



LABORATORY ANALYTICAL REPORT

**Client:** AMPP  
**Project:** Tongue River Monitoring Tier 2  
**Lab ID:** H04100167-032  
**Client Sample ID:** T2/DA-10-(0-6")

**Report Date:** 11/22/04  
**Collection Date:** 10/13/04 17:00  
**Date Received:** 10/20/04  
**Matrix:** Soil

Analyses	Result	Units	Qual	MCL/		Method	Analysis Date / By
				RL	QCL		
<b>SATURATED PASTE</b>							
pH, sat. paste	7.6	s.u.		0.1		ASAM10-3.2	11/22/04 07:49 / jdh
Conductivity, Paste Extract	1.99	mmhos/cm		0.01		ASAM10-3	11/22/04 07:49 / jdh
Saturation	39.1	%		0.1		USDA27a	11/22/04 07:49 / jdh
Sodium Adsorption Ratio (SAR)	2.0	unitless		0.01		Calculation	11/22/04 07:49 / jdh
Alkalinity, Saturated Paste	10	meq/L		1.0		ASA10-3	11/22/04 13:00 / jdh
Nitrate as N, Saturated Paste	ND	mg/L		0.1		ASA10-3	11/10/04 12:49 / cwh
<b>SATURATED PASTE</b>							
Calcium, Saturated Paste	12.6	meq/l		0.05		SW6010B	11/04/04 12:47 / rp
Magnesium, Saturated Paste	7.91	meq/l		0.08		SW6010B	11/04/04 12:47 / rp
Sodium, Saturated Paste	6.59	meq/l		0.04		SW6010B	11/04/04 12:47 / rp
Sulfate, Saturated Paste	13.8	meq/l		0.002		SW6010B	11/04/04 12:47 / rp
<b>PHYSICAL CHARACTERISTICS</b>							
Sand	50	%		1.0		ASA15-5	11/22/04 07:49 / jdh
Silt	37	%		1.0		ASA15-5	11/22/04 07:49 / jdh
Clay	13	%		1.0		ASA15-5	11/22/04 07:49 / jdh
Texture	L	unitless				ASA15-5	11/22/04 07:49 / jdh
<b>CHEMICAL CHARACTERISTICS</b>							
Fluoride	ND	mg/kg		1.0		A4500-F C	11/22/04 13:00 / jdh
Potassium, NH4OAc Extractable	267	mg/kg		1		ASA13-3	11/22/04 13:00 / jdh
Organic Matter	2.00	%		0.02		ASA29-3	11/22/04 07:49 / jdh
Cation Exchange Capacity	13.1	meq/100g		0.09		SW6010B	11/09/04 03:21 / rp
Lime as CaCO3	7.3	%		0.1		USDA23c	11/09/04 00:00 / jdh
Phosphorus	6.9	mg/kg		0.1		ASA24-5	11/12/04 07:23 / rp
<b>METALS, AMMONIUM ACETATE EXTRACTABLE</b>							
Sodium, Extractable	0.94	meq/100g		0.04		SW6010B	11/08/04 12:43 / rp
<b>EXCHANGEABLES</b>							
Exchangeable Sodium	0.7	meq/100g		0.1		Calculation	11/22/04 07:49 / jdh
Exchangeable Sodium Percentage	5.2	%		0.1		USDA20a	11/22/04 07:49 / jdh
<b>METALS, DTPA EXTRACTABLE</b>							
Zinc	0.65	mg/kg		0.02		SW6010B	11/09/04 11:06 / rp
<b>METALS, CACL2 EXTRACTABLE</b>							
Barium	4.5	mg/L		0.04		SW6010B	11/09/04 09:30 / rp

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

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



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Client: AMPP  
Project: Tongue River Monitoring Tier 2  
Lab ID: H04100167-032  
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Matrix: Soil

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Analyses	Result	Units	Qual	MCL/		Method	Analysis Date / By
				RL	QCL		
<b>METALS, CACL2 EXTRACTABLE</b>							
Boron	2.0	mg/L		0.04		SW6010B	11/09/04 09:30 / rp
Selenium	ND	mg/L		0.10		SW6010B	11/09/04 09:30 / rp

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LABORATORY ANALYTICAL REPORT

