



LABORATORY ANALYTICAL REPORT

**Client:** AMPP  
**Project:** Tongue River Monitoring Tier 2  
**Lab ID:** H04050009-023  
**Client Sample ID:** T2/BC-10 (0-2)

**Report Date:** 07/04/04  
**Collection Date:** 04/14/04 17:00  
**Date Received:** 05/03/04  
**Matrix:** Soil

Analyses	Result	Units	Qual	MCL/		Method	Analysis Date / By
				RL	QCL		
<b>SATURATED PASTE</b>							
pH, Saturated Paste	7.5	s.u.		0.1		ASAM10-3.2	06/24/04 14:41 / rp
Conductivity, Paste Extract	0.94	mmhos/cm		0.01		ASAM10-3	06/24/04 14:41 / rp
Chloride, Saturated Paste	1.55	meq/L		0.01		ASA10-3	06/21/04 13:00 / jdh
Saturation	52.8	wt%		0.1		USDA27a	06/24/04 14:41 / rp
Sodium Adsorption Ratio (SAR)	1.7	unitless		0.1		Calculation	06/24/04 14:41 / rp
Alkalinity, Saturated Paste	7.6	meq/L		1.0		ASA10-3	06/24/04 13:00 / jdh
<b>SATURATED PASTE</b>							
Calcium, Saturated Paste	4.11	meq/l		0.05		SW6010B	06/01/04 12:10 / rp
Magnesium, Saturated Paste	2.79	meq/l		0.08		SW6010B	06/01/04 12:10 / rp
Sodium, Saturated Paste	3.19	meq/l		0.04		SW6010B	06/01/04 12:10 / rp
<b>PHYSICAL CHARACTERISTICS</b>							
Sand	19	wt%		1.0		ASA15-5	06/24/04 14:41 / rp
Silt	48	wt%		1.0		ASA15-5	06/24/04 14:41 / rp
Clay	33	wt%		1.0		ASA15-5	06/24/04 14:41 / rp
Texture	SiCL	unitless				ASA15-5	06/24/04 14:41 / rp
<b>CHEMICAL CHARACTERISTICS</b>							
Cation Exchange Capacity	28.8	meq/100g		0.09		SW6010B	06/15/04 01:31 / rp
Exchangeable Sodium Percentage	1.9	%		0.1		USDA20b	06/24/04 14:41 / rp
Lime as CaCO3	6.6	wt%		0.1		USDA23c	06/24/04 14:41 / rp
<b>METALS, AMMONIUM ACETATE EXTRACTABLE</b>							
Sodium, Extractable	0.71	meq/100g		0.04		SW6010B	06/04/04 03:58 / rp

**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 Tier 2  
**Lab ID:** H04050009-024  
**Client Sample ID:** T2/BC-10 (0-6)

