



**LABORATORY ANALYTICAL REPORT**

**Client:** Marathon Ashland Pipeline  
**Site Name:** PDC AMPP

**Report Date:** 01/15/10

**Lab ID:** B09121814-001  
**Client Sample ID:** PA, 0-2 inches  
**Matrix:** Soil

**Collection Date:** 12/23/09  
**Date Received:** 12/23/09

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL CHARACTERISTICS</b>							
Sand	16	%		1		ASA15-5	01/07/10 16:08 / srm
Silt	55	%		1		ASA15-5	01/07/10 16:08 / srm
Clay	29	%		1		ASA15-5	01/07/10 16:08 / srm
Texture	SiCL					ASA15-5	01/07/10 16:08 / srm
- C = Clay, S = Sand(y), Si = Silt(y), L = Loam(y)							
<b>SATURATED PASTE</b>							
pH, sat. paste	7.20	s.u.		0.10		ASAM10-3.2	01/13/10 08:41 / srm
Conductivity, sat. paste	1.15	mmhos/cm		0.01		ASA10-3	01/13/10 08:41 / srm
Saturation	61.2	%		0.1		USDA27a	01/13/10 08:41 / srm
Calcium, sat. paste	5.79	meq/L		0.05		SW6010B	01/13/10 16:17 / tao
Magnesium, sat. paste	4.51	meq/L		0.08		SW6010B	01/13/10 16:17 / tao
Sodium, sat. paste	1.74	meq/L		0.04		SW6010B	01/13/10 16:17 / tao
Sodium Adsorption Ratio (SAR)	0.77	unitless		0.01		Calculation	01/14/10 10:32 / srm
<b>CHEMICAL CHARACTERISTICS</b>							
Lime as CaCO3	3.4	%		0.1		USDA23c	01/11/10 15:10 / srm
<b>EXCHANGEABLES</b>							
Cation Exchange Capacity	30.2	meq/100g	D	0.1		SW6010B	01/13/10 13:53 / tao
Exchangeable Sodium Percentage	0.48	%		0.01		USDA20a	01/14/10 10:32 / srm
<b>METALS, AMMONIUM ACETATE EXTRACTABLE</b>							
Sodium, extractable	0.25	meq/100g	D	0.0029		SW6010B	01/04/10 19:21 / tao

**Report** RL - Analyte reporting limit.

**Definitions:** QCL - Quality control limit.

D - RL increased due to sample matrix interference.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Client: Marathon Ashland Pipeline  
 Site Name: PDC AMPP

Report Date: 01/15/10

Lab ID: B09121814-002  
 Client Sample ID: PA, 0-6 inches  
 Matrix: Soil

Collection Date: 12/23/09  
 Date Received: 12/23/09

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL CHARACTERISTICS</b>							
Sand	19	%		1		ASA15-5	01/07/10 16:08 / srm
Silt	53	%		1		ASA15-5	01/07/10 16:08 / srm
Clay	28	%		1		ASA15-5	01/07/10 16:08 / srm
Texture	SiCL					ASA15-5	01/07/10 16:08 / srm
- C = Clay, S = Sand(y), Si = Silt(y), L = Loam(y)							
<b>SATURATED PASTE</b>							
pH, sat. paste	7.30	s.u.		0.10		ASAM10-3.2	01/13/10 08:41 / srm
Conductivity, sat. paste	1.09	mmhos/cm		0.01		ASA10-3	01/13/10 08:41 / srm
Saturation	63.9	%		0.1		USDA27a	01/13/10 08:41 / srm
Calcium, sat. paste	5.46	meq/L		0.05		SW6010B	01/13/10 16:20 / tao
Magnesium, sat. paste	4.27	meq/L		0.08		SW6010B	01/13/10 16:20 / tao
Sodium, sat. paste	1.83	meq/L		0.04		SW6010B	01/13/10 16:20 / tao
Sodium Adsorption Ratio (SAR)	0.83	unitless		0.01		Calculation	01/14/10 10:32 / srm
Sulfate, sat. paste	207	mg/L		1		ASA10-3	01/13/10 12:36 / kh
<b>CHEMICAL CHARACTERISTICS</b>							
Lime as CaCO3	3.8	%		0.1		USDA23c	01/11/10 15:10 / srm
Phosphorus, Olsen	34	mg/kg		1		ASA24-5	01/08/10 10:23 / srm
Nitrate as N, KCL Extract	22	mg/kg		1		ASA33-8	12/31/09 14:13 / srm
Organic Matter	3.33	%		0.02		ASA29-3	01/07/10 16:08 / srm
<b>EXCHANGEABLES</b>							
Cation Exchange Capacity	28.9	meq/100g	D	0.1		SW6010B	01/13/10 13:57 / tao
Exchangeable Sodium Percentage	0.59	%		0.01		USDA20a	01/14/10 10:32 / srm
<b>METALS, AMMONIUM ACETATE EXTRACTABLE</b>							
Sodium, extractable	0.29	meq/100g	D	0.0029		SW6010B	01/04/10 19:56 / tao
Potassium, available	270	mg/kg	D	0.11		SW6010B	01/04/10 19:56 / tao
<b>METALS, DTPA EXTRACTABLE</b>							
Zinc	1.4	mg/kg		0.1		SW6010B	01/07/10 16:15 / tao

Report Definitions: RL - Analyte reporting limit.

QCL - Quality control limit.

