



LABORATORY ANALYTICAL REPORT

**Client:** AMPP  
**Project:** Tongue River Monitoring Tier 2  
**Lab ID:** H04050009-001  
**Client Sample ID:** T2/DA-10 (0-2)

**Report Date:** 07/04/04  
**Collection Date:** 04/14/04 11:30  
**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	7.4	s.u.		0.1		ASAM10-3.2	06/24/04 14:41 / rp
Conductivity, Paste Extract	3.55	mmhos/cm		0.01		ASAM10-3	06/24/04 14:41 / rp
Chloride, Saturated Paste	2.40	meq/L		0.01		ASA10-3	06/21/04 13:00 / jdh
Saturation	34.3	wt%		0.1		USDA27a	06/24/04 14:41 / rp
Sodium Adsorption Ratio (SAR)	2.3	unitless		0.1		Calculation	06/24/04 14:41 / rp
Alkalinity, Saturated Paste	8.8	meq/L		1.0		ASA10-3	06/24/04 13:00 / jdh
<b>SATURATED PASTE</b>							
Calcium, Saturated Paste	21.2	meq/l		0.05		SW6010B	06/01/04 10:47 / rp
Magnesium, Saturated Paste	10.0	meq/l		0.08		SW6010B	06/01/04 10:47 / rp
Sodium, Saturated Paste	8.99	meq/l		0.04		SW6010B	06/01/04 10:47 / rp
<b>PHYSICAL CHARACTERISTICS</b>							
Sand	52	wt%		1.0		ASA15-5	06/24/04 14:41 / rp
Silt	37	wt%		1.0		ASA15-5	06/24/04 14:41 / rp
Clay	11	wt%		1.0		ASA15-5	06/24/04 14:41 / rp
Texture	L	unitless				ASA15-5	06/24/04 14:41 / rp
<b>CHEMICAL CHARACTERISTICS</b>							
Cation Exchange Capacity	15.8	meq/100g		0.09		SW6010B	06/15/04 12:09 / rp
Exchangeable Sodium Percentage	3.6	%		0.1		USDA20b	06/24/04 14:41 / rp
Lime as CaCO3	7.1	wt%		0.1		USDA23c	06/24/04 14:41 / rp
<b>METALS, AMMONIUM ACETATE EXTRACTABLE</b>							
Sodium, Extractable	0.88	meq/100g		0.04		SW6010B	06/04/04 02:35 / 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: H04050009-002  
 Client Sample ID: T2/DA-10 (0-6)

Report Date: 07/04/04  
 Collection Date: 04/14/04 11:30  
 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	4.29	mmhos/cm		0.01		ASAM10-3	06/24/04 14:41 / rp
Chloride, Saturated Paste	2.68	meq/L		0.01		ASA10-3	06/21/04 13:00 / jdH
Saturation	35.0	wt%		0.1		USDA27a	06/24/04 14:41 / rp
Sodium Adsorption Ratio (SAR)	3.5	unitless		0.1		Calculation	06/24/04 14:41 / rp
Alkalinity, Saturated Paste	6.6	meq/L		1.0		ASA10-3	06/24/04 13:00 / jdH
Nitrate as N, Saturated Paste	19.4	mg/L		0.6		ASA10-3	06/15/04 10:25 / cwh
Sulfate, Saturated Paste	49.5	meq/L		0.002		ASA10-3	06/20/04 13:00 / rp
<b>SATURATED PASTE</b>							
Calcium, Saturated Paste	26.1	meq/l		0.05		SW6010B	06/01/04 10:50 / rp
Magnesium, Saturated Paste	13.5	meq/l		0.08		SW6010B	06/01/04 10:50 / rp
Sodium, Saturated Paste	15.7	meq/l		0.04		SW6010B	06/01/04 10:50 / rp
<b>PHYSICAL CHARACTERISTICS</b>							
Sand	47	wt%		1.0		ASA15-5	06/24/04 14:41 / rp
Silt	40	wt%		1.0		ASA15-5	06/24/04 14:41 / rp
Clay	13	wt%		1.0		ASA15-5	06/24/04 14:41 / rp
Texture	L	unitless				ASA15-5	06/24/04 14:41 / rp
<b>CHEMICAL CHARACTERISTICS</b>							
Fluoride	ND	mg/kg		1.0		A4500-F C	06/17/04 13:00 / ddb
Organic Matter	2.00	wt%		0.02		ASA29-3	06/24/04 14:41 / rp
Cation Exchange Capacity	16.5	meq/100g		0.09		SW6010B	06/15/04 12:12 / rp
Exchangeable Sodium Percentage	4.8	%		0.1		USDA20b	06/24/04 14:41 / rp
Lime as CaCO3	7.1	wt%		0.1		USDA23c	06/24/04 14:41 / rp
Phosphorus	8.6	mg/kg		0.1		ASA24-5	06/24/04 04:38 / rp
<b>METALS, AMMONIUM ACETATE EXTRACTABLE</b>							
Potassium	174	mg/kg		1		SW6010B	06/04/04 02:38 / rp
Sodium, Extractable	1.34	meq/100g		0.04		SW6010B	06/04/04 02:38 / rp
<b>METALS, WATER EXTRACTABLE</b>							
Selenium	0.039	mg/kg		0.010		SW6020	06/24/04 14:51 / car
<b>METALS, DTPA EXTRACTABLE</b>							
Zinc	0.65	mg/kg		0.02		SW6010B	06/16/04 01:10 / rp

