



LABORATORY ANALYTICAL REPORT

Client: Marathon Ashland Pipeline
 Project: PDC AMPP
 Lab ID: B09121813-001
 Client Sample ID: PD, 0-2 inches

Report Date: 01/15/10
 Collection Date: 12/23/09
 Date Received: 12/23/09
 Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Sand	22	%		1		ASA15-5	01/07/10 16:08 / srm
Silt	46	%		1		ASA15-5	01/07/10 16:08 / srm
Clay	32	%		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)							
SATURATED PASTE							
pH, sat. paste	6.80	s.u.		0.10		ASAM10-3.2	01/07/10 16:01 / srm
Conductivity, sat. paste	1.07	mmhos/cm		0.01		ASA10-3	01/07/10 16:01 / srm
Saturation	72.2	%		0.1		USDA27a	01/07/10 16:01 / srm
Calcium, sat. paste	7.08	meq/L		0.05		SW6010B	01/08/10 17:18 / tao
Magnesium, sat. paste	5.01	meq/L		0.08		SW6010B	01/08/10 17:18 / tao
Sodium, sat. paste	0.75	meq/L		0.04		SW6010B	01/08/10 17:18 / tao
Sodium Adsorption Ratio (SAR)	0.30	unitless		0.01		Calculation	01/11/10 09:49 / srm
CHEMICAL CHARACTERISTICS							
Lime as CaCO3	1.4	%		0.1		USDA23c	01/08/10 16:53 / srm
EXCHANGEABLES							
Cation Exchange Capacity	40.3	meq/100g	D	0.1		SW6010B	01/13/10 12:14 / tao
Exchangeable Sodium Percentage	0.20	%		0.01		USDA20a	01/14/10 10:25 / srm
METALS, AMMONIUM ACETATE EXTRACTABLE							
Sodium, extractable	0.14	meq/100g	D	0.0029		SW6010B	01/04/10 17:50 / 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
Project: PDC AMPP
Lab ID: B09121813-002
Client Sample ID: PD, 0-6 inches

Report Date: 01/15/10
Collection Date: 12/23/09
Date Received: 12/23/09
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Sand	20	%		1		ASA15-5	01/07/10 16:08 / srm
Silt	47	%		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)							
SATURATED PASTE							
pH, sat. paste	6.50	s.u.		0.10		ASAM10-3.2	01/07/10 16:01 / srm
Conductivity, sat. paste	0.93	mmhos/cm		0.01		ASA10-3	01/07/10 16:01 / srm
Saturation	66.0	%		0.1		USDA27a	01/07/10 16:01 / srm
Calcium, sat. paste	6.25	meq/L		0.05		SW6010B	01/08/10 17:22 / tao
Magnesium, sat. paste	4.49	meq/L		0.08		SW6010B	01/08/10 17:22 / tao
Sodium, sat. paste	0.78	meq/L		0.04		SW6010B	01/08/10 17:22 / tao
Sodium Adsorption Ratio (SAR)	0.34	unitless		0.01		Calculation	01/11/10 09:49 / srm
Sulfate, sat. paste	48	mg/L		1		ASA10-3	01/07/10 18:26 / kh
CHEMICAL CHARACTERISTICS							
Lime as CaCO ₃	1.5	%		0.1		USDA23c	01/08/10 16:53 / srm
Phosphorus, Olsen	9	mg/kg		1		ASA24-5	01/08/10 10:17 / srm
Nitrate as N, KCL Extract	7	mg/kg		1		ASA33-8	12/31/09 14:06 / srm
Organic Matter	4.88	%		0.02		ASA29-3	01/07/10 16:08 / srm
EXCHANGEABLES							
Cation Exchange Capacity	38.0	meq/100g	D	0.1		SW6010B	01/13/10 12:18 / tao
Exchangeable Sodium Percentage	0.30	%		0.01		USDA20a	01/14/10 10:25 / srm
METALS, AMMONIUM ACETATE EXTRACTABLE							
Sodium, extractable	0.17	meq/100g	D	0.0029		SW6010B	01/04/10 18:01 / tao
Potassium, available	321	mg/kg	D	0.11		SW6010B	01/04/10 18:01 / tao
METALS, DTPA EXTRACTABLE							
Zinc	1.1	mg/kg		0.1		SW6010B	01/07/10 16:07 / 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
Project: PDC AMPP
Lab ID: B09121813-003
Client Sample ID: PD, 6-12 inches