**Report Date:** 07/04/04  
**Collection Date:** 04/14/04 17:00  
**Date Received:** 05/03/04  
**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	06/24/04 14:41 / rp
Conductivity, Paste Extract	0.93	mmhos/cm		0.01		ASAM10-3	06/24/04 14:41 / rp
Chloride, Saturated Paste	0.71	meq/L		0.01		ASA10-3	06/21/04 13:00 / jdH
Saturation	50.2	wt%		0.1		USDA27a	06/24/04 14:41 / rp
Sodium Adsorption Ratio (SAR)	1.6	unitless		0.1		Calculation	06/24/04 14:41 / rp
Alkalinity, Saturated Paste	5.6	meq/L		1.0		ASA10-3	06/24/04 13:00 / jdH
Nitrate as N, Saturated Paste	3.2	mg/L		0.6		ASA10-3	06/15/04 10:45 / cwh
Sulfate, Saturated Paste	4.73	meq/L		0.002		ASA10-3	06/20/04 13:00 / rp
<b>SATURATED PASTE</b>							
Calcium, Saturated Paste	5.09	meq/l		0.05		SW6010B	06/01/04 12:13 / rp
Magnesium, Saturated Paste	3.61	meq/l		0.08		SW6010B	06/01/04 12:13 / rp
Sodium, Saturated Paste	3.37	meq/l		0.04		SW6010B	06/01/04 12:13 / rp
<b>PHYSICAL CHARACTERISTICS</b>							
Sand	16	wt%		1.0		ASA15-5	06/24/04 14:41 / rp
Silt	48	wt%		1.0		ASA15-5	06/24/04 14:41 / rp
Clay	36	wt%		1.0		ASA15-5	06/24/04 14:41 / rp
Texture	SiCL	unitless				ASA15-5	06/24/04 14:41 / rp
<b>CHEMICAL CHARACTERISTICS</b>							
Fluoride	1.3	mg/kg		1.0		A4500-F C	06/17/04 13:00 / ddb
Organic Matter	2.40	wt%		0.02		ASA29-3	06/24/04 14:41 / rp
Cation Exchange Capacity	27.2	meq/100g		0.09		SW6010B	06/15/04 01:34 / rp
Exchangeable Sodium Percentage	2.5	%		0.1		USDA20b	06/24/04 14:41 / rp
Lime as CaCO3	6.6	wt%		0.1		USDA23c	06/24/04 14:41 / rp
Phosphorus	14	mg/kg		0.1		ASA24-5	06/24/04 04:46 / rp
<b>METALS, AMMONIUM ACETATE EXTRACTABLE</b>							
Potassium	161	mg/kg		1		SW6010B	06/04/04 04:01 / rp
Sodium, Extractable	0.86	meq/100g		0.04		SW6010B	06/04/04 04:01 / rp
<b>METALS, WATER EXTRACTABLE</b>							
Selenium	0.042	mg/kg		0.010		SW6020	06/24/04 22:15 / car
<b>METALS, DTPA EXTRACTABLE</b>							
Zinc	0.52	mg/kg		0.02		SW6010B	06/16/04 01:34 / rp

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LABORATORY ANALYTICAL REPORT

**Client:** AMPP  
**Project:** Tongue River Monitoring Tier 2  
**Lab ID:** H04050009-024  
**Client Sample ID:** T2/BC-10 (0-6)

**Report Date:** 07/04/04  
**Collection Date:** 04/14/04 17:00  
**Date Received:** 05/03/04  
**Matrix:** Soil

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Analyses	Result	Units	Qual	MCL/		Method	Analysis Date / By
				RL	QCL		
<b>METALS, CACL2 EXTRACTABLE</b>							
Barium	7.3	mg/L		0.001		SW6010B	06/16/04 11:28 / rp
Boron	1.1	mg/L		0.04		SW6010B	06/16/04 11:28 / rp

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LABORATORY ANALYTICAL REPORT

**Client:** AMPP  
**Project:** Tongue River Monitoring Tier 2  
**Lab ID:** H04050009-025  
**Client Sample ID:** T2/BC-10 (6-12)