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LABORATORY ANALYTICAL REPORT

Client: AMPP  
Project: Tongue River Monitoring Tier 2  
Lab ID: H04050009-002  
Client Sample ID: T2/DA-10 (0-6)

Report Date: 07/04/04  
Collection Date: 04/14/04 11:30  
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	3.2	mg/L		0.001		SW6010B	06/16/04 11:07 / rp
Boron	1.5	mg/L		0.04		SW6010B	06/16/04 11:07 / rp

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LABORATORY ANALYTICAL REPORT

**Client:** AMPP  
**Project:** Tongue River Monitoring Tier 2  
**Lab ID:** H04050009-003  
**Client Sample ID:** T2/DA-10 (6-12)

**Report Date:** 07/04/04  
**Collection Date:** 04/14/04 11:30  
**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	7.32	mmhos/cm		0.01		ASAM10-3	06/24/04 14:41 / rp
Chloride, Saturated Paste	0.99	meq/L		0.01		ASA10-3	06/21/04 13:00 / jdh
Saturation	34.1	wt%		0.1		USDA27a	06/24/04 14:41 / rp
Sodium Adsorption Ratio (SAR)	8.3	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	16.1	mg/L		0.6		ASA10-3	06/15/04 10:27 / cwh
Sulfate, Saturated Paste	98.6	meq/L		0.002		ASA10-3	06/20/04 13:00 / rp
<b>SATURATED PASTE</b>							
Calcium, Saturated Paste	29.7	meq/l		0.05		SW6010B	06/01/04 10:53 / rp
Magnesium, Saturated Paste	20.8	meq/l		0.08		SW6010B	06/01/04 10:53 / rp
Sodium, Saturated Paste	41.6	meq/l		0.04		SW6010B	06/01/04 10:53 / rp
<b>PHYSICAL CHARACTERISTICS</b>							
Sand	43	wt%		1.0		ASA15-5	06/24/04 14:41 / rp
Silt	42	wt%		1.0		ASA15-5	06/24/04 14:41 / rp
Clay	15	wt%		1.0		ASA15-5	06/24/04 14:41 / rp
Texture	L	unitless				ASA15-5	06/24/04 14:41 / rp
<b>CHEMICAL CHARACTERISTICS</b>							
Cation Exchange Capacity	13.7	meq/100g		0.09		SW6010B	06/15/04 12:15 / rp
Exchangeable Sodium Percentage	9.7	%		0.1		USDA20b	06/24/04 14:41 / rp
Lime as CaCO3	7.2	wt%		0.1		USDA23c	06/24/04 14:41 / rp
<b>METALS, AMMONIUM ACETATE EXTRACTABLE</b>							
Sodium, Extractable	2.75	meq/100g		0.04		SW6010B	06/04/04 02:41 / rp