D - RL increased due to sample matrix interference.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Client: Marathon Ashland Pipeline  
 Site Name: PDC AMPP

Report Date: 01/15/10

Lab ID: B09121814-003  
 Client Sample ID: PA, 6-12 inches  
 Matrix: Soil

Collection Date: 12/23/09  
 Date Received: 12/23/09

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL CHARACTERISTICS</b>							
Sand	14	%		1		ASA15-5	01/07/10 16:08 / srm
Silt	57	%		1		ASA15-5	01/07/10 16:08 / srm
Clay	29	%		1		ASA15-5	01/07/10 16:08 / srm
Texture	SiCL					ASA15-5	01/07/10 16:08 / srm
- C = Clay, S = Sand(y), Si = Silt(y), L = Loam(y)							
<b>SATURATED PASTE</b>							
pH, sat. paste	7.40	s.u.		0.10		ASAM10-3.2	01/13/10 08:41 / srm
Conductivity, sat. paste	0.98	mmhos/cm		0.01		ASA10-3	01/13/10 08:41 / srm
Saturation	59.5	%		0.1		USDA27a	01/13/10 08:41 / srm
Calcium, sat. paste	4.57	meq/L		0.05		SW6010B	01/13/10 16:24 / tao
Magnesium, sat. paste	3.60	meq/L		0.08		SW6010B	01/13/10 16:24 / tao
Sodium, sat. paste	2.57	meq/L		0.04		SW6010B	01/13/10 16:24 / tao
Sodium Adsorption Ratio (SAR)	1.27	unitless		0.01		Calculation	01/14/10 10:32 / srm
Sulfate, sat. paste	303	mg/L		1		ASA10-3	01/13/10 13:11 / kh
<b>CHEMICAL CHARACTERISTICS</b>							
Lime as CaCO3	3.7	%		0.1		USDA23c	01/11/10 15:10 / srm
Nitrate as N, KCL Extract	8	mg/kg		1		ASA33-8	12/31/09 14:14 / srm
<b>EXCHANGEABLES</b>							
Cation Exchange Capacity	29.6	meq/100g	D	0.1		SW6010B	01/13/10 14:01 / tao
Exchangeable Sodium Percentage	1.00	%		0.01		USDA20a	01/14/10 10:32 / srm
<b>METALS, AMMONIUM ACETATE EXTRACTABLE</b>							
Sodium, extractable	0.45	meq/100g	D	0.0029		SW6010B	01/04/10 20:00 / tao

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

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

D - RL increased due to sample matrix interference.



LABORATORY ANALYTICAL REPORT

Client: Marathon Ashland Pipeline  
 Site Name: PDC AMPP

Report Date: 01/15/10

Lab ID: B09121814-004  
 Client Sample ID: PA, 12-24 inches  
 Matrix: Soil

Collection Date: 12/23/09  
 Date Received: 12/23/09

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL CHARACTERISTICS</b>							
Sand	14	%		1		ASA15-5	01/07/10 16:08 / srm
Silt	55	%		1		ASA15-5	01/07/10 16:08 / srm
Clay	31	%		1		ASA15-5	01/07/10 16:08 / srm
Texture	SiCL					ASA15-5	01/07/10 16:08 / srm
- C = Clay, S = Sand(y), Si = Silt(y), L = Loam(y)							
<b>SATURATED PASTE</b>							
pH, sat. paste	7.40	s.u.		0.10		ASAM10-3.2	01/13/10 08:41 / srm
Conductivity, sat. paste	1.65	mmhos/cm		0.01		ASA10-3	01/13/10 08:41 / srm
Saturation	60.9	%		0.1		USDA27a	01/13/10 08:41 / srm
Calcium, sat. paste	8.41	meq/L		0.05		SW6010B	01/13/10 16:36 / tao
Magnesium, sat. paste	6.89	meq/L		0.08		SW6010B	01/13/10 16:36 / tao
Sodium, sat. paste	5.03	meq/L		0.04		SW6010B	01/13/10 16:36 / tao
Sodium Adsorption Ratio (SAR)	1.82	unitless		0.01		Calculation	01/14/10 10:32 / srm
Sulfate, sat. paste	814	mg/L		1		ASA10-3	01/13/10 13:23 / kh
<b>CHEMICAL CHARACTERISTICS</b>							
Lime as CaCO3	4.1	%		0.1		USDA23c	01/11/10 15:10 / srm
Nitrate as N, KCL Extract	3	mg/kg		1		ASA33-8	12/31/09 14:15 / srm
<b>EXCHANGEABLES</b>							
Cation Exchange Capacity	28.8	meq/100g	D	0.1		SW6010B	01/13/10 14:05 / tao
Exchangeable Sodium Percentage	1.43	%		0.01		USDA20a	01/14/10 10:32 / srm
<b>METALS, AMMONIUM ACETATE EXTRACTABLE</b>							
Sodium, extractable	0.72	meq/100g	D	0.0029		SW6010B	01/04/10 20:03 / tao

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

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

D - RL increased due to sample matrix interference.