Report Date: 01/15/10
Collection Date: 12/23/09
Date Received: 12/23/09
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Sand	26	%		1		ASA15-5	01/07/10 16:08 / srm
Silt	43	%		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)							
SATURATED PASTE							
pH, sat. paste	6.50	s.u.		0.10		ASAM10-3.2	01/07/10 16:01 / srm
Conductivity, sat. paste	0.50	mmhos/cm		0.01		ASA10-3	01/07/10 16:01 / srm
Saturation	62.4	%		0.1		USDA27a	01/07/10 16:01 / srm
Calcium, sat. paste	2.75	meq/L		0.05		SW6010B	01/08/10 17:33 / tao
Magnesium, sat. paste	2.12	meq/L		0.08		SW6010B	01/08/10 17:33 / tao
Sodium, sat. paste	0.70	meq/L		0.04		SW6010B	01/08/10 17:33 / tao
Sodium Adsorption Ratio (SAR)	0.45	unitless		0.01		Calculation	01/11/10 09:49 / srm
Sulfate, sat. paste	78	mg/L		1		ASA10-3	01/07/10 19:01 / kh
CHEMICAL CHARACTERISTICS							
Lime as CaCO ₃	0.8	%		0.1		USDA23c	01/08/10 16:53 / srm
Nitrate as N, KCL Extract	4	mg/kg		1		ASA33-8	12/31/09 14:07 / srm
EXCHANGEABLES							
Cation Exchange Capacity	35.2	meq/100g	D	0.1		SW6010B	01/13/10 12:21 / tao
Exchangeable Sodium Percentage	0.28	%		0.01		USDA20a	01/14/10 10:25 / srm
METALS, AMMONIUM ACETATE EXTRACTABLE							
Sodium, extractable	0.14	meq/100g	D	0.0029		SW6010B	01/04/10 18:05 / tao

Report Definitions:

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 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
Project: PDC AMPP
Lab ID: B09121813-004
Client Sample ID: PD, 12-24 inches

Report Date: 01/15/10
Collection Date: 12/23/09
Date Received: 12/23/09
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Sand	18	%		1		ASA15-5	01/07/10 16:08 / srm
Silt	43	%		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)							
SATURATED PASTE							
pH, sat. paste	7.10	s.u.		0.10		ASAM10-3.2	01/07/10 16:01 / srm
Conductivity, sat. paste	0.60	mmhos/cm		0.01		ASA10-3	01/07/10 16:01 / srm
Saturation	64.2	%		0.1		USDA27a	01/07/10 16:01 / srm
Calcium, sat. paste	3.08	meq/L		0.05		SW6010B	01/08/10 17:37 / tao
Magnesium, sat. paste	2.72	meq/L		0.08		SW6010B	01/08/10 17:37 / tao
Sodium, sat. paste	0.95	meq/L		0.04		SW6010B	01/08/10 17:37 / tao
Sodium Adsorption Ratio (SAR)	0.56	unitless		0.01		Calculation	01/11/10 09:49 / srm
Sulfate, sat. paste	70	mg/L		1		ASA10-3	01/07/10 19:13 / kh
CHEMICAL CHARACTERISTICS							
Lime as CaCO ₃	1.4	%		0.1		USDA23c	01/08/10 16:53 / srm
Nitrate as N, KCL Extract	2	mg/kg		1		ASA33-8	12/31/09 14:08 / srm
EXCHANGEABLES							
Cation Exchange Capacity	40.1	meq/100g	D	0.1		SW6010B	01/13/10 12:25 / tao
Exchangeable Sodium Percentage	0.45	%		0.01		USDA20a	01/14/10 10:25 / srm
METALS, AMMONIUM ACETATE EXTRACTABLE							
Sodium, extractable	0.24	meq/100g	D	0.0029		SW6010B	01/04/10 18:09 / tao

Report Definitions:

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



LABORATORY ANALYTICAL REPORT

Client: Marathon Ashland Pipeline
Project: PDC AMPP
Lab ID: B09121813-005
Client Sample ID: PD, 24-36 inches