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LABORATORY ANALYTICAL REPORT

**Client:** AMPP  
**Project:** Tongue River Monitoring Tier 2  
**Lab ID:** H04050009-004  
**Client Sample ID:** T2/DA-10 (12-24)

**Report Date:** 07/04/04  
**Collection Date:** 04/14/04 11:30  
**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	9.05	mmhos/cm		0.01		ASAM10-3	06/24/04 14:41 / rp
Chloride, Saturated Paste	1.27	meq/L		0.01		ASA10-3	06/21/04 13:00 / jdH
Saturation	31.2	wt%		0.1		USDA27a	06/24/04 14:41 / rp
Sodium Adsorption Ratio (SAR)	13	unitless		0.1		Calculation	06/24/04 14:41 / rp
Alkalinity, Saturated Paste	4.2	meq/L		1.0		ASA10-3	06/24/04 13:00 / jdH
Nitrate as N, Saturated Paste	18.9	mg/L		0.6		ASA10-3	06/15/04 10:29 / cwh
Sulfate, Saturated Paste	10.7	meq/L		0.002		ASA10-3	06/20/04 13:00 / rp
<b>SATURATED PASTE</b>							
Calcium, Saturated Paste	19.5	meq/l		0.05		SW6010B	06/01/04 10:56 / rp
Magnesium, Saturated Paste	20.4	meq/l		0.08		SW6010B	06/01/04 10:56 / rp
Sodium, Saturated Paste	56.0	meq/l		0.04		SW6010B	06/01/04 10:56 / rp
<b>PHYSICAL CHARACTERISTICS</b>							
Sand	55	wt%		1.0		ASA15-5	06/24/04 14:41 / rp
Silt	34	wt%		1.0		ASA15-5	06/24/04 14:41 / rp
Clay	11	wt%		1.0		ASA15-5	06/24/04 14:41 / rp
Texture	SL	unitless				ASA15-5	06/24/04 14:41 / rp
<b>CHEMICAL CHARACTERISTICS</b>							
Cation Exchange Capacity	13.2	meq/100g		0.09		SW6010B	06/15/04 12:18 / rp
Exchangeable Sodium Percentage	14	%		0.1		USDA20b	06/24/04 14:41 / rp
Lime as CaCO3	7.8	wt%		0.1		USDA23c	06/24/04 14:41 / rp
<b>METALS, AMMONIUM ACETATE EXTRACTABLE</b>							
Sodium, Extractable	3.58	meq/100g		0.04		SW6010B	06/04/04 02:44 / 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:** H04050009-005  
**Client Sample ID:** T2/DA-10 (24-36)

**Report Date:** 07/04/04  
**Collection Date:** 04/14/04 11:30  
**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	7.56	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	27.7	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	4.0	meq/L		1.0		ASA10-3	06/24/04 13:00 / jdh
<b>SATURATED PASTE</b>							
Calcium, Saturated Paste	17.8	meq/l		0.05		SW6010B	06/01/04 10:59 / rp
Magnesium, Saturated Paste	22.6	meq/l		0.08		SW6010B	06/01/04 10:59 / rp
Sodium, Saturated Paste	46.5	meq/l		0.04		SW6010B	06/01/04 10:59 / rp
<b>PHYSICAL CHARACTERISTICS</b>							
Sand	66	wt%		1.0		ASA15-5	06/24/04 14:41 / rp
Silt	25	wt%		1.0		ASA15-5	06/24/04 14:41 / rp
Clay	9.0	wt%		1.0		ASA15-5	06/24/04 14:41 / rp
Texture	SL	unitless				ASA15-5	06/24/04 14:41 / rp
<b>CHEMICAL CHARACTERISTICS</b>							
Cation Exchange Capacity	7.72	meq/100g		0.09		SW6010B	06/15/04 12:21 / rp
Exchangeable Sodium Percentage	17	%		0.1		USDA20b	06/24/04 14:41 / rp
Lime as CaCO3	6.3	wt%		0.1		USDA23c	06/24/04 14:41 / rp
<b>METALS, AMMONIUM ACETATE EXTRACTABLE</b>							
Sodium, Extractable	2.61	meq/100g		0.04		SW6010B	06/04/04 02:47 / 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: H04050009-006  
 Client Sample ID: T2/DA-10-(36-60)