LABORATORY ANALYTICAL REPORT

Client: Marathon Ashland Pipeline  
 Site Name: PDC AMPP

Report Date: 01/15/10

Lab ID: B09121814-005  
 Client Sample ID: PA, 24-36 inches  
 Matrix: Soil

Collection Date: 12/23/09  
 Date Received: 12/23/09

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL CHARACTERISTICS</b>							
Sand	17	%		1		ASA15-5	01/07/10 16:08 / srm
Silt	50	%		1		ASA15-5	01/07/10 16:08 / srm
Clay	33	%		1		ASA15-5	01/07/10 16:08 / srm
Texture	SiCL					ASA15-5	01/07/10 16:08 / srm
- C = Clay, S = Sand(y), Si = Silt(y), L = Loam(y)							
<b>SATURATED PASTE</b>							
pH, sat. paste	7.60	s.u.		0.10		ASAM10-3.2	01/13/10 08:41 / srm
Conductivity, sat. paste	2.12	mmhos/cm		0.01		ASA10-3	01/13/10 08:41 / srm
Saturation	64.1	%		0.1		USDA27a	01/13/10 08:41 / srm
Calcium, sat. paste	10.4	meq/L		0.05		SW6010B	01/13/10 16:40 / tao
Magnesium, sat. paste	9.86	meq/L		0.08		SW6010B	01/13/10 16:40 / tao
Sodium, sat. paste	6.70	meq/L	D	0.07		SW6010B	01/13/10 16:40 / tao
Sodium Adsorption Ratio (SAR)	2.11	unitless		0.01		Calculation	01/14/10 10:32 / srm
<b>CHEMICAL CHARACTERISTICS</b>							
Lime as CaCO3	5.4	%		0.1		USDA23c	01/11/10 15:10 / srm
<b>EXCHANGEABLES</b>							
Cation Exchange Capacity	28.9	meq/100g	D	0.1		SW6010B	01/13/10 14:09 / tao
Exchangeable Sodium Percentage	1.38	%		0.01		USDA20a	01/14/10 10:32 / srm
<b>METALS, AMMONIUM ACETATE EXTRACTABLE</b>							
Sodium, extractable	0.83	meq/100g	D	0.0029		SW6010B	01/04/10 20:07 / tao

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

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

D - RL increased due to sample matrix interference.



**LABORATORY ANALYTICAL REPORT**

**Client:** Marathon Ashland Pipeline  
**Site Name:** PDC AMPP

**Report Date:** 01/15/10

**Lab ID:** B09121814-006  
**Client Sample ID:** PA, 36-48 inches  
**Matrix:** Soil

**Collection Date:** 12/23/09  
**Date Received:** 12/23/09

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL CHARACTERISTICS</b>							
Sand	20	%		1		ASA15-5	01/07/10 16:08 / srm
Silt	48	%		1		ASA15-5	01/07/10 16:08 / srm
Clay	32	%		1		ASA15-5	01/07/10 16:08 / srm
Texture	SiCL					ASA15-5	01/07/10 16:08 / srm
- C = Clay, S = Sand(y), Si = Silt(y), L = Loam(y)							
<b>SATURATED PASTE</b>							
pH, sat. paste	7.50	s.u.		0.10		ASAM10-3.2	01/13/10 08:41 / srm
Conductivity, sat. paste	3.78	mmhos/cm		0.01		ASA10-3	01/13/10 08:41 / srm
Saturation	56.6	%		0.1		USDA27a	01/13/10 08:41 / srm
Calcium, sat. paste	28.1	meq/L		0.05		SW6010B	01/13/10 16:43 / tao
Magnesium, sat. paste	26.0	meq/L		0.08		SW6010B	01/13/10 16:43 / tao
Sodium, sat. paste	9.38	meq/L	D	0.07		SW6010B	01/13/10 16:43 / tao
Sodium Adsorption Ratio (SAR)	1.80	unitless		0.01		Calculation	01/14/10 10:32 / srm
<b>CHEMICAL CHARACTERISTICS</b>							
Lime as CaCO3	6.3	%		0.1		USDA23c	01/11/10 15:10 / srm
<b>EXCHANGEABLES</b>							
Cation Exchange Capacity	26.6	meq/100g	D	0.1		SW6010B	01/13/10 14:13 / tao
Exchangeable Sodium Percentage	0.85	%		0.01		USDA20a	01/14/10 10:32 / srm
<b>METALS, AMMONIUM ACETATE EXTRACTABLE</b>							
Sodium, extractable	0.76	meq/100g	D	0.0029		SW6010B	01/04/10 20:11 / tao

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

D - RL increased due to sample matrix interference.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Client: Marathon Ashland Pipeline  
 Site Name: PDC AMPP

Report Date: 01/15/10

Lab ID: B09121814-007  
 Client Sample ID: PA, 48-60 inches  
 Matrix: Soil

Collection Date: 12/23/09  
 Date Received: 12/23/09

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL CHARACTERISTICS</b>							
Sand	17	%		1		ASA15-5	01/07/10 16:08 / srm
Silt	54	%		1		ASA15-5	01/07/10 16:08 / srm
Clay	29	%		1		ASA15-5	01/07/10 16:08 / srm
Texture	SiCL					ASA15-5	01/07/10 16:08 / srm
- C = Clay, S = Sand(y), Si = Silt(y), L = Loam(y)							
<b>SATURATED PASTE</b>							
pH, sat. paste	7.60	s.u.		0.10		ASAM10-3.2	01/13/10 08:41 / srm
Conductivity, sat. paste	3.38	mmhos/cm		0.01		ASA10-3	01/13/10 08:41 / srm
Saturation	56.3	%		0.1		USDA27a	01/13/10 08:41 / srm
Calcium, sat. paste	26.0	meq/L		0.05		SW6010B	01/13/10 16:47 / tao
Magnesium, sat. paste	22.1	meq/L		0.08		SW6010B	01/13/10 16:47 / tao
Sodium, sat. paste	7.25	meq/L	D	0.07		SW6010B	01/13/10 16:47 / tao
Sodium Adsorption Ratio (SAR)	1.48	unitless		0.01		Calculation	01/14/10 10:32 / srm
<b>CHEMICAL CHARACTERISTICS</b>							
Lime as CaCO3	6.5	%		0.1		USDA23c	01/11/10 15:10 / srm
<b>EXCHANGEABLES</b>							
Cation Exchange Capacity	24.4	meq/100g	D	0.1		SW6010B	01/13/10 14:17 / tao
Exchangeable Sodium Percentage	0.80	%		0.01		USDA20a	01/14/10 10:32 / srm
<b>METALS, AMMONIUM ACETATE EXTRACTABLE</b>							
Sodium, extractable	0.60	meq/100g	D	0.0029		SW6010B	01/04/10 20:15 / tao

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

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

D - RL increased due to sample matrix interference.



