



LABORATORY ANALYTICAL REPORT

**Client:** AMPP  
**Project:** Tongue River Monitoring Tier 2  
**Lab ID:** H04050009-030  
**Client Sample ID:** T2/YAA-10 (0-2)

**Report Date:** 07/04/04  
**Collection Date:** 04/14/04 09:00  
**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	0.92	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	49.0	wt%		0.1		USDA27a	06/24/04 14:41 / rp
Sodium Adsorption Ratio (SAR)	1.3	unitless		0.1		Calculation	06/24/04 14:41 / rp
Alkalinity, Saturated Paste	7.2	meq/L		1.0		ASA10-3	06/24/04 13:00 / jdh
<b>SATURATED PASTE</b>							
Calcium, Saturated Paste	4.14	meq/l		0.05		SW6010B	06/01/04 12:39 / rp
Magnesium, Saturated Paste	2.85	meq/l		0.08		SW6010B	06/01/04 12:39 / rp
Sodium, Saturated Paste	2.43	meq/l		0.04		SW6010B	06/01/04 12:39 / rp
<b>PHYSICAL CHARACTERISTICS</b>							
Sand	29	wt%		1.0		ASA15-5	06/24/04 14:41 / rp
Silt	43	wt%		1.0		ASA15-5	06/24/04 14:41 / rp
Clay	28	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	27.2	meq/100g		0.09		SW6010B	06/15/04 02:04 / rp
Exchangeable Sodium Percentage	2.3	%		0.1		USDA20b	06/24/04 14:41 / rp
Lime as CaCO3	3.7	wt%		0.1		USDA23c	06/24/04 14:41 / rp
<b>METALS, AMMONIUM ACETATE EXTRACTABLE</b>							
Sodium, Extractable	0.75	meq/100g		0.04		SW6010B	06/04/04 04:30 / 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: H04050009-031  
 Client Sample ID: T2/YAA-10 (0-6)

Report Date: 07/04/04  
 Collection Date: 04/14/04 09:00  
 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	0.92	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	51.6	wt%		0.1		USDA27a	06/24/04 14:41 / rp
Sodium Adsorption Ratio (SAR)	1.5	unitless		0.1		Calculation	06/24/04 14:41 / rp
Alkalinity, Saturated Paste	8.0	meq/L		1.0		ASA10-3	06/24/04 13:00 / jdH
Nitrate as N, Saturated Paste	13.8	mg/L		0.6		ASA10-3	06/15/04 10:53 / cwh
Sulfate, Saturated Paste	2.96	meq/L		0.002		ASA10-3	06/20/04 13:00 / rp
<b>SATURATED PASTE</b>							
Calcium, Saturated Paste	4.14	meq/l		0.05		SW6010B	06/01/04 12:45 / rp
Magnesium, Saturated Paste	2.77	meq/l		0.08		SW6010B	06/01/04 12:45 / rp
Sodium, Saturated Paste	2.72	meq/l		0.04		SW6010B	06/01/04 12:45 / rp
<b>PHYSICAL CHARACTERISTICS</b>							
Sand	23	wt%		1.0		ASA15-5	06/24/04 14:41 / rp
Silt	47	wt%		1.0		ASA15-5	06/24/04 14:41 / rp
Clay	30	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>							
Fluoride	1.2	mg/kg		1.0		A4500-F C	06/17/04 13:00 / ddb
Organic Matter	2.60	wt%		0.02		ASA29-3	06/24/04 14:41 / rp
Cation Exchange Capacity	28.6	meq/100g		0.09		SW6010B	06/15/04 02:10 / rp
Exchangeable Sodium Percentage	2.1	%		0.1		USDA20b	06/24/04 14:41 / rp
Lime as CaCO3	3.9	wt%		0.1		USDA23c	06/24/04 14:41 / rp
Phosphorus	8.8	mg/kg		0.1		ASA24-5	06/24/04 04:48 / rp
<b>METALS, AMMONIUM ACETATE EXTRACTABLE</b>							
Potassium	142	mg/kg		1		SW6010B	06/04/04 04:36 / rp
Sodium, Extractable	0.73	meq/100g		0.04		SW6010B	06/04/04 04:36 / rp
<b>METALS, WATER EXTRACTABLE</b>							
Selenium	0.041	mg/kg		0.010		SW6020	06/24/04 22:29 / car
<b>METALS, DTPA EXTRACTABLE</b>							
Zinc	0.33	mg/kg		0.02		SW6010B	06/16/04 01:40 / rp

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LABORATORY ANALYTICAL REPORT

Client: AMPP  
Project: Tongue River Monitoring Tier 2  
Lab ID: H04050009-031  
Client Sample ID: T2/YAA-10 (0-6)

Report Date: 07/04/04  
Collection Date: 04/14/04 09:00  
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	8.3	mg/L		0.001		SW6010B	06/16/04 11:34 / rp
Boron	1.0	mg/L		0.04		SW6010B	06/16/04 11:34 / rp

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



LABORATORY ANALYTICAL REPORT

**Client:** AMPP  
**Project:** Tongue River Monitoring Tier 2  
**Lab ID:** H04050009-032  
**Client Sample ID:** T2/YAA-10 (6-12)