Report Date: 01/15/10
Collection Date: 12/23/09
Date Received: 12/23/09
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Sand	18	%		1		ASA15-5	01/07/10 16:08 / srm
Silt	43	%		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)							
SATURATED PASTE							
pH, sat. paste	7.40	s.u.		0.10		ASAM10-3.2	01/07/10 16:01 / srm
Conductivity, sat. paste	0.90	mmhos/cm		0.01		ASA10-3	01/07/10 16:01 / srm
Saturation	63.1	%		0.1		USDA27a	01/07/10 16:01 / srm
Calcium, sat. paste	4.72	meq/L		0.05		SW6010B	01/08/10 17:41 / tao
Magnesium, sat. paste	4.64	meq/L		0.08		SW6010B	01/08/10 17:41 / tao
Sodium, sat. paste	1.40	meq/L		0.04		SW6010B	01/08/10 17:41 / tao
Sodium Adsorption Ratio (SAR)	0.65	unitless		0.01		Calculation	01/11/10 09:49 / srm
CHEMICAL CHARACTERISTICS							
Lime as CaCO ₃	6.7	%		0.1		USDA23c	01/08/10 16:53 / srm
EXCHANGEABLES							
Cation Exchange Capacity	30.7	meq/100g	D	0.1		SW6010B	01/13/10 12:29 / tao
Exchangeable Sodium Percentage	0.47	%		0.01		USDA20a	01/14/10 10:25 / srm
METALS, AMMONIUM ACETATE EXTRACTABLE							
Sodium, extractable	0.23	meq/100g	D	0.0029		SW6010B	01/04/10 18:13 / 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
Project: PDC AMPP
Lab ID: B09121813-006
Client Sample ID: PD, 36-48 inches

Report Date: 01/15/10
Collection Date: 12/23/09
Date Received: 12/23/09
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Sand	20	%		1		ASA15-5	01/07/10 16:08 / srm
Silt	45	%		1		ASA15-5	01/07/10 16:08 / srm
Clay	35	%		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)							
SATURATED PASTE							
pH, sat. paste	7.60	s.u.		0.10		ASAM10-3.2	01/07/10 16:01 / srm
Conductivity, sat. paste	1.98	mmhos/cm		0.01		ASA10-3	01/07/10 16:01 / srm
Saturation	70.2	%		0.1		USDA27a	01/07/10 16:01 / srm
Calcium, sat. paste	14.4	meq/L		0.05		SW6010B	01/08/10 17:45 / tao
Magnesium, sat. paste	13.3	meq/L		0.08		SW6010B	01/08/10 17:45 / tao
Sodium, sat. paste	2.27	meq/L		0.04		SW6010B	01/08/10 17:45 / tao
Sodium Adsorption Ratio (SAR)	0.61	unitless		0.01		Calculation	01/11/10 09:49 / srm
CHEMICAL CHARACTERISTICS							
Lime as CaCO ₃	7.7	%		0.1		USDA23c	01/08/10 16:53 / srm
EXCHANGEABLES							
Cation Exchange Capacity	29.9	meq/100g	D	0.1		SW6010B	01/13/10 12:33 / tao
Exchangeable Sodium Percentage	0.51	%		0.01		USDA20a	01/14/10 10:25 / srm
METALS, AMMONIUM ACETATE EXTRACTABLE							
Sodium, extractable	0.31	meq/100g	D	0.0029		SW6010B	01/04/10 18:16 / 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
Project: PDC AMPP
Lab ID: B09121813-007
Client Sample ID: PD, 48-60 inches

Report Date: 01/15/10
Collection Date: 12/23/09
Date Received: 12/23/09
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Sand	18	%		1		ASA15-5	01/07/10 16:08 / srm
Silt	42	%		1		ASA15-5	01/07/10 16:08 / srm
Clay	40	%		1		ASA15-5	01/07/10 16:08 / srm
Texture	SiC					ASA15-5	01/07/10 16:08 / srm
- C = Clay, S = Sand(y), Si = Silt(y), L = Loam(y)							
SATURATED PASTE							
pH, sat. paste	7.60	s.u.		0.10		ASAM10-3.2	01/07/10 16:01 / srm
Conductivity, sat. paste	3.16	mmhos/cm		0.01		ASA10-3	01/07/10 16:01 / srm
Saturation	74.1	%		0.1		USDA27a	01/07/10 16:01 / srm
Calcium, sat. paste	28.7	meq/L		0.05		SW6010B	01/08/10 17:49 / tao
Magnesium, sat. paste	20.9	meq/L		0.08		SW6010B	01/08/10 17:49 / tao
Sodium, sat. paste	3.19	meq/L	D	0.07		SW6010B	01/08/10 17:49 / tao
Sodium Adsorption Ratio (SAR)	0.64	unitless		0.01		Calculation	01/11/10 09:49 / srm
CHEMICAL CHARACTERISTICS							
Lime as CaCO ₃	9.8	%		0.1		USDA23c	01/08/10 16:53 / srm
EXCHANGEABLES							
Cation Exchange Capacity	30.1	meq/100g	D	0.1		SW6010B	01/13/10 12:37 / tao
Exchangeable Sodium Percentage	0.45	%		0.01		USDA20a	01/14/10 10:25 / srm
METALS, AMMONIUM ACETATE EXTRACTABLE							
Sodium, extractable	0.37	meq/100g	D	0.0029		SW6010B	01/04/10 18:20 / 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
Project: PDC AMPP
Lab ID: B09121813-008
Client Sample ID: PD, 60-72 inches