**LABORATORY ANALYTICAL REPORT**

**Client:** Marathon Ashland Pipeline  
**Site Name:** PDC AMPP

**Report Date:** 01/15/10

**Lab ID:** B09121814-008  
**Client Sample ID:** PA, 60-72 inches  
**Matrix:** Soil

**Collection Date:** 12/23/09  
**Date Received:** 12/23/09

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL CHARACTERISTICS</b>							
Sand	17	%		1		ASA15-5	01/07/10 16:08 / srm
Silt	51	%		1		ASA15-5	01/07/10 16:08 / srm
Clay	32	%		1		ASA15-5	01/07/10 16:08 / srm
Texture	SiCL					ASA15-5	01/07/10 16:08 / srm
- C = Clay, S = Sand(y), Si = Silt(y), L = Loam(y)							
<b>SATURATED PASTE</b>							
pH, sat. paste	7.60	s.u.		0.10		ASAM10-3.2	01/13/10 08:41 / srm
Conductivity, sat. paste	3.57	mmhos/cm		0.01		ASA10-3	01/13/10 08:41 / srm
Saturation	54.0	%		0.1		USDA27a	01/13/10 08:41 / srm
Calcium, sat. paste	27.9	meq/L		0.05		SW6010B	01/13/10 16:51 / tao
Magnesium, sat. paste	24.5	meq/L		0.08		SW6010B	01/13/10 16:51 / tao
Sodium, sat. paste	6.97	meq/L	D	0.07		SW6010B	01/13/10 16:51 / tao
Sodium Adsorption Ratio (SAR)	1.36	unitless		0.01		Calculation	01/14/10 10:32 / srm
<b>CHEMICAL CHARACTERISTICS</b>							
Lime as CaCO3	6.2	%		0.1		USDA23c	01/11/10 15:10 / srm
<b>EXCHANGEABLES</b>							
Cation Exchange Capacity	24.7	meq/100g	D	0.1		SW6010B	01/13/10 14:20 / tao
Exchangeable Sodium Percentage	0.70	%		0.01		USDA20a	01/14/10 10:32 / srm
<b>METALS, AMMONIUM ACETATE EXTRACTABLE</b>							
Sodium, extractable	0.55	meq/100g	D	0.0029		SW6010B	01/04/10 20:19 / tao

**Report** RL - Analyte reporting limit.

**Definitions:** QCL - Quality control limit.

D - RL increased due to sample matrix interference.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



**LABORATORY ANALYTICAL REPORT**

**Client:** Marathon Ashland Pipeline  
**Site Name:** PDC AMPP

**Report Date:** 01/15/10

**Lab ID:** B09121814-009  
**Client Sample ID:** PA, 72-96 inches  
**Matrix:** Soil

**Collection Date:** 12/23/09  
**Date Received:** 12/23/09

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL CHARACTERISTICS</b>							
Sand	23	%		1		ASA15-5	01/07/10 16:08 / srm
Silt	46	%		1		ASA15-5	01/07/10 16:08 / srm
Clay	31	%		1		ASA15-5	01/07/10 16:08 / srm
Texture	CL					ASA15-5	01/07/10 16:08 / srm
- C = Clay, S = Sand(y), Si = Silt(y), L = Loam(y)							
<b>SATURATED PASTE</b>							
pH, sat. paste	7.60	s.u.		0.10		ASAM10-3.2	01/13/10 08:41 / srm
Conductivity, sat. paste	3.24	mmhos/cm		0.01		ASA10-3	01/13/10 08:41 / srm
Saturation	54.8	%		0.1		USDA27a	01/13/10 08:41 / srm
Calcium, sat. paste	27.5	meq/L		0.05		SW6010B	01/13/10 16:59 / tao
Magnesium, sat. paste	20.8	meq/L		0.08		SW6010B	01/13/10 16:59 / tao
Sodium, sat. paste	4.35	meq/L	D	0.07		SW6010B	01/13/10 16:59 / tao
Sodium Adsorption Ratio (SAR)	0.89	unitless		0.01		Calculation	01/14/10 10:32 / srm
<b>CHEMICAL CHARACTERISTICS</b>							
Lime as CaCO3	5.3	%		0.1		USDA23c	01/11/10 15:10 / srm
<b>EXCHANGEABLES</b>							
Cation Exchange Capacity	24.8	meq/100g	D	0.1		SW6010B	01/13/10 14:24 / tao
Exchangeable Sodium Percentage	0.61	%		0.01		USDA20a	01/14/10 10:32 / srm
<b>METALS, AMMONIUM ACETATE EXTRACTABLE</b>							
Sodium, extractable	0.39	meq/100g	D	0.0029		SW6010B	01/04/10 20:22 / tao

**Report** RL - Analyte reporting limit.

**Definitions:** QCL - Quality control limit.

D - RL increased due to sample matrix interference.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