**Client:** AMPP  
**Project:** Tongue River Monitoring Tier 2  
**Lab ID:** H04100167-033  
**Client Sample ID:** T2/DA-10-(6-12")

**Report Date:** 11/22/04  
**Collection Date:** 10/13/04 17:00  
**Date Received:** 10/20/04  
**Matrix:** Soil

Analyses	Result	Units	Qual	MCL/		Method	Analysis Date / By
				RL	QCL		
<b>SATURATED PASTE</b>							
pH, sat. paste	7.6	s.u.		0.1		ASAM10-3.2	11/22/04 07:49 / jdh
Conductivity, Paste Extract	5.11	mmhos/cm		0.01		ASAM10-3	11/22/04 07:49 / jdh
Saturation	36.7	%		0.1		USDA27a	11/22/04 07:49 / jdh
Sodium Adsorption Ratio (SAR)	4.7	unitless		0.01		Calculation	11/22/04 07:49 / jdh
Alkalinity, Saturated Paste	5.3	meq/L		1.0		ASA10-3	11/22/04 13:00 / jdh
Nitrate as N, Saturated Paste	ND	mg/L		0.1		ASA10-3	11/10/04 12:51 / cwh
<b>SATURATED PASTE</b>							
Calcium, Saturated Paste	26.2	meq/l		0.05		SW6010B	11/04/04 12:50 / rp
Magnesium, Saturated Paste	16.6	meq/l		0.08		SW6010B	11/04/04 12:50 / rp
Sodium, Saturated Paste	21.7	meq/l		0.04		SW6010B	11/04/04 12:50 / rp
Sulfate, Saturated Paste	57.8	meq/l		0.002		SW6010B	11/04/04 12:50 / rp
<b>PHYSICAL CHARACTERISTICS</b>							
Sand	49	%		1.0		ASA15-5	11/22/04 07:49 / jdh
Silt	39	%		1.0		ASA15-5	11/22/04 07:49 / jdh
Clay	12	%		1.0		ASA15-5	11/22/04 07:49 / jdh
Texture	L	unitless				ASA15-5	11/22/04 07:49 / jdh
<b>CHEMICAL CHARACTERISTICS</b>							
Cation Exchange Capacity	13.1	meq/100g		0.09		SW6010B	11/09/04 03:24 / rp
Lime as CaCO3	7.8	%		0.1		USDA23c	11/09/04 00:00 / jdh
<b>METALS, AMMONIUM ACETATE EXTRACTABLE</b>							
Sodium, Extractable	1.77	meq/100g		0.04		SW6010B	11/08/04 12:46 / rp
<b>EXCHANGEABLES</b>							
Exchangeable Sodium	1.0	meq/100g		0.1		Calculation	11/22/04 07:49 / jdh
Exchangeable Sodium Percentage	7.4	%		0.1		USDA20a	11/22/04 07:49 / jdh

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LABORATORY ANALYTICAL REPORT

**Client:** AMPP  
**Project:** Tongue River Monitoring Tier 2  
**Lab ID:** H04100167-034  
**Client Sample ID:** T2/DA-10-(12-24")