Report Date: 01/15/10
Collection Date: 12/23/09
Date Received: 12/23/09
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Sand	22	%		1		ASA15-5	01/07/10 16:08 / srm
Silt	42	%		1		ASA15-5	01/07/10 16:08 / srm
Clay	36	%		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)							
SATURATED PASTE							
pH, sat. paste	7.60	s.u.		0.10		ASAM10-3.2	01/07/10 16:01 / srm
Conductivity, sat. paste	3.09	mmhos/cm		0.01		ASA10-3	01/07/10 16:01 / srm
Saturation	66.2	%		0.1		USDA27a	01/07/10 16:01 / srm
Calcium, sat. paste	28.6	meq/L		0.05		SW6010B	01/08/10 17:56 / tao
Magnesium, sat. paste	19.3	meq/L		0.08		SW6010B	01/08/10 17:56 / tao
Sodium, sat. paste	3.10	meq/L	D	0.07		SW6010B	01/08/10 17:56 / tao
Sodium Adsorption Ratio (SAR)	0.63	unitless		0.01		Calculation	01/11/10 09:49 / srm
CHEMICAL CHARACTERISTICS							
Lime as CaCO ₃	12.7	%		0.1		USDA23c	01/08/10 16:53 / srm
EXCHANGEABLES							
Cation Exchange Capacity	26.6	meq/100g	D	0.1		SW6010B	01/13/10 12:41 / tao
Exchangeable Sodium Percentage	0.49	%		0.01		USDA20a	01/14/10 10:25 / srm
METALS, AMMONIUM ACETATE EXTRACTABLE							
Sodium, extractable	0.34	meq/100g	D	0.0029		SW6010B	01/04/10 18:24 / 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
Project: PDC AMPP
Lab ID: B09121813-009
Client Sample ID: PD, 72-96 inches

Report Date: 01/15/10
Collection Date: 12/23/09
Date Received: 12/23/09
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Sand	24	%		1		ASA15-5	01/07/10 16:08 / srm
Silt	39	%		1		ASA15-5	01/07/10 16:08 / srm
Clay	37	%		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)							
SATURATED PASTE							
pH, sat. paste	7.60	s.u.		0.10		ASAM10-3.2	01/07/10 16:01 / srm
Conductivity, sat. paste	3.32	mmhos/cm		0.01		ASA10-3	01/07/10 16:01 / srm
Saturation	69.8	%		0.1		USDA27a	01/07/10 16:01 / srm
Calcium, sat. paste	28.4	meq/L		0.05		SW6010B	01/08/10 18:00 / tao
Magnesium, sat. paste	23.9	meq/L		0.08		SW6010B	01/08/10 18:00 / tao
Sodium, sat. paste	4.39	meq/L	D	0.07		SW6010B	01/08/10 18:00 / tao
Sodium Adsorption Ratio (SAR)	0.86	unitless		0.01		Calculation	01/11/10 09:49 / srm
CHEMICAL CHARACTERISTICS							
Lime as CaCO ₃	8.2	%		0.1		USDA23c	01/08/10 16:53 / srm
EXCHANGEABLES							
Cation Exchange Capacity	27.8	meq/100g	D	0.1		SW6010B	01/13/10 12:45 / tao
Exchangeable Sodium Percentage	0.35	%		0.01		USDA20a	01/14/10 10:25 / srm
METALS, AMMONIUM ACETATE EXTRACTABLE							
Sodium, extractable	0.33	meq/100g	D	0.0029		SW6010B	01/04/10 18:28 / 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
Project: PDC AMPP
Lab ID: B09121813-010
Client Sample ID: WB, 0-2 Inches