**Report Date:** 07/04/04  
**Collection Date:** 04/14/04 09:00  
**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	0.68	mmhos/cm		0.01		ASAM10-3	06/24/04 14:41 / rp
Chloride, Saturated Paste	0.56	meq/L		0.01		ASA10-3	06/21/04 13:00 / jdh
Saturation	51.5	wt%		0.1		USDA27a	06/24/04 14:41 / rp
Sodium Adsorption Ratio (SAR)	1.8	unitless		0.1		Calculation	06/24/04 14:41 / rp
Alkalinity, Saturated Paste	4.8	meq/L		1.0		ASA10-3	06/24/04 13:00 / jdh
Nitrate as N, Saturated Paste	0.8	mg/L		0.6		ASA10-3	06/15/04 10:55 / cwh
Sulfate, Saturated Paste	6.39	meq/L		0.002		ASA10-3	06/20/04 13:00 / rp
<b>SATURATED PASTE</b>							
Calcium, Saturated Paste	3.01	meq/l		0.05		SW6010B	06/01/04 12:48 / rp
Magnesium, Saturated Paste	2.14	meq/l		0.08		SW6010B	06/01/04 12:48 / rp
Sodium, Saturated Paste	2.81	meq/l		0.04		SW6010B	06/01/04 12:48 / rp
<b>PHYSICAL CHARACTERISTICS</b>							
Sand	23	wt%		1.0		ASA15-5	06/24/04 14:41 / rp
Silt	45	wt%		1.0		ASA15-5	06/24/04 14:41 / rp
Clay	32	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	28.7	meq/100g		0.09		SW6010B	06/15/04 02:13 / rp
Exchangeable Sodium Percentage	2.3	%		0.1		USDA20b	06/24/04 14:41 / rp
Lime as CaCO3	2.6	wt%		0.1		USDA23c	06/24/04 14:41 / rp
<b>METALS, AMMONIUM ACETATE EXTRACTABLE</b>							
Sodium, Extractable	0.80	meq/100g		0.04		SW6010B	06/04/04 04:39 / rp

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 ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

**Client:** AMPP  
**Project:** Tongue River Monitoring Tier 2  
**Lab ID:** H04050009-033  
**Client Sample ID:** T2/YAA-10 (12-24)

**Report Date:** 07/04/04  
**Collection Date:** 04/14/04 09:00  
**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	1.73	mmhos/cm		0.01		ASAM10-3	06/24/04 14:41 / rp
Chloride, Saturated Paste	0.28	meq/L		0.01		ASA10-3	06/21/04 13:00 / jdh
Saturation	49.1	wt%		0.1		USDA27a	06/24/04 14:41 / rp
Sodium Adsorption Ratio (SAR)	2.8	unitless		0.1		Calculation	06/24/04 14:41 / rp
Alkalinity, Saturated Paste	1.2	meq/L		1.0		ASA10-3	06/24/04 13:00 / jdh
Nitrate as N, Saturated Paste	10.4	mg/L		0.6		ASA10-3	06/15/04 10:57 / cwh
Sulfate, Saturated Paste	16.6	meq/L		0.002		ASA10-3	06/20/04 13:00 / rp
<b>SATURATED PASTE</b>							
Calcium, Saturated Paste	6.55	meq/l		0.05		SW6010B	06/01/04 12:51 / rp
Magnesium, Saturated Paste	6.16	meq/l		0.08		SW6010B	06/01/04 12:51 / rp
Sodium, Saturated Paste	7.06	meq/l		0.04		SW6010B	06/01/04 12:51 / rp
<b>PHYSICAL CHARACTERISTICS</b>							
Sand	29	wt%		1.0		ASA15-5	06/24/04 14:41 / rp
Silt	43	wt%		1.0		ASA15-5	06/24/04 14:41 / rp
Clay	28	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	24.9	meq/100g		0.09		SW6010B	06/15/04 02:15 / rp
Exchangeable Sodium Percentage	4.3	%		0.1		USDA20b	06/24/04 14:41 / rp
Lime as CaCO3	4.4	wt%		0.1		USDA23c	06/24/04 14:41 / rp
<b>METALS, AMMONIUM ACETATE EXTRACTABLE</b>							
Sodium, Extractable	1.42	meq/100g		0.04		SW6010B	06/04/04 04:42 / 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:** H04050009-034  
**Client Sample ID:** T2/YAA-10 (24-36)