**Report Date:** 11/22/04  
**Collection Date:** 10/13/04 17:00  
**Date Received:** 10/20/04  
**Matrix:** Soil

Analyses	Result	Units	Qual	MCL/		Method	Analysis Date / By
				RL	QCL		
<b>SATURATED PASTE</b>							
pH, sat. paste	8.0	s.u.		0.1		ASAM10-3.2	11/22/04 07:49 / jdh
Conductivity, Paste Extract	8.22	mmhos/cm		0.01		ASAM10-3	11/22/04 07:49 / jdh
Saturation	30.8	%		0.1		USDA27a	11/22/04 07:49 / jdh
Sodium Adsorption Ratio (SAR)	14	unitless		0.01		Calculation	11/22/04 07:49 / jdh
Alkalinity, Saturated Paste	3.8	meq/L		1.0		ASA10-3	11/22/04 13:00 / jdh
Nitrate as N, Saturated Paste	3.4	mg/L		0.1		ASA10-3	11/10/04 12:57 / cwh
<b>SATURATED PASTE</b>							
Calcium, Saturated Paste	21.7	meq/l		0.05		SW6010B	11/04/04 12:53 / rp
Magnesium, Saturated Paste	20.5	meq/l		0.08		SW6010B	11/04/04 12:53 / rp
Sodium, Saturated Paste	64.5	meq/l		0.04		SW6010B	11/04/04 12:53 / rp
Sulfate, Saturated Paste	100	meq/l		0.002		SW6010B	11/04/04 12:53 / rp
<b>PHYSICAL CHARACTERISTICS</b>							
Sand	60	%		1.0		ASA15-5	11/22/04 07:49 / jdh
Silt	30	%		1.0		ASA15-5	11/22/04 07:49 / jdh
Clay	10	%		1.0		ASA15-5	11/22/04 07:49 / jdh
Texture	SL	unitless				ASA15-5	11/22/04 07:49 / jdh
<b>CHEMICAL CHARACTERISTICS</b>							
Cation Exchange Capacity	9.26	meq/100g		0.09		SW6010B	11/09/04 03:27 / rp
Lime as CaCO3	7.1	%		0.1		USDA23c	11/09/04 00:00 / jdh
<b>METALS, AMMONIUM ACETATE EXTRACTABLE</b>							
Sodium, Extractable	3.54	meq/100g		0.04		SW6010B	11/08/04 12:49 / rp
<b>EXCHANGEABLES</b>							
Exchangeable Sodium	1.6	meq/100g		0.1		Calculation	11/22/04 07:49 / jdh
Exchangeable Sodium Percentage	17	%		0.1		USDA20a	11/22/04 07:49 / jdh

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LABORATORY ANALYTICAL REPORT

**Client:** AMPP  
**Project:** Tongue River Monitoring Tier 2  
**Lab ID:** H04100167-035  
**Client Sample ID:** T2/DA-10-(24-36")

**Report Date:** 11/22/04  
**Collection Date:** 10/13/04 17:00  
**Date Received:** 10/20/04  
**Matrix:** Soil

Analyses	Result	Units	Qual	MCL/		Method	Analysis Date / By
				RL	QCL		
<b>SATURATED PASTE</b>							
pH, sat. paste	8.0	s.u.		0.1		ASAM10-3.2	11/22/04 07:49 / jdh
Conductivity, Paste Extract	8.85	mmhos/cm		0.01		ASAM10-3	11/22/04 07:49 / jdh
Saturation	29.0	%		0.1		USDA27a	11/22/04 07:49 / jdh
Sodium Adsorption Ratio (SAR)	15	unitless		0.01		Calculation	11/22/04 07:49 / jdh
Alkalinity, Saturated Paste	3.3	meq/L		1.0		ASA10-3	11/22/04 13:00 / jdh
<b>SATURATED PASTE</b>							
Calcium, Saturated Paste	18.6	meq/l		0.05		SW6010B	11/04/04 12:56 / rp
Magnesium, Saturated Paste	20.8	meq/l		0.08		SW6010B	11/04/04 12:56 / rp
Sodium, Saturated Paste	67.9	meq/l		0.04		SW6010B	11/04/04 12:56 / rp
<b>PHYSICAL CHARACTERISTICS</b>							
Sand	61	%		1.0		ASA15-5	11/22/04 07:49 / jdh
Silt	29	%		1.0		ASA15-5	11/22/04 07:49 / jdh
Clay	10	%		1.0		ASA15-5	11/22/04 07:49 / jdh
Texture	SL	unitless				ASA15-5	11/22/04 07:49 / jdh
<b>CHEMICAL CHARACTERISTICS</b>							
Cation Exchange Capacity	9.83	meq/100g		0.09		SW6010B	11/09/04 03:30 / rp
Lime as CaCO3	7.4	%		0.1		USDA23c	11/09/04 00:00 / jdh
<b>METALS, AMMONIUM ACETATE EXTRACTABLE</b>							
Sodium, Extractable	3.69	meq/100g		0.04		SW6010B	11/08/04 12:52 / rp
<b>EXCHANGEABLES</b>							
Exchangeable Sodium	1.7	meq/100g		0.1		Calculation	11/22/04 07:49 / jdh
Exchangeable Sodium Percentage	17	%		0.1		USDA20a	11/22/04 07:49 / jdh