Report Date: 01/15/10
Collection Date: 12/23/09
Date Received: 12/23/09
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Sand	18	%		1		ASA15-5	01/07/10 16:08 / srm
Silt	49	%		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)							
SATURATED PASTE							
pH, sat. paste	6.90	s.u.		0.10		ASAM10-3.2	01/07/10 16:01 / srm
Conductivity, sat. paste	1.77	mmhos/cm		0.01		ASA10-3	01/07/10 16:01 / srm
Saturation	79.6	%		0.1		USDA27a	01/07/10 16:01 / srm
Calcium, sat. paste	11.6	meq/L		0.05		SW6010B	01/08/10 18:04 / tao
Magnesium, sat. paste	10.8	meq/L		0.08		SW6010B	01/08/10 18:04 / tao
Sodium, sat. paste	2.14	meq/L		0.04		SW6010B	01/08/10 18:04 / tao
Sodium Adsorption Ratio (SAR)	0.64	unitless		0.01		Calculation	01/11/10 09:49 / srm
CHEMICAL CHARACTERISTICS							
Lime as CaCO ₃	1.5	%		0.1		USDA23c	01/08/10 16:53 / srm
EXCHANGEABLES							
Cation Exchange Capacity	38.2	meq/100g	D	0.1		SW6010B	01/13/10 12:48 / tao
Exchangeable Sodium Percentage	0.40	%		0.01		USDA20a	01/14/10 10:25 / srm
METALS, AMMONIUM ACETATE EXTRACTABLE							
Sodium, extractable	0.32	meq/100g	D	0.0029		SW6010B	01/04/10 18:35 / 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
Project: PDC AMPP
Lab ID: B09121813-011
Client Sample ID: WB, 0-6 Inches

Report Date: 01/15/10
Collection Date: 12/23/09
Date Received: 12/23/09
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Sand	22	%		1		ASA15-5	01/07/10 16:08 / srm
Silt	43	%		1		ASA15-5	01/07/10 16:08 / srm
Clay	35	%		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)							
SATURATED PASTE							
pH, sat. paste	6.90	s.u.		0.10		ASAM10-3.2	01/07/10 16:01 / srm
Conductivity, sat. paste	1.22	mmhos/cm		0.01		ASA10-3	01/07/10 16:01 / srm
Saturation	78.1	%		0.1		USDA27a	01/07/10 16:01 / srm
Calcium, sat. paste	7.34	meq/L		0.05		SW6010B	01/08/10 18:44 / tao
Magnesium, sat. paste	6.30	meq/L		0.08		SW6010B	01/08/10 18:44 / tao
Sodium, sat. paste	1.57	meq/L		0.04		SW6010B	01/08/10 18:44 / tao
Sodium Adsorption Ratio (SAR)	0.60	unitless		0.01		Calculation	01/11/10 09:49 / srm
Sulfate, sat. paste	363	mg/L		1		ASA10-3	01/07/10 19:24 / kh
CHEMICAL CHARACTERISTICS							
Lime as CaCO ₃	1.3	%		0.1		USDA23c	01/08/10 16:53 / srm
Phosphorus, Olsen	7	mg/kg		1		ASA24-5	01/08/10 10:22 / srm
Nitrate as N, KCL Extract	10	mg/kg		1		ASA33-8	12/31/09 14:10 / srm
Organic Matter	4.72	%		0.02		ASA29-3	01/07/10 16:08 / srm
EXCHANGEABLES							
Cation Exchange Capacity	32.9	meq/100g	D	0.1		SW6010B	01/13/10 13:04 / tao
Exchangeable Sodium Percentage	0.30	%		0.01		USDA20a	01/14/10 10:25 / srm
METALS, AMMONIUM ACETATE EXTRACTABLE							
Sodium, extractable	0.22	meq/100g	D	0.0029		SW6010B	01/04/10 18:50 / tao
Potassium, available	358	mg/kg	D	0.11		SW6010B	01/04/10 18:50 / tao
METALS, DTPA EXTRACTABLE							
Zinc	1.0	mg/kg		0.1		SW6010B	01/07/10 16:11 / 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
Project: PDC AMPP
Lab ID: B09121813-012
Client Sample ID: WB, 6-12 Inches