**LABORATORY ANALYTICAL REPORT**

**Client:** Marathon Ashland Pipeline  
**Site Name:** PDC AMPP

**Report Date:** 01/15/10

**Lab ID:** B09121814-010  
**Client Sample ID:** PB, 0-2 Inches  
**Matrix:** Soil

**Collection Date:** 12/23/09  
**Date Received:** 12/23/09

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL CHARACTERISTICS</b>							
Sand	14	%		1		ASA15-5	01/07/10 16:08 / srm
Silt	49	%		1		ASA15-5	01/07/10 16:08 / srm
Clay	37	%		1		ASA15-5	01/07/10 16:08 / srm
Texture	SiCL					ASA15-5	01/07/10 16:08 / srm
- C = Clay, S = Sand(y), Si = Silt(y), L = Loam(y)							
<b>SATURATED PASTE</b>							
pH, sat. paste	7.30	s.u.		0.10		ASAM10-3.2	01/13/10 08:41 / srm
Conductivity, sat. paste	1.02	mmhos/cm		0.01		ASA10-3	01/13/10 08:41 / srm
Saturation	77.7	%		0.1		USDA27a	01/13/10 08:41 / srm
Calcium, sat. paste	6.34	meq/L		0.05		SW6010B	01/13/10 17:02 / tao
Magnesium, sat. paste	4.05	meq/L		0.08		SW6010B	01/13/10 17:02 / tao
Sodium, sat. paste	0.75	meq/L		0.04		SW6010B	01/13/10 17:02 / tao
Sodium Adsorption Ratio (SAR)	0.33	unitless		0.01		Calculation	01/14/10 10:32 / srm
<b>CHEMICAL CHARACTERISTICS</b>							
Lime as CaCO3	3.1	%		0.1		USDA23c	01/11/10 15:10 / srm
<b>EXCHANGEABLES</b>							
Cation Exchange Capacity	34.6	meq/100g	D	0.1		SW6010B	01/13/10 14:28 / tao
Exchangeable Sodium Percentage	0.25	%		0.01		USDA20a	01/14/10 10:32 / srm
<b>METALS, AMMONIUM ACETATE EXTRACTABLE</b>							
Sodium, extractable	0.14	meq/100g	D	0.0029		SW6010B	01/04/10 20:30 / tao

**Report** RL - Analyte reporting limit.

**Definitions:** QCL - Quality control limit.

D - RL increased due to sample matrix interference.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Client: Marathon Ashland Pipeline  
 Site Name: PDC AMPP

Report Date: 01/15/10

Lab ID: B09121814-011  
 Client Sample ID: PB, 0-6 Inches  
 Matrix: Soil

Collection Date: 12/23/09  
 Date Received: 12/23/09

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL CHARACTERISTICS</b>							
Sand	14	%		1		ASA15-5	01/07/10 16:08 / srm
Silt	48	%		1		ASA15-5	01/07/10 16:08 / srm
Clay	38	%		1		ASA15-5	01/07/10 16:08 / srm
Texture	SiCL					ASA15-5	01/07/10 16:08 / srm
- C = Clay, S = Sand(y), Si = Silt(y), L = Loam(y)							
<b>SATURATED PASTE</b>							
pH, sat. paste	7.40	s.u.		0.10		ASAM10-3.2	01/13/10 08:41 / srm
Conductivity, sat. paste	0.89	mmhos/cm		0.01		ASA10-3	01/13/10 08:41 / srm
Saturation	72.3	%		0.1		USDA27a	01/13/10 08:41 / srm
Calcium, sat. paste	5.30	meq/L		0.05		SW6010B	01/13/10 17:10 / tao
Magnesium, sat. paste	3.43	meq/L		0.08		SW6010B	01/13/10 17:10 / tao
Sodium, sat. paste	0.87	meq/L		0.04		SW6010B	01/13/10 17:10 / tao
Sodium Adsorption Ratio (SAR)	0.42	unitless		0.01		Calculation	01/14/10 10:32 / srm
Sulfate, sat. paste	130	mg/L		1		ASA10-3	01/13/10 13:35 / kh
<b>CHEMICAL CHARACTERISTICS</b>							
Lime as CaCO3	3.1	%		0.1		USDA23c	01/11/10 15:10 / srm
Phosphorus, Olsen	56	mg/kg		1		ASA24-5	01/08/10 10:24 / srm
Nitrate as N, KCL Extract	8	mg/kg		1		ASA33-8	12/31/09 14:15 / srm
Organic Matter	3.83	%		0.02		ASA29-3	01/07/10 16:08 / srm
<b>EXCHANGEABLES</b>							
Cation Exchange Capacity	31.9	meq/100g	D	0.1		SW6010B	01/13/10 15:07 / tao
Exchangeable Sodium Percentage	0.31	%		0.01		USDA20a	01/14/10 10:32 / srm
<b>METALS, AMMONIUM ACETATE EXTRACTABLE</b>							
Sodium, extractable	0.16	meq/100g	D	0.0029		SW6010B	01/04/10 20:45 / tao
Potassium, available	315	mg/kg	D	0.11		SW6010B	01/04/10 20:45 / tao
<b>METALS, DTPA EXTRACTABLE</b>							
Zinc	1.7	mg/kg		0.1		SW6010B	01/07/10 16:19 / tao

Report Definitions: RL - Analyte reporting limit.

QCL - Quality control limit.