**Report Date:** 07/04/04  
**Collection Date:** 04/14/04 17:00  
**Date Received:** 05/03/04  
**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	06/24/04 14:41 / rp
Conductivity, Paste Extract	0.91	mmhos/cm		0.01		ASAM10-3	06/24/04 14:41 / rp
Chloride, Saturated Paste	0.42	meq/L		0.01		ASA10-3	06/21/04 13:00 / jdH
Saturation	51.2	wt%		0.1		USDA27a	06/24/04 14:41 / rp
Sodium Adsorption Ratio (SAR)	2.4	unitless		0.1		Calculation	06/24/04 14:41 / rp
Alkalinity, Saturated Paste	6.0	meq/L		1.0		ASA10-3	06/24/04 13:00 / jdH
Nitrate as N, Saturated Paste	2.9	mg/L		0.6		ASA10-3	06/15/04 10:47 / cwh
Sulfate, Saturated Paste	6.29	meq/L		0.002		ASA10-3	06/20/04 13:00 / rp
<b>SATURATED PASTE</b>							
Calcium, Saturated Paste	3.53	meq/l		0.05		SW6010B	06/01/04 12:16 / rp
Magnesium, Saturated Paste	2.79	meq/l		0.08		SW6010B	06/01/04 12:16 / rp
Sodium, Saturated Paste	4.35	meq/l		0.04		SW6010B	06/01/04 12:16 / rp
<b>PHYSICAL CHARACTERISTICS</b>							
Sand	13	wt%		1.0		ASA15-5	06/24/04 14:41 / rp
Silt	51	wt%		1.0		ASA15-5	06/24/04 14:41 / rp
Clay	36	wt%		1.0		ASA15-5	06/24/04 14:41 / rp
Texture	SiCL	unitless				ASA15-5	06/24/04 14:41 / rp
<b>CHEMICAL CHARACTERISTICS</b>							
Cation Exchange Capacity	30.9	meq/100g		0.09		SW6010B	06/15/04 01:37 / rp
Exchangeable Sodium Percentage	2.7	%		0.1		USDA20b	06/24/04 14:41 / rp
Lime as CaCO3	6.7	wt%		0.1		USDA23c	06/24/04 14:41 / rp
<b>METALS, AMMONIUM ACETATE EXTRACTABLE</b>							
Sodium, Extractable	1.06	meq/100g		0.04		SW6010B	06/04/04 04:04 / rp

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LABORATORY ANALYTICAL REPORT

**Client:** AMPP  
**Project:** Tongue River Monitoring Tier 2  
**Lab ID:** H04050009-026  
**Client Sample ID:** T2/BC-10 (12-24)

**Report Date:** 07/04/04  
**Collection Date:** 04/14/04 17:00  
**Date Received:** 05/03/04  
**Matrix:** Soil

Analyses	Result	Units	Qual	MCL/		Method	Analysis Date / By
				RL	QCL		
<b>SATURATED PASTE</b>							
pH, Saturated Paste	7.9	s.u.		0.1		ASAM10-3.2	06/24/04 14:41 / rp
Conductivity, Paste Extract	1.40	mmhos/cm		0.01		ASAM10-3	06/24/04 14:41 / rp
Chloride, Saturated Paste	0.14	meq/L		0.01		ASA10-3	06/21/04 13:00 / jdh
Saturation	54.1	wt%		0.1		USDA27a	06/24/04 14:41 / rp
Sodium Adsorption Ratio (SAR)	3.7	unitless		0.1		Calculation	06/24/04 14:41 / rp
Alkalinity, Saturated Paste	4.0	meq/L		1.0		ASA10-3	06/24/04 13:00 / jdh
Nitrate as N, Saturated Paste	2.0	mg/L		0.6		ASA10-3	06/15/04 10:49 / cwh
Sulfate, Saturated Paste	11.5	meq/L		0.002		ASA10-3	06/20/04 13:00 / rp
<b>SATURATED PASTE</b>							
Calcium, Saturated Paste	3.50	meq/l		0.05		SW6010B	06/01/04 12:22 / rp
Magnesium, Saturated Paste	3.17	meq/l		0.08		SW6010B	06/01/04 12:22 / rp
Sodium, Saturated Paste	6.78	meq/l		0.04		SW6010B	06/01/04 12:22 / rp
<b>PHYSICAL CHARACTERISTICS</b>							
Sand	8.0	wt%		1.0		ASA15-5	06/24/04 14:41 / rp
Silt	49	wt%		1.0		ASA15-5	06/24/04 14:41 / rp
Clay	43	wt%		1.0		ASA15-5	06/24/04 14:41 / rp
Texture	SiC	unitless				ASA15-5	06/24/04 14:41 / rp
<b>CHEMICAL CHARACTERISTICS</b>							
Cation Exchange Capacity	31.1	meq/100g		0.09		SW6010B	06/15/04 01:52 / rp
Exchangeable Sodium Percentage	5.5	%		0.1		USDA20b	06/24/04 14:41 / rp
Lime as CaCO3	4.2	wt%		0.1		USDA23c	06/24/04 14:41 / rp
<b>METALS, AMMONIUM ACETATE EXTRACTABLE</b>							
Sodium, Extractable	2.07	meq/100g		0.04		SW6010B	06/04/04 04:18 / rp