Report Date: 01/15/10
Collection Date: 12/23/09
Date Received: 12/23/09
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Sand	18	%		1		ASA15-5	01/07/10 16:08 / srm
Silt	47	%		1		ASA15-5	01/07/10 16:08 / srm
Clay	35	%		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)							
SATURATED PASTE							
pH, sat. paste	7.10	s.u.		0.10		ASAM10-3.2	01/07/10 16:01 / srm
Conductivity, sat. paste	1.01	mmhos/cm		0.01		ASA10-3	01/07/10 16:01 / srm
Saturation	66.0	%		0.1		USDA27a	01/07/10 16:01 / srm
Calcium, sat. paste	5.54	meq/L		0.05		SW6010B	01/08/10 18:48 / tao
Magnesium, sat. paste	5.02	meq/L		0.08		SW6010B	01/08/10 18:48 / tao
Sodium, sat. paste	1.79	meq/L		0.04		SW6010B	01/08/10 18:48 / tao
Sodium Adsorption Ratio (SAR)	0.78	unitless		0.01		Calculation	01/11/10 09:49 / srm
Sulfate, sat. paste	339	mg/L		1		ASA10-3	01/07/10 19:36 / kh
CHEMICAL CHARACTERISTICS							
Lime as CaCO ₃	1.4	%		0.1		USDA23c	01/08/10 16:53 / srm
Nitrate as N, KCL Extract	7	mg/kg		1		ASA33-8	12/31/09 14:12 / srm
EXCHANGEABLES							
Cation Exchange Capacity	31.6	meq/100g	D	0.1		SW6010B	01/13/10 13:11 / tao
Exchangeable Sodium Percentage	0.45	%		0.01		USDA20a	01/14/10 10:25 / srm
METALS, AMMONIUM ACETATE EXTRACTABLE							
Sodium, extractable	0.26	meq/100g	D	0.0029		SW6010B	01/04/10 18:54 / 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
Project: PDC AMPP
Lab ID: B09121813-013
Client Sample ID: WB, 12-24 Inches

Report Date: 01/15/10
Collection Date: 12/23/09
Date Received: 12/23/09
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Sand	18	%		1		ASA15-5	01/07/10 16:08 / srm
Silt	46	%		1		ASA15-5	01/07/10 16:08 / srm
Clay	36	%		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)							
SATURATED PASTE							
pH, sat. paste	7.30	s.u.		0.10		ASAM10-3.2	01/07/10 16:01 / srm
Conductivity, sat. paste	1.22	mmhos/cm		0.01		ASA10-3	01/07/10 16:01 / srm
Saturation	65.6	%		0.1		USDA27a	01/07/10 16:01 / srm
Calcium, sat. paste	5.19	meq/L		0.05		SW6010B	01/08/10 18:52 / tao
Magnesium, sat. paste	6.80	meq/L		0.08		SW6010B	01/08/10 18:52 / tao
Sodium, sat. paste	3.06	meq/L		0.04		SW6010B	01/08/10 18:52 / tao
Sodium Adsorption Ratio (SAR)	1.25	unitless		0.01		Calculation	01/11/10 09:49 / srm
Sulfate, sat. paste	472	mg/L		1		ASA10-3	01/07/10 19:47 / kh
CHEMICAL CHARACTERISTICS							
Lime as CaCO ₃	5.7	%		0.1		USDA23c	01/08/10 16:53 / srm
Nitrate as N, KCL Extract	4	mg/kg		1		ASA33-8	12/31/09 14:13 / srm
EXCHANGEABLES							
Cation Exchange Capacity	29.8	meq/100g	D	0.1		SW6010B	01/13/10 13:15 / tao
Exchangeable Sodium Percentage	0.77	%		0.01		USDA20a	01/14/10 10:25 / srm
METALS, AMMONIUM ACETATE EXTRACTABLE							
Sodium, extractable	0.43	meq/100g	D	0.0029		SW6010B	01/04/10 18:58 / 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
Project: PDC AMPP
Lab ID: B09121813-014
Client Sample ID: WB, 24-36 Inches