D - RL increased due to sample matrix interference.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Client: Marathon Ashland Pipeline  
 Site Name: PDC AMPP

Report Date: 01/15/10

Lab ID: B09121814-012  
 Client Sample ID: PB, 6-12 Inches  
 Matrix: Soil

Collection Date: 12/23/09  
 Date Received: 12/23/09

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL CHARACTERISTICS</b>							
Sand	12	%		1		ASA15-5	01/07/10 16:08 / srm
Silt	49	%		1		ASA15-5	01/07/10 16:08 / srm
Clay	39	%		1		ASA15-5	01/07/10 16:08 / srm
Texture	SiCL					ASA15-5	01/07/10 16:08 / srm
- C = Clay, S = Sand(y), Si = Silt(y), L = Loam(y)							
<b>SATURATED PASTE</b>							
pH, sat. paste	7.30	s.u.		0.10		ASAM10-3.2	01/13/10 08:41 / srm
Conductivity, sat. paste	0.86	mmhos/cm		0.01		ASA10-3	01/13/10 08:41 / srm
Saturation	73.9	%		0.1		USDA27a	01/13/10 08:41 / srm
Calcium, sat. paste	4.94	meq/L		0.05		SW6010B	01/13/10 17:22 / tao
Magnesium, sat. paste	3.40	meq/L		0.08		SW6010B	01/13/10 17:22 / tao
Sodium, sat. paste	1.00	meq/L		0.04		SW6010B	01/13/10 17:22 / tao
Sodium Adsorption Ratio (SAR)	0.49	unitless		0.01		Calculation	01/14/10 10:32 / srm
Sulfate, sat. paste	95	mg/L		1		ASA10-3	01/13/10 13:46 / kh
<b>CHEMICAL CHARACTERISTICS</b>							
Lime as CaCO3	3.3	%		0.1		USDA23c	01/11/10 15:10 / srm
Nitrate as N, KCL Extract	6	mg/kg		1		ASA33-8	12/31/09 14:16 / srm
<b>EXCHANGEABLES</b>							
Cation Exchange Capacity	31.2	meq/100g	D	0.1		SW6010B	01/13/10 15:15 / tao
Exchangeable Sodium Percentage	0.36	%		0.01		USDA20a	01/14/10 10:32 / srm
<b>METALS, AMMONIUM ACETATE EXTRACTABLE</b>							
Sodium, extractable	0.19	meq/100g	D	0.0029		SW6010B	01/04/10 20:49 / tao

Report Definitions: RL - Analyte reporting limit.

QCL - Quality control limit.

D - RL increased due to sample matrix interference.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Client: Marathon Ashland Pipeline  
 Site Name: PDC AMPP

Report Date: 01/15/10

Lab ID: B09121814-013  
 Client Sample ID: PB, 12-24 Inches  
 Matrix: Soil

Collection Date: 12/23/09  
 Date Received: 12/23/09

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL CHARACTERISTICS</b>							
Sand	10	%		1		ASA15-5	01/07/10 16:08 / srm
Silt	51	%		1		ASA15-5	01/07/10 16:08 / srm
Clay	39	%		1		ASA15-5	01/07/10 16:08 / srm
Texture	SiCL					ASA15-5	01/07/10 16:08 / srm
- C = Clay, S = Sand(y), Si = Silt(y), L = Loam(y)							
<b>SATURATED PASTE</b>							
pH, sat. paste	7.50	s.u.		0.10		ASAM10-3.2	01/13/10 08:41 / srm
Conductivity, sat. paste	1.31	mmhos/cm		0.01		ASA10-3	01/13/10 08:41 / srm
Saturation	74.9	%		0.1		USDA27a	01/13/10 08:41 / srm
Calcium, sat. paste	8.08	meq/L		0.05		SW6010B	01/13/10 17:25 / tao
Magnesium, sat. paste	5.85	meq/L		0.08		SW6010B	01/13/10 17:25 / tao
Sodium, sat. paste	1.79	meq/L		0.04		SW6010B	01/13/10 17:25 / tao
Sodium Adsorption Ratio (SAR)	0.68	unitless		0.01		Calculation	01/14/10 10:32 / srm
Sulfate, sat. paste	578	mg/L		1		ASA10-3	01/13/10 14:33 / kh
<b>CHEMICAL CHARACTERISTICS</b>							
Lime as CaCO3	4.1	%		0.1		USDA23c	01/11/10 15:10 / srm
Nitrate as N, KCL Extract	4	mg/kg		1		ASA33-8	12/31/09 14:17 / srm
<b>EXCHANGEABLES</b>							
Cation Exchange Capacity	31.0	meq/100g	D	0.1		SW6010B	01/13/10 15:19 / tao
Exchangeable Sodium Percentage	0.51	%		0.01		USDA20a	01/14/10 10:32 / srm
<b>METALS, AMMONIUM ACETATE EXTRACTABLE</b>							
Sodium, extractable	0.29	meq/100g	D	0.0029		SW6010B	01/04/10 20:53 / tao

Report Definitions: RL - Analyte reporting limit.

QCL - Quality control limit.

