saturated Paste	ND	mg/L		0.1		ASA10-3	12/08/03 16:36 / cwh
Sulfate, Saturated Paste	1.7	meq/L		0.2		ASA10-3	11/18/03 01:47 / jdh
<b>PHYSICAL CHARACTERISTICS</b>							
Sand	1.0	wt%		1.0		ASA15-5	12/09/03 08:48 / jdh
Silt	70	wt%		1.0		ASA15-5	12/09/03 08:48 / jdh
Clay	29	wt%		1.0		ASA15-5	12/09/03 08:48 / jdh
Texture	SiCL	unitless				ASA15-5	12/09/03 08:48 / jdh
<b>CHEMICAL CHARACTERISTICS</b>							
Cation Exchange Capacity	36.2	meq/100g		0.1		SW6010B	11/17/03 02:33 / jdh
Exchangeable Sodium Percentage	1.9	%		0.1		USDA20b	12/09/03 08:48 / jdh
Lime as CaCO3	8.1	wt%		0.1		USDA23c	11/13/03 00:00 / nh
<b>METALS, AMMONIUM ACETATE EXTRACTABLE</b>							
Sodium, Extractable	0.8	meq/100g		0.1		SW6010B	11/24/03 04:59 / jdh
<b>CLAY MINEROLOGY</b>							
Smectite	43	%		1		XrayDiffraction	11/07/03 00:00 / wjj
Illite	19	%		1		XrayDiffraction	11/07/03 00:00 / wjj
Kaolinite	33	%		1		XrayDiffraction	11/07/03 00:00 / wjj
Chlorite	4	%		1		XrayDiffraction	11/07/03 00:00 / wjj

**Report Definitions:** RL - Analyte reporting limit.  
 QCL - Quality control limit.

MCL - Maximum contaminant level.  
 ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

**Client:** AMPP  
**Project:** Tongue River Monitoring  
**Lab ID:** H03100135-028  
**Client Sample ID:** T2/BD-1-(24-60)

**Report Date:** 02/03/04  
**Collection Date:** 10/21/03 17:00  
**Date Received:** 10/27/03  
**Matrix:** Soil

Analyses	Result	Units	Qual	MCL/		Method	Analysis Date / By
				RL	QCL		
<b>SATURATED PASTE</b>							
pH, Saturated Paste	7.8	s.u.		0.1		ASAM10-3.2	12/09/03 08:48 / jdh
Conductivity, Paste Extract	0.64	mmhos/cm		0.01		ASAM10-3	12/09/03 08:48 / jdh
Saturation	36.4	wt%		0.1		USDA27a	12/09/03 08:48 / jdh
Calcium, Saturated Paste	1.3	meq/l		0.1		SW6010B	11/17/03 12:51 / jdh
Magnesium, Saturated Paste	1.3	meq/l		0.1		SW6010B	11/17/03 12:51 / jdh
Sodium, Saturated Paste	2.3	meq/l		0.1		SW6010B	11/17/03 12:51 / jdh
Sodium Adsorption Ratio (SAR)	2.0	unitless		0.1		Calculation	12/09/03 08:48 / jdh
Alkalinity, Saturated Paste	4.3	meq/L		1.0		ASA10-3	11/25/03 00:00 / jdh
<b>PHYSICAL CHARACTERISTICS</b>							
Sand	7.0	wt%		1.0		ASA15-5	12/09/03 08:48 / jdh
Silt	71	wt%		1.0		ASA15-5	12/09/03 08:48 / jdh
Clay	22	wt%		1.0		ASA15-5	12/09/03 08:48 / jdh
Texture	SiL	unitless				ASA15-5	12/09/03 08:48 / jdh
<b>CHEMICAL CHARACTERISTICS</b>							
Cation Exchange Capacity	27.0	meq/100g		0.1		SW6010B	11/17/03 02:36 / jdh
Exchangeable Sodium Percentage	2.9	%		0.1		USDA20b	12/09/03 08:48 / jdh
Lime as CaCO3	8.3	wt%		0.1		USDA23c	11/13/03 00:00 / nh
<b>METALS, AMMONIUM ACETATE EXTRACTABLE</b>							
Sodium, Extractable	0.9	meq/100g		0.1		SW6010B	11/24/03 05:04 / jdh

**Report** RL - Analyte reporting limit.  
**Definitions:** QCL - Quality control limit.

MCL - Maximum contaminant level.  
 ND - Not detected at the reporting limit.