Report Date: 01/15/10
Collection Date: 12/23/09
Date Received: 12/23/09
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Sand	24	%		1		ASA15-5	01/07/10 16:08 / srm
Silt	43	%		1		ASA15-5	01/07/10 16:08 / srm
Clay	33	%		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)							
SATURATED PASTE							
pH, sat. paste	7.70	s.u.		0.10		ASAM10-3.2	01/07/10 16:01 / srm
Conductivity, sat. paste	3.83	mmhos/cm		0.01		ASA10-3	01/07/10 16:01 / srm
Saturation	63.6	%		0.1		USDA27a	01/07/10 16:01 / srm
Calcium, sat. paste	25.2	meq/L		0.05		SW6010B	01/08/10 18:55 / tao
Magnesium, sat. paste	35.8	meq/L		0.08		SW6010B	01/08/10 18:55 / tao
Sodium, sat. paste	7.37	meq/L	D	0.07		SW6010B	01/08/10 18:55 / tao
Sodium Adsorption Ratio (SAR)	1.34	unitless		0.01		Calculation	01/11/10 09:49 / srm
CHEMICAL CHARACTERISTICS							
Lime as CaCO ₃	11.1	%		0.1		USDA23c	01/08/10 16:53 / srm
EXCHANGEABLES							
Cation Exchange Capacity	26.0	meq/100g	D	0.1		SW6010B	01/13/10 13:19 / tao
Exchangeable Sodium Percentage	0.79	%		0.01		USDA20a	01/14/10 10:25 / srm
METALS, AMMONIUM ACETATE EXTRACTABLE							
Sodium, extractable	0.67	meq/100g	D	0.0029		SW6010B	01/04/10 19:02 / 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
Project: PDC AMPP
Lab ID: B09121813-015
Client Sample ID: WB, 36-48 Inches

Report Date: 01/15/10
Collection Date: 12/23/09
Date Received: 12/23/09
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Sand	22	%		1		ASA15-5	01/07/10 16:08 / srm
Silt	44	%		1		ASA15-5	01/07/10 16:08 / srm
Clay	34	%		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)							
SATURATED PASTE							
pH, sat. paste	7.80	s.u.		0.10		ASAM10-3.2	01/07/10 16:01 / srm
Conductivity, sat. paste	3.99	mmhos/cm		0.01		ASA10-3	01/07/10 16:01 / srm
Saturation	58.9	%		0.1		USDA27a	01/07/10 16:01 / srm
Calcium, sat. paste	27.2	meq/L		0.05		SW6010B	01/08/10 18:59 / tao
Magnesium, sat. paste	39.1	meq/L		0.08		SW6010B	01/08/10 18:59 / tao
Sodium, sat. paste	6.99	meq/L	D	0.07		SW6010B	01/08/10 18:59 / tao
Sodium Adsorption Ratio (SAR)	1.21	unitless		0.01		Calculation	01/11/10 09:49 / srm
CHEMICAL CHARACTERISTICS							
Lime as CaCO ₃	10.4	%		0.1		USDA23c	01/08/10 16:53 / srm
EXCHANGEABLES							
Cation Exchange Capacity	24.6	meq/100g	D	0.1		SW6010B	01/13/10 13:23 / tao
Exchangeable Sodium Percentage	0.65	%		0.01		USDA20a	01/14/10 10:25 / srm
METALS, AMMONIUM ACETATE EXTRACTABLE							
Sodium, extractable	0.57	meq/100g	D	0.0029		SW6010B	01/04/10 19:06 / 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
Project: PDC AMPP
Lab ID: B09121813-016
Client Sample ID: WB, 48-60 Inches

Report Date: 01/15/10
Collection Date: 12/23/09
Date Received: 12/23/09
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Sand	30	%		1		ASA15-5	01/07/10 16:08 / srm
Silt	45	%		1		ASA15-5	01/07/10 16:08 / srm
Clay	25	%		1		ASA15-5	01/07/10 16:08 / srm
Texture	L					ASA15-5	01/07/10 16:08 / srm
- C = Clay, S = Sand(y), Si = Silt(y), L = Loam(y)							
SATURATED PASTE							
pH, sat. paste	7.80	s.u.		0.10		ASAM10-3.2	01/07/10 16:01 / srm
Conductivity, sat. paste	3.54	mmhos/cm		0.01		ASA10-3	01/07/10 16:01 / srm
Saturation	55.4	%		0.1		USDA27a	01/07/10 16:01 / srm
Calcium, sat. paste	28.0	meq/L		0.05		SW6010B	01/08/10 19:03 / tao
Magnesium, sat. paste	27.9	meq/L		0.08		SW6010B	01/08/10 19:03 / tao
Sodium, sat. paste	4.45	meq/L	D	0.07		SW6010B	01/08/10 19:03 / tao
Sodium Adsorption Ratio (SAR)	0.84	unitless		0.01		Calculation	01/11/10 09:49 / srm
CHEMICAL CHARACTERISTICS							
Lime as CaCO ₃	10.2	%		0.1		USDA23c	01/08/10 16:53 / srm
EXCHANGEABLES							
Cation Exchange Capacity	21.6	meq/100g	D	0.1		SW6010B	01/13/10 13:27 / tao
Exchangeable Sodium Percentage	0.39	%		0.01		USDA20a	01/14/10 10:25 / srm
METALS, AMMONIUM ACETATE EXTRACTABLE							
Sodium, extractable	0.33	meq/100g	D	0.0029		SW6010B	01/04/10 19:09 / 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
Project: PDC AMPP
Lab ID: B09121813-017
Client Sample ID: WB, 60-72 Inches