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

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LABORATORY ANALYTICAL REPORT

**Client:** AMPP  
**Project:** Tongue River Monitoring Tier 2  
**Lab ID:** H04100167-036  
**Client Sample ID:** T2/DA-10-(36-60")

**Report Date:** 11/22/04  
**Collection Date:** 10/13/04 17:00  
**Date Received:** 10/20/04  
**Matrix:** Soil

Analyses	Result	Units	Qual	MCL/		Method	Analysis Date / By
				RL	QCL		
<b>SATURATED PASTE</b>							
pH, sat. paste	8.0	s.u.		0.1		ASAM10-3.2	11/22/04 07:49 / jdh
Conductivity, Paste Extract	7.13	mmhos/cm		0.01		ASAM10-3	11/22/04 07:49 / jdh
Saturation	27.0	%		0.1		USDA27a	11/22/04 07:49 / jdh
Sodium Adsorption Ratio (SAR)	15	unitless		0.01		Calculation	11/22/04 07:49 / jdh
Alkalinity, Saturated Paste	4.0	meq/L		1.0		ASA10-3	11/22/04 13:00 / jdh
<b>SATURATED PASTE</b>							
Calcium, Saturated Paste	12.5	meq/l		0.05		SW6010B	11/04/04 12:59 / rp
Magnesium, Saturated Paste	16.4	meq/l		0.08		SW6010B	11/04/04 12:59 / rp
Sodium, Saturated Paste	56.4	meq/l		0.04		SW6010B	11/04/04 12:59 / rp
<b>PHYSICAL CHARACTERISTICS</b>							
Sand	76	%		1.0		ASA15-5	11/22/04 07:49 / jdh
Silt	18	%		1.0		ASA15-5	11/22/04 07:49 / jdh
Clay	6.0	%		1.0		ASA15-5	11/22/04 07:49 / jdh
Texture	SL	unitless				ASA15-5	11/22/04 07:49 / jdh
<b>CHEMICAL CHARACTERISTICS</b>							
Fluoride	ND	mg/kg		1.0		A4500-F C	11/22/04 13:00 / jdh
Cation Exchange Capacity	9.74	meq/100g		0.09		SW6010B	11/09/04 03:33 / rp
Lime as CaCO3	6.6	%		0.1		USDA23c	11/09/04 00:00 / jdh
<b>METALS, AMMONIUM ACETATE EXTRACTABLE</b>							
Sodium, Extractable	3.27	meq/100g		0.04		SW6010B	11/08/04 01:06 / rp
<b>EXCHANGEABLES</b>							
Exchangeable Sodium	1.8	meq/100g		0.1		Calculation	11/22/04 07:49 / jdh
Exchangeable Sodium Percentage	18	%		0.1		USDA20a	11/22/04 07:49 / jdh
<b>METALS, CACL2 EXTRACTABLE</b>							
Barium	0.68	mg/L		0.04		SW6010B	11/09/04 09:33 / rp
Boron	1.9	mg/L		0.04		SW6010B	11/09/04 09:33 / rp
Selenium	ND	mg/L		0.10		SW6010B	11/09/04 09:33 / rp

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LABORATORY ANALYTICAL REPORT

**Client:** AMPP  
**Project:** Tongue River Monitoring Tier 2  
**Lab ID:** H04100167-037  
**Client Sample ID:** T2/DA-10-(60-90")