D - RL increased due to sample matrix interference.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



**LABORATORY ANALYTICAL REPORT**

**Client:** Marathon Ashland Pipeline  
**Site Name:** PDC AMPP

**Report Date:** 01/15/10

**Lab ID:** B09121814-014  
**Client Sample ID:** PB, 24-36 Inches  
**Matrix:** Soil

**Collection Date:** 12/23/09  
**Date Received:** 12/23/09

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL CHARACTERISTICS</b>							
Sand	2	%		1		ASA15-5	01/08/10 16:56 / srm
Silt	59	%		1		ASA15-5	01/08/10 16:56 / srm
Clay	39	%		1		ASA15-5	01/08/10 16:56 / srm
Texture	SiCL					ASA15-5	01/08/10 16:56 / srm
- C = Clay, S = Sand(y), Si = Silt(y), L = Loam(y)							
<b>SATURATED PASTE</b>							
pH, sat. paste	7.40	s.u.		0.10		ASAM10-3.2	01/13/10 08:41 / srm
Conductivity, sat. paste	2.37	mmhos/cm		0.01		ASA10-3	01/13/10 08:41 / srm
Saturation	75.6	%		0.1		USDA27a	01/13/10 08:41 / srm
Calcium, sat. paste	17.4	meq/L		0.05		SW6010B	01/13/10 17:29 / tao
Magnesium, sat. paste	12.3	meq/L		0.08		SW6010B	01/13/10 17:29 / tao
Sodium, sat. paste	2.49	meq/L	D	0.07		SW6010B	01/13/10 17:29 / tao
Sodium Adsorption Ratio (SAR)	0.65	unitless		0.01		Calculation	01/14/10 10:32 / srm
<b>CHEMICAL CHARACTERISTICS</b>							
Lime as CaCO3	2.9	%		0.1		USDA23c	01/11/10 15:10 / srm
<b>EXCHANGEABLES</b>							
Cation Exchange Capacity	32.1	meq/100g	D	0.1		SW6010B	01/13/10 15:23 / tao
Exchangeable Sodium Percentage	0.58	%		0.01		USDA20a	01/14/10 10:32 / srm
<b>METALS, AMMONIUM ACETATE EXTRACTABLE</b>							
Sodium, extractable	0.38	meq/100g	D	0.0029		SW6010B	01/04/10 20:57 / tao

**Report** RL - Analyte reporting limit.

**Definitions:** QCL - Quality control limit.

D - RL increased due to sample matrix interference.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



**LABORATORY ANALYTICAL REPORT**

**Client:** Marathon Ashland Pipeline  
**Site Name:** PDC AMPP

**Report Date:** 01/15/10

**Lab ID:** B09121814-015  
**Client Sample ID:** PB, 36-48 Inches  
**Matrix:** Soil

**Collection Date:** 12/23/09  
**Date Received:** 12/23/09

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL CHARACTERISTICS</b>							
Sand	8	%		1		ASA15-5	01/08/10 16:56 / srm
Silt	55	%		1		ASA15-5	01/08/10 16:56 / srm
Clay	37	%		1		ASA15-5	01/08/10 16:56 / srm
Texture	SiCL					ASA15-5	01/08/10 16:56 / srm
- C = Clay, S = Sand(y), Si = Silt(y), L = Loam(y)							
<b>SATURATED PASTE</b>							
pH, sat. paste	7.40	s.u.		0.10		ASAM10-3.2	01/13/10 08:41 / srm
Conductivity, sat. paste	3.06	mmhos/cm		0.01		ASA10-3	01/13/10 08:41 / srm
Saturation	76.1	%		0.1		USDA27a	01/13/10 08:41 / srm
Calcium, sat. paste	27.0	meq/L		0.05		SW6010B	01/13/10 17:33 / tao
Magnesium, sat. paste	19.2	meq/L		0.08		SW6010B	01/13/10 17:33 / tao
Sodium, sat. paste	2.70	meq/L	D	0.07		SW6010B	01/13/10 17:33 / tao
Sodium Adsorption Ratio (SAR)	0.56	unitless		0.01		Calculation	01/14/10 10:32 / srm
<b>CHEMICAL CHARACTERISTICS</b>							
Lime as CaCO3	4.3	%		0.1		USDA23c	01/11/10 15:10 / srm
<b>EXCHANGEABLES</b>							
Cation Exchange Capacity	27.9	meq/100g	D	0.1		SW6010B	01/13/10 15:27 / tao
Exchangeable Sodium Percentage	0.46	%		0.01		USDA20a	01/14/10 10:32 / srm
<b>METALS, AMMONIUM ACETATE EXTRACTABLE</b>							
Sodium, extractable	0.34	meq/100g	D	0.0029		SW6010B	01/04/10 21:01 / tao

**Report Definitions:** RL - Analyte reporting limit.

QCL - Quality control limit.

D - RL increased due to sample matrix interference.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



**LABORATORY ANALYTICAL REPORT**

**Client:** Marathon Ashland Pipeline  
**Site Name:** PDC AMPP

**Report Date:** 01/15/10

**Lab ID:** B09121814-016  
**Client Sample ID:** PB, 48-60 Inches  
**Matrix:** Soil

**Collection Date:** 12/23/09  
**Date Received:** 12/23/09

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL CHARACTERISTICS</b>							
Sand	4	%		1		ASA15-5	01/08/10 16:56 / srm
Silt	56	%		1		ASA15-5	01/08/10 16:56 / srm
Clay	40	%		1		ASA15-5	01/08/10 16:56 / srm
Texture	SiC					ASA15-5	01/08/10 16:56 / srm
- C = Clay, S = Sand(y), Si = Silt(y), L = Loam(y)							
<b>SATURATED PASTE</b>							
pH, sat. paste	7.50	s.u.		0.10		ASAM10-3.2	01/13/10 08:41 / srm
Conductivity, sat. paste	3.06	mmhos/cm		0.01		ASA10-3	01/13/10 08:41 / srm
Saturation	75.9	%		0.1		USDA27a	01/13/10 08:41 / srm
Calcium, sat. paste	27.1	meq/L		0.05		SW6010B	01/13/10 17:37 / tao
Magnesium, sat. paste	19.2	meq/L		0.08		SW6010B	01/13/10 17:37 / tao
Sodium, sat. paste	2.68	meq/L	D	0.07		SW6010B	01/13/10 17:37 / tao
Sodium Adsorption Ratio (SAR)	0.56	unitless		0.01		Calculation	01/14/10 10:32 / srm
<b>CHEMICAL CHARACTERISTICS</b>							
Lime as CaCO3	4.1	%		0.1		USDA23c	01/11/10 15:10 / srm
<b>EXCHANGEABLES</b>							
Cation Exchange Capacity	28.3	meq/100g	D	0.1		SW6010B	01/13/10 15:30 / tao
Exchangeable Sodium Percentage	0.49	%		0.01		USDA20a	01/14/10 10:32 / srm
<b>METALS, AMMONIUM ACETATE EXTRACTABLE</b>							
Sodium, extractable	0.34	meq/100g	D	0.0029		SW6010B	01/04/10 21:04 / tao