**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 Tier 2  
Lab ID: H04050009-027  
Client Sample ID: T2/BC-10 (24-36)

Report Date: 07/04/04  
Collection Date: 04/14/04 17:00  
Date Received: 05/03/04  
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	06/24/04 14:41 / rp
Conductivity, Paste Extract	5.41	mmhos/cm		0.01		ASAM10-3	06/24/04 14:41 / rp
Chloride, Saturated Paste	0.42	meq/L		0.01		ASA10-3	06/21/04 13:00 / jdh
Saturation	59.8	wt%		0.1		USDA27a	06/24/04 14:41 / rp
Sodium Adsorption Ratio (SAR)	5.2	unitless		0.1		Calculation	06/24/04 14:41 / rp
Alkalinity, Saturated Paste	2.0	meq/L		1.0		ASA10-3	06/24/04 13:00 / jdh
<b>SATURATED PASTE</b>							
Calcium, Saturated Paste	25.9	meq/l		0.05		SW6010B	06/01/04 12:30 / rp
Magnesium, Saturated Paste	20.7	meq/l		0.08		SW6010B	06/01/04 12:30 / rp
Sodium, Saturated Paste	25.3	meq/l		0.04		SW6010B	06/01/04 12:30 / rp
<b>PHYSICAL CHARACTERISTICS</b>							
Sand	5.0	wt%		1.0		ASA15-5	06/24/04 14:41 / rp
Silt	49	wt%		1.0		ASA15-5	06/24/04 14:41 / rp
Clay	46	wt%		1.0		ASA15-5	06/24/04 14:41 / rp
Texture	SiC	unitless				ASA15-5	06/24/04 14:41 / rp
<b>CHEMICAL CHARACTERISTICS</b>							
Cation Exchange Capacity	31.3	meq/100g		0.09		SW6010B	06/15/04 01:55 / rp
Exchangeable Sodium Percentage	6.1	%		0.1		USDA20b	06/24/04 14:41 / rp
Lime as CaCO3	6.0	wt%		0.1		USDA23c	06/24/04 14:41 / rp
<b>METALS, AMMONIUM ACETATE EXTRACTABLE</b>							
Sodium, Extractable	3.43	meq/100g		0.04		SW6010B	06/04/04 04:21 / rp

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 Tier 2  
**Lab ID:** H04050009-028  
**Client Sample ID:** T2/BC-10 (36-60)