**Report Date:** 11/22/04  
**Collection Date:** 10/13/04 17:00  
**Date Received:** 10/20/04  
**Matrix:** Soil

Analyses	Result	Units	Qual	MCL/		Method	Analysis Date / By
				RL	QCL		
<b>SATURATED PASTE</b>							
pH, sat. paste	7.8	s.u.		0.1		ASAM10-3.2	11/22/04 07:49 / jdh
Conductivity, Paste Extract	6.08	mmhos/cm		0.01		ASAM10-3	11/22/04 07:49 / jdh
Saturation	25.0	%		0.1		USDA27a	11/22/04 07:49 / jdh
Sodium Adsorption Ratio (SAR)	15	unitless		0.01		Calculation	11/22/04 07:49 / jdh
Alkalinity, Saturated Paste	4.8	meq/L		1.0		ASA10-3	11/22/04 13:00 / jdh
<b>SATURATED PASTE</b>							
Calcium, Saturated Paste	11.4	meq/l		0.05		SW6010B	11/04/04 01:08 / rp
Magnesium, Saturated Paste	12.3	meq/l		0.08		SW6010B	11/04/04 01:08 / rp
Sodium, Saturated Paste	51.5	meq/l		0.04		SW6010B	11/04/04 01:08 / rp
<b>PHYSICAL CHARACTERISTICS</b>							
Sand	67	%		1.0		ASA15-5	11/22/04 07:49 / jdh
Silt	25	%		1.0		ASA15-5	11/22/04 07:49 / jdh
Clay	8.0	%		1.0		ASA15-5	11/22/04 07:49 / jdh
Texture	SL	unitless				ASA15-5	11/22/04 07:49 / jdh
<b>CHEMICAL CHARACTERISTICS</b>							
Cation Exchange Capacity	9.14	meq/100g		0.09		SW6010B	11/09/04 03:36 / rp
Lime as CaCO3	6.0	%		0.1		USDA23c	11/09/04 00:00 / jdh
<b>METALS, AMMONIUM ACETATE EXTRACTABLE</b>							
Sodium, Extractable	2.53	meq/100g		0.04		SW6010B	11/08/04 01:09 / rp
<b>EXCHANGEABLES</b>							
Exchangeable Sodium	1.2	meq/100g		0.1		Calculation	11/22/04 07:49 / jdh
Exchangeable Sodium Percentage	14	%		0.1		USDA20a	11/22/04 07:49 / jdh

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LABORATORY ANALYTICAL REPORT

**Client:** AMPP  
**Project:** Tongue River Monitoring Tier 2  
**Lab ID:** H04100167-038  
**Client Sample ID:** T2/DA-10-(0-2")

**Report Date:** 11/22/04  
**Collection Date:** 10/13/04 17:00  
**Date Received:** 10/20/04  
**Matrix:** Soil

Analyses	Result	Units	Qual	MCL/		Method	Analysis Date / By
				RL	QCL		
<b>SATURATED PASTE</b>							
pH, sat. paste	7.5	s.u.		0.1		ASAM10-3.2	11/22/04 07:49 / jdh
Conductivity, Paste Extract	1.64	mmhos/cm		0.01		ASAM10-3	11/22/04 07:49 / jdh
Saturation	38.4	%		0.1		USDA27a	11/22/04 07:49 / jdh
Sodium Adsorption Ratio (SAR)	1.8	unitless		0.01		Calculation	11/22/04 07:49 / jdh
Alkalinity, Saturated Paste	10.7	meq/L		1.0		ASA10-3	11/22/04 13:00 / jdh
<b>SATURATED PASTE</b>							
Calcium, Saturated Paste	5.92	meq/l		0.05		SW6010B	11/04/04 01:10 / rp
Magnesium, Saturated Paste	4.47	meq/l		0.08		SW6010B	11/04/04 01:10 / rp
Sodium, Saturated Paste	4.07	meq/l		0.04		SW6010B	11/04/04 01:10 / rp
<b>PHYSICAL CHARACTERISTICS</b>							
Sand	51	%		1.0		ASA15-5	11/22/04 07:49 / jdh
Silt	37	%		1.0		ASA15-5	11/22/04 07:49 / jdh
Clay	12	%		1.0		ASA15-5	11/22/04 07:49 / jdh
Texture	L	unitless				ASA15-5	11/22/04 07:49 / jdh
<b>CHEMICAL CHARACTERISTICS</b>							
Cation Exchange Capacity	12.8	meq/100g		0.09		SW6010B	11/09/04 03:45 / rp
Lime as CaCO3	7.4	%		0.1		USDA23c	11/09/04 00:00 / jdh
<b>METALS, AMMONIUM ACETATE EXTRACTABLE</b>							
Sodium, Extractable	0.63	meq/100g		0.04		SW6010B	11/08/04 01:12 / rp
<b>EXCHANGEABLES</b>							
Exchangeable Sodium	0.5	meq/100g		0.1		Calculation	11/22/04 07:49 / jdh
Exchangeable Sodium Percentage	3.7	%		0.1		USDA20a	11/22/04 07:49 / jdh

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