**Report** RL - Analyte reporting limit.

**Definitions:** QCL - Quality control limit.

D - RL increased due to sample matrix interference.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Client: Marathon Ashland Pipeline  
 Site Name: PDC AMPP

Report Date: 01/15/10

Lab ID: B09121814-017  
 Client Sample ID: PB, 60-72 Inches  
 Matrix: Soil

Collection Date: 12/23/09  
 Date Received: 12/23/09

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL CHARACTERISTICS</b>							
Sand	2	%		1		ASA15-5	01/08/10 16:56 / srm
Silt	56	%		1		ASA15-5	01/08/10 16:56 / srm
Clay	42	%		1		ASA15-5	01/08/10 16:56 / srm
Texture	SiC					ASA15-5	01/08/10 16:56 / srm
- C = Clay, S = Sand(y), Si = Silt(y), L = Loam(y)							
<b>SATURATED PASTE</b>							
pH, sat. paste	7.60	s.u.		0.10		ASAM10-3.2	01/13/10 08:41 / srm
Conductivity, sat. paste	3.30	mmhos/cm		0.01		ASA10-3	01/13/10 08:41 / srm
Saturation	69.8	%		0.1		USDA27a	01/13/10 08:41 / srm
Calcium, sat. paste	27.4	meq/L		0.05		SW6010B	01/13/10 17:41 / tao
Magnesium, sat. paste	21.3	meq/L		0.08		SW6010B	01/13/10 17:41 / tao
Sodium, sat. paste	4.43	meq/L	D	0.07		SW6010B	01/13/10 17:41 / tao
Sodium Adsorption Ratio (SAR)	0.90	unitless		0.01		Calculation	01/14/10 10:32 / srm
<b>CHEMICAL CHARACTERISTICS</b>							
Lime as CaCO3	4.1	%		0.1		USDA23c	01/11/10 15:10 / srm
<b>EXCHANGEABLES</b>							
Cation Exchange Capacity	28.2	meq/100g	D	0.1		SW6010B	01/13/10 15:34 / tao
Exchangeable Sodium Percentage	0.67	%		0.01		USDA20a	01/14/10 10:32 / srm
<b>METALS, AMMONIUM ACETATE EXTRACTABLE</b>							
Sodium, extractable	0.50	meq/100g	D	0.0029		SW6010B	01/04/10 21:08 / tao

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

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

D - RL increased due to sample matrix interference.



LABORATORY ANALYTICAL REPORT

Client: Marathon Ashland Pipeline  
 Site Name: PDC AMPP

Report Date: 01/15/10

Lab ID: B09121814-018  
 Client Sample ID: PB, 72-96 Inches  
 Matrix: Soil

Collection Date: 12/23/09  
 Date Received: 12/23/09

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL CHARACTERISTICS</b>							
Sand	ND	%		1		ASA15-5	01/08/10 16:56 / srm
Silt	55	%		1		ASA15-5	01/08/10 16:56 / srm
Clay	45	%		1		ASA15-5	01/08/10 16:56 / srm
Texture	SiC					ASA15-5	01/08/10 16:56 / srm
- C = Clay, S = Sand(y), Si = Silt(y), L = Loam(y)							
<b>SATURATED PASTE</b>							
pH, sat. paste	7.60	s.u.		0.10		ASAM10-3.2	01/13/10 08:41 / srm
Conductivity, sat. paste	3.32	mmhos/cm		0.01		ASA10-3	01/13/10 08:41 / srm
Saturation	73.6	%		0.1		USDA27a	01/13/10 08:41 / srm
Calcium, sat. paste	27.3	meq/L		0.05		SW6010B	01/13/10 17:45 / tao
Magnesium, sat. paste	19.5	meq/L		0.08		SW6010B	01/13/10 17:45 / tao
Sodium, sat. paste	7.22	meq/L	D	0.07		SW6010B	01/13/10 17:45 / tao
Sodium Adsorption Ratio (SAR)	1.49	unitless		0.01		Calculation	01/14/10 10:32 / srm
<b>CHEMICAL CHARACTERISTICS</b>							
Lime as CaCO3	4.2	%		0.1		USDA23c	01/11/10 15:10 / srm
<b>EXCHANGEABLES</b>							
Cation Exchange Capacity	29.8	meq/100g	D	0.1		SW6010B	01/13/10 15:38 / tao
Exchangeable Sodium Percentage	1.05	%		0.01		USDA20a	01/14/10 10:32 / srm
<b>METALS, AMMONIUM ACETATE EXTRACTABLE</b>							
Sodium, extractable	0.84	meq/100g	D	0.0029		SW6010B	01/04/10 21:12 / tao

Report Definitions: RL - Analyte reporting limit.

QCL - Quality control limit.

D - RL increased due to sample matrix interference.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.