**Report Date:** 07/04/04  
**Collection Date:** 04/14/04 17:00  
**Date Received:** 05/03/04  
**Matrix:** Soil

Analyses	Result	Units	Qual	MCL/		Method	Analysis Date / By
				RL	QCL		
<b>SATURATED PASTE</b>							
pH, Saturated Paste	7.9	s.u.		0.1		ASAM10-3.2	06/24/04 14:41 / rp
Conductivity, Paste Extract	5.99	mmhos/cm		0.01		ASAM10-3	06/24/04 14:41 / rp
Chloride, Saturated Paste	0.85	meq/L		0.01		ASA10-3	06/21/04 13:00 / jdh
Saturation	59.4	wt%		0.1		USDA27a	06/24/04 14:41 / rp
Sodium Adsorption Ratio (SAR)	7.3	unitless		0.1		Calculation	06/24/04 14:41 / rp
Alkalinity, Saturated Paste	2.2	meq/L		1.0		ASA10-3	06/24/04 13:00 / jdh
<b>SATURATED PASTE</b>							
Calcium, Saturated Paste	23.7	meq/l		0.05		SW6010B	06/01/04 12:33 / rp
Magnesium, Saturated Paste	16.8	meq/l		0.08		SW6010B	06/01/04 12:33 / rp
Sodium, Saturated Paste	32.9	meq/l		0.04		SW6010B	06/01/04 12:33 / rp
<b>PHYSICAL CHARACTERISTICS</b>							
Sand	8.0	wt%		1.0		ASA15-5	06/24/04 14:41 / rp
Silt	50	wt%		1.0		ASA15-5	06/24/04 14:41 / rp
Clay	42	wt%		1.0		ASA15-5	06/24/04 14:41 / rp
Texture	SiC	unitless				ASA15-5	06/24/04 14:41 / rp
<b>CHEMICAL CHARACTERISTICS</b>							
Fluoride	1.4	mg/kg		1.0		A4500-F C	06/17/04 13:00 / ddb
Cation Exchange Capacity	26.4	meq/100g		0.09		SW6010B	06/15/04 01:58 / rp
Exchangeable Sodium Percentage	13	%		0.1		USDA20b	06/24/04 14:41 / rp
Lime as CaCO3	6.8	wt%		0.1		USDA23c	06/24/04 14:41 / rp
<b>METALS, AMMONIUM ACETATE EXTRACTABLE</b>							
Sodium, Extractable	5.32	meq/100g		0.04		SW6010B	06/04/04 04:24 / rp
<b>METALS, WATER EXTRACTABLE</b>							
Selenium	ND	mg/kg		0.010		SW6020	06/24/04 22:22 / car
<b>METALS, CaCl2 EXTRACTABLE</b>							
Barium	0.51	mg/L		0.001		SW6010B	06/16/04 11:31 / rp
Boron	1.3	mg/L		0.04		SW6010B	06/16/04 11:31 / rp

**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 Tier 2  
**Lab ID:** H04050009-029  
**Client Sample ID:** T2/BC-10 (60-96)

**Report Date:** 07/04/04  
**Collection Date:** 04/14/04 17:00  
**Date Received:** 05/03/04  
**Matrix:** Soil

Analyses	Result	Units	Qual	MCL/		Method	Analysis Date / By
				RL	QCL		
<b>SATURATED PASTE</b>							
pH, Saturated Paste	7.9	s.u.		0.1		ASAM10-3.2	06/24/04 14:41 / rp
Conductivity, Paste Extract	6.76	mmhos/cm		0.01		ASAM10-3	06/24/04 14:41 / rp
Chloride, Saturated Paste	0.85	meq/L		0.01		ASA10-3	06/21/04 13:00 / jdh
Saturation	50.1	wt%		0.1		USDA27a	06/24/04 14:41 / rp
Sodium Adsorption Ratio (SAR)	7.4	unitless		0.1		Calculation	06/24/04 14:41 / rp
Alkalinity, Saturated Paste	2.6	meq/L		1.0		ASA10-3	06/24/04 13:00 / jdh
<b>SATURATED PASTE</b>							
Calcium, Saturated Paste	29.0	meq/l		0.05		SW6010B	06/01/04 12:36 / rp
Magnesium, Saturated Paste	20.6	meq/l		0.08		SW6010B	06/01/04 12:36 / rp
Sodium, Saturated Paste	36.8	meq/l		0.04		SW6010B	06/01/04 12:36 / rp
<b>PHYSICAL CHARACTERISTICS</b>							
Sand	25	wt%		1.0		ASA15-5	06/24/04 14:41 / rp
Silt	44	wt%		1.0		ASA15-5	06/24/04 14:41 / rp
Clay	31	wt%		1.0		ASA15-5	06/24/04 14:41 / rp
Texture	CL	unitless				ASA15-5	06/24/04 14:41 / rp
<b>CHEMICAL CHARACTERISTICS</b>							
Cation Exchange Capacity	21.6	meq/100g		0.09		SW6010B	06/15/04 02:01 / rp
Exchangeable Sodium Percentage	7.2	%		0.1		USDA20b	06/24/04 14:41 / rp
Lime as CaCO3	7.3	wt%		0.1		USDA23c	06/24/04 14:41 / rp
<b>METALS, AMMONIUM ACETATE EXTRACTABLE</b>							
Sodium, Extractable	3.39	meq/100g		0.04		SW6010B	06/04/04 04:27 / rp

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

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