Report Date: 01/15/10
Collection Date: 12/23/09
Date Received: 12/23/09
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Sand	18	%		1		ASA15-5	01/07/10 16:08 / srm
Silt	47	%		1		ASA15-5	01/07/10 16:08 / srm
Clay	35	%		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)							
SATURATED PASTE							
pH, sat. paste	7.70	s.u.		0.10		ASAM10-3.2	01/07/10 16:01 / srm
Conductivity, sat. paste	3.38	mmhos/cm		0.01		ASA10-3	01/07/10 16:01 / srm
Saturation	54.2	%		0.1		USDA27a	01/07/10 16:01 / srm
Calcium, sat. paste	28.5	meq/L		0.05		SW6010B	01/08/10 19:07 / tao
Magnesium, sat. paste	25.8	meq/L		0.08		SW6010B	01/08/10 19:07 / tao
Sodium, sat. paste	3.51	meq/L	D	0.07		SW6010B	01/08/10 19:07 / tao
Sodium Adsorption Ratio (SAR)	0.67	unitless		0.01		Calculation	01/11/10 09:49 / srm
CHEMICAL CHARACTERISTICS							
Lime as CaCO ₃	10.6	%		0.1		USDA23c	01/08/10 16:53 / srm
EXCHANGEABLES							
Cation Exchange Capacity	24.3	meq/100g	D	0.1		SW6010B	01/13/10 13:31 / tao
Exchangeable Sodium Percentage	0.43	%		0.01		USDA20a	01/14/10 10:25 / srm
METALS, AMMONIUM ACETATE EXTRACTABLE							
Sodium, extractable	0.29	meq/100g	D	0.0029		SW6010B	01/04/10 19:13 / 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
Project: PDC AMPP
Lab ID: B09121813-018
Client Sample ID: WB, 72-96 Inches

Report Date: 01/15/10
Collection Date: 12/23/09
Date Received: 12/23/09
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Sand	22	%		1		ASA15-5	01/07/10 16:08 / srm
Silt	48	%		1		ASA15-5	01/07/10 16:08 / srm
Clay	30	%		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)							
SATURATED PASTE							
pH, sat. paste	7.70	s.u.		0.10		ASAM10-3.2	01/07/10 16:01 / srm
Conductivity, sat. paste	2.74	mmhos/cm		0.01		ASA10-3	01/07/10 16:01 / srm
Saturation	56.3	%		0.1		USDA27a	01/07/10 16:01 / srm
Calcium, sat. paste	20.0	meq/L		0.05		SW6010B	01/08/10 19:11 / tao
Magnesium, sat. paste	19.0	meq/L		0.08		SW6010B	01/08/10 19:11 / tao
Sodium, sat. paste	2.78	meq/L	D	0.07		SW6010B	01/08/10 19:11 / tao
Sodium Adsorption Ratio (SAR)	0.63	unitless		0.01		Calculation	01/11/10 09:49 / srm
CHEMICAL CHARACTERISTICS							
Lime as CaCO ₃	8.4	%		0.1		USDA23c	01/08/10 16:53 / srm
EXCHANGEABLES							
Cation Exchange Capacity	24.0	meq/100g	D	0.1		SW6010B	01/13/10 13:34 / tao
Exchangeable Sodium Percentage	0.47	%		0.01		USDA20a	01/14/10 10:25 / srm
METALS, AMMONIUM ACETATE EXTRACTABLE							
Sodium, extractable	0.27	meq/100g	D	0.0029		SW6010B	01/04/10 19:17 / 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.