**Report Date:** 07/04/04  
**Collection Date:** 04/14/04 09:00  
**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	2.37	mmhos/cm		0.01		ASAM10-3	06/24/04 14:41 / rp
Chloride, Saturated Paste	0.28	meq/L		0.01		ASA10-3	06/21/04 13:00 / jdh
Saturation	49.0	wt%		0.1		USDA27a	06/24/04 14:41 / rp
Sodium Adsorption Ratio (SAR)	6.0	unitless		0.1		Calculation	06/24/04 14:41 / rp
Alkalinity, Saturated Paste	4.6	meq/L		1.0		ASA10-3	06/24/04 13:00 / jdh
<b>SATURATED PASTE</b>							
Calcium, Saturated Paste	5.12	meq/l		0.05		SW6010B	06/01/04 12:54 / rp
Magnesium, Saturated Paste	4.35	meq/l		0.08		SW6010B	06/01/04 12:54 / rp
Sodium, Saturated Paste	13.0	meq/l		0.04		SW6010B	06/01/04 12:54 / rp
<b>PHYSICAL CHARACTERISTICS</b>							
Sand	27	wt%		1.0		ASA15-5	06/24/04 14:41 / rp
Silt	45	wt%		1.0		ASA15-5	06/24/04 14:41 / rp
Clay	28	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	24.9	meq/100g		0.09		SW6010B	06/15/04 02:18 / rp
Exchangeable Sodium Percentage	7.4	%		0.1		USDA20b	06/24/04 14:41 / rp
Lime as CaCO3	4.5	wt%		0.1		USDA23c	06/24/04 14:41 / rp
<b>METALS, AMMONIUM ACETATE EXTRACTABLE</b>							
Sodium, Extractable	2.48	meq/100g		0.04		SW6010B	06/04/04 04:45 / 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:** H04050009-035  
**Client Sample ID:** T2/YAA-10 (36-60)

**Report Date:** 07/04/04  
**Collection Date:** 04/14/04 09:00  
**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	8.0	s.u.		0.1		ASAM10-3.2	06/24/04 14:41 / rp
Conductivity, Paste Extract	4.08	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	56.2	wt%		0.1		USDA27a	06/24/04 14:41 / rp
Sodium Adsorption Ratio (SAR)	10	unitless		0.1		Calculation	06/24/04 14:41 / rp
Alkalinity, Saturated Paste	3.4	meq/L		1.0		ASA10-3	06/24/04 13:00 / jdh
<b>SATURATED PASTE</b>							
Calcium, Saturated Paste	7.46	meq/l		0.05		SW6010B	06/01/04 12:57 / rp
Magnesium, Saturated Paste	5.99	meq/l		0.08		SW6010B	06/01/04 12:57 / rp
Sodium, Saturated Paste	26.4	meq/l		0.04		SW6010B	06/01/04 12:57 / rp
<b>PHYSICAL CHARACTERISTICS</b>							
Sand	29	wt%		1.0		ASA15-5	06/24/04 14:41 / rp
Silt	43	wt%		1.0		ASA15-5	06/24/04 14:41 / rp
Clay	28	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>							
Fluoride	1.5	mg/kg		1.0		A4500-F C	06/17/04 13:00 / ddb
Cation Exchange Capacity	24.9	meq/100g		0.09		SW6010B	06/15/04 02:27 / rp
Exchangeable Sodium Percentage	12	%		0.1		USDA20b	06/24/04 14:41 / rp
Lime as CaCO3	4.3	wt%		0.1		USDA23c	06/24/04 14:41 / rp
<b>METALS, AMMONIUM ACETATE EXTRACTABLE</b>							
Sodium, Extractable	4.42	meq/100g		0.04		SW6010B	06/04/04 04:54 / rp
<b>METALS, WATER EXTRACTABLE</b>							
Selenium	0.047	mg/kg		0.010		SW6020	06/24/04 22:36 / car
<b>METALS, CaCl2 EXTRACTABLE</b>							
Barium	1.2	mg/L		0.001		SW6010B	06/16/04 11:43 / rp
Boron	1.2	mg/L		0.04		SW6010B	06/16/04 11:43 / 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: H04050009-036  
Client Sample ID: T2/YAA-10 (60-96)

Report Date: 07/04/04  
Collection Date: 04/14/04 09:00  
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	6.88	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	51.1	wt%		0.1		USDA27a	06/24/04 14:41 / rp
Sodium Adsorption Ratio (SAR)	11	unitless		0.1		Calculation	06/24/04 14:41 / rp
Alkalinity, Saturated Paste	3.2	meq/L		1.0		ASA10-3	06/24/04 13:00 / jdH
<b>SATURATED PASTE</b>							
Calcium, Saturated Paste	20.9	meq/l		0.05		SW6010B	06/01/04 01:06 / rp
Magnesium, Saturated Paste	14.3	meq/l		0.08		SW6010B	06/01/04 01:06 / rp
Sodium, Saturated Paste	47.7	meq/l		0.04		SW6010B	06/01/04 01:06 / rp
<b>PHYSICAL CHARACTERISTICS</b>							
Sand	26	wt%		1.0		ASA15-5	06/24/04 14:41 / rp
Silt	45	wt%		1.0		ASA15-5	06/24/04 14:41 / rp
Clay	29	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	25.6	meq/100g		0.09		SW6010B	06/15/04 02:30 / rp
Exchangeable Sodium Percentage	10	%		0.1		USDA20b	06/24/04 14:41 / rp
Lime as CaCO3	4.7	wt%		0.1		USDA23c	06/24/04 14:41 / rp
<b>METALS, AMMONIUM ACETATE EXTRACTABLE</b>							
Sodium, Extractable	5.01	meq/100g		0.04		SW6010B	06/04/04 04:57 / rp

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

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