Report Date: 07/04/04  
 Collection Date: 04/14/04 11:30  
 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	6.31	mmhos/cm		0.01		ASAM10-3	06/24/04 14:41 / rp
Chloride, Saturated Paste	0.99	meq/L		0.01		ASA10-3	06/21/04 13:00 / jdh
Saturation	25.5	wt%		0.1		USDA27a	06/24/04 14:41 / rp
Sodium Adsorption Ratio (SAR)	7.7	unitless		0.1		Calculation	06/24/04 14:41 / rp
Alkalinity, Saturated Paste	2.8	meq/L		1.0		ASA10-3	06/24/04 13:00 / jdh
<b>SATURATED PASTE</b>							
Calcium, Saturated Paste	17.6	meq/l		0.05		SW6010B	06/01/04 11:02 / rp
Magnesium, Saturated Paste	21.5	meq/l		0.08		SW6010B	06/01/04 11:02 / rp
Sodium, Saturated Paste	34.2	meq/l		0.04		SW6010B	06/01/04 11:02 / rp
<b>PHYSICAL CHARACTERISTICS</b>							
Sand	69	wt%		1.0		ASA15-5	06/24/04 14:41 / rp
Silt	23	wt%		1.0		ASA15-5	06/24/04 14:41 / rp
Clay	8.0	wt%		1.0		ASA15-5	06/24/04 14:41 / rp
Texture	SL	unitless				ASA15-5	06/24/04 14:41 / rp
<b>CHEMICAL CHARACTERISTICS</b>							
Fluoride	1.1	mg/kg		1.0		A4500-F C	06/17/04 13:00 / ddb
Cation Exchange Capacity	7.69	meq/100g		0.09		SW6010B	06/15/04 12:24 / rp
Exchangeable Sodium Percentage	15	%		0.1		USDA20b	06/24/04 14:41 / rp
Lime as CaCO3	6.2	wt%		0.1		USDA23c	06/24/04 14:41 / rp
<b>METALS, AMMONIUM ACETATE EXTRACTABLE</b>							
Sodium, Extractable	2.04	meq/100g		0.04		SW6010B	06/04/04 02:50 / rp
<b>METALS, WATER EXTRACTABLE</b>							
Selenium	0.037	mg/kg		0.010		SW6020	06/24/04 21:06 / car
<b>METALS, CaCl2 EXTRACTABLE</b>							
Barium	1.1	mg/L		0.001		SW6010B	06/16/04 11:10 / rp
Boron	1.5	mg/L		0.04		SW6010B	06/16/04 11:10 / 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:** H04050009-007  
**Client Sample ID:** T2/DA-10-(60-96)

**Report Date:** 07/04/04  
**Collection Date:** 04/14/04 11:30  
**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	3.85	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	21.3	wt%		0.1		USDA27a	06/24/04 14:41 / rp
Sodium Adsorption Ratio (SAR)	8.2	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	7.77	meq/l		0.05		SW6010B	06/01/04 11:05 / rp
Magnesium, Saturated Paste	8.47	meq/l		0.08		SW6010B	06/01/04 11:05 / rp
Sodium, Saturated Paste	23.2	meq/l		0.04		SW6010B	06/01/04 11:05 / rp
<b>PHYSICAL CHARACTERISTICS</b>							
Sand	84	wt%		1.0		ASA15-5	06/24/04 14:41 / rp
Silt	11	wt%		1.0		ASA15-5	06/24/04 14:41 / rp
Clay	5.0	wt%		1.0		ASA15-5	06/24/04 14:41 / rp
Texture	LS	unitless				ASA15-5	06/24/04 14:41 / rp
<b>CHEMICAL CHARACTERISTICS</b>							
Cation Exchange Capacity	5.44	meq/100g		0.09		SW6010B	06/15/04 12:27 / rp
Exchangeable Sodium Percentage	22	%		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	1.67	meq/100g		0.04		SW6010B	06/04/04 02:53 / rp

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 QCL - Quality control limit.

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