



LABORATORY ANALYTICAL REPORT

Client: Marathon Ashland Pipeline
Project: PDC AMPP
Lab ID: B08120268-001
Client Sample ID: PC, 0-2 inches

Report Date: 12/30/08
Collection Date: 11/25/08 11:50
Date Received: 12/02/08
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Sand	18	%		1		ASA15-5	12/22/08 13:43 / srm
Silt	48	%		1		ASA15-5	12/22/08 13:43 / srm
Clay	34	%		1		ASA15-5	12/22/08 13:43 / srm
Texture	SiCL					ASA15-5	12/22/08 13:43 / srm
- C = Clay, S = Sand(y), Si = Silt(y), L = Loam(y)							
SATURATED PASTE							
pH, sat. paste	7.50	s.u.		0.10		ASAM10-3.2	12/22/08 13:43 / srm
Conductivity, sat. paste	0.91	mmhos/cm		0.01		ASA10-3	12/22/08 13:43 / srm
Saturation	70.5	%		0.1		USDA27a	12/22/08 13:43 / srm
Calcium, sat. paste	5.69	meq/L		0.05		SW6010B	12/17/08 16:45 / rlh
Magnesium, sat. paste	4.26	meq/L		0.08		SW6010B	12/17/08 16:45 / rlh
Sodium, sat. paste	1.02	meq/L		0.04		SW6010B	12/17/08 16:45 / rlh
Sodium Adsorption Ratio (SAR)	0.46	unitless		0.01		Calculation	12/22/08 13:43 / srm
CHEMICAL CHARACTERISTICS							
Lime as CaCO3	1.8	%		0.1		USDA23c	12/22/08 13:43 / srm
EXCHANGEABLES							
Cation Exchange Capacity	39.1	meq/100g	D	0.08		SW6010B	12/17/08 05:32 / rlh
Exchangeable Sodium Percentage	0.13	%		0.01		USDA20a	12/22/08 13:43 / srm
METALS, AMMONIUM ACETATE EXTRACTABLE							
Sodium, extractable	0.12	meq/100g	D	0.00039		SW6010B	12/16/08 08:54 / rlh

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: B08120268-002
Client Sample ID: PC, 0-6 inches

Report Date: 12/30/08
Collection Date: 11/25/08 11:50
Date Received: 12/02/08
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Sand	20	%		1		ASA15-5	12/22/08 13:43 / srm
Silt	47	%		1		ASA15-5	12/22/08 13:43 / srm
Clay	33	%		1		ASA15-5	12/22/08 13:43 / srm
Texture	SiCL					ASA15-5	12/22/08 13:43 / srm
- C = Clay, S = Sand(y), Si = Silt(y), L = Loam(y)							
SATURATED PASTE							
pH, sat. paste	7.50	s.u.		0.10		ASAM10-3.2	12/22/08 13:43 / srm
Conductivity, sat. paste	0.78	mmhos/cm		0.01		ASA10-3	12/22/08 13:43 / srm
Saturation	75.0	%		0.1		USDA27a	12/22/08 13:43 / srm
Calcium, sat. paste	4.73	meq/L		0.05		SW6010B	12/17/08 16:53 / rlh
Magnesium, sat. paste	3.37	meq/L		0.08		SW6010B	12/17/08 16:53 / rlh
Sodium, sat. paste	0.70	meq/L		0.04		SW6010B	12/17/08 16:53 / rlh
Sodium Adsorption Ratio (SAR)	0.35	unitless		0.01		Calculation	12/22/08 13:43 / srm
Sulfate, sat. paste	97	mg/L		1		ASA10-3	12/17/08 21:59 / kh
CHEMICAL CHARACTERISTICS							
Lime as CaCO3	1.3	%		0.1		USDA23c	12/22/08 13:43 / srm
Phosphorus, Olsen	7	mg/kg		1		ASA24-5	12/12/08 10:20 / srm
Nitrate as N, KCL Extract	30	mg/kg		1		ASA33-8	12/19/08 13:21 / srm
Organic Matter	3.60	%		0.02		ASA29-3	12/22/08 14:33 / srm
EXCHANGEABLES							
Cation Exchange Capacity	40.3	meq/100g	D	0.08		SW6010B	12/17/08 06:11 / rlh
Exchangeable Sodium Percentage	0.25	%		0.01		USDA20a	12/22/08 13:43 / srm
METALS, AMMONIUM ACETATE EXTRACTABLE							
Sodium, extractable	0.15	meq/100g	D	0.00039		SW6010B	12/16/08 09:01 / rlh
Potassium, available	266	mg/kg	D	0.13		SW6010B	12/16/08 09:01 / rlh
METALS, DTPA EXTRACTABLE							
Zinc	1.2	mg/kg		0.1		SW6010B	12/23/08 22:13 / rlh

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: B08120268-003
Client Sample ID: PC, 6-12 inches

Report Date: 12/30/08
Collection Date: 11/25/08 11:50
Date Received: 12/02/08
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Sand	20	%		1		ASA15-5	12/22/08 13:43 / srm
Silt	47	%		1		ASA15-5	12/22/08 13:43 / srm
Clay	33	%		1		ASA15-5	12/22/08 13:43 / srm
Texture	SiCL					ASA15-5	12/22/08 13:43 / 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	12/22/08 13:43 / srm
Conductivity, sat. paste	0.62	mmhos/cm		0.01		ASA10-3	12/22/08 13:43 / srm
Saturation	68.4	%		0.1		USDA27a	12/22/08 13:43 / srm
Calcium, sat. paste	3.54	meq/L		0.05		SW6010B	12/17/08 16:57 / rlh
Magnesium, sat. paste	2.58	meq/L		0.08		SW6010B	12/17/08 16:57 / rlh
Sodium, sat. paste	0.90	meq/L		0.04		SW6010B	12/17/08 16:57 / rlh
Sodium Adsorption Ratio (SAR)	0.52	unitless		0.01		Calculation	12/22/08 13:43 / srm
Sulfate, sat. paste	120	mg/L		1		ASA10-3	12/17/08 22:10 / kh
CHEMICAL CHARACTERISTICS							
Lime as CaCO3	1.7	%		0.1		USDA23c	12/22/08 13:43 / srm
Nitrate as N, KCL Extract	7	mg/kg		1		ASA33-8	12/19/08 13:22 / srm
EXCHANGEABLES							
Cation Exchange Capacity	37.5	meq/100g	D	0.08		SW6010B	12/17/08 06:19 / rlh
Exchangeable Sodium Percentage	0.34	%		0.01		USDA20a	12/22/08 13:43 / srm
METALS, AMMONIUM ACETATE EXTRACTABLE							
Sodium, extractable	0.19	meq/100g	D	0.0016		SW6010B	12/16/08 09:09 / rlh

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: B08120268-004
Client Sample ID: PC, 12-24 inches

Report Date: 12/30/08
Collection Date: 11/25/08 11:50
Date Received: 12/02/08
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Sand	26	%		1		ASA15-5	12/22/08 13:43 / srm
Silt	43	%		1		ASA15-5	12/22/08 13:43 / srm
Clay	31	%		1		ASA15-5	12/22/08 13:43 / srm
Texture	CL					ASA15-5	12/22/08 13:43 / srm
- C = Clay, S = Sand(y), Si = Silt(y), L = Loam(y)							
SATURATED PASTE							
pH, sat. paste	7.90	s.u.		0.10		ASAM10-3.2	12/22/08 13:43 / srm
Conductivity, sat. paste	1.70	mmhos/cm		0.01		ASA10-3	12/22/08 13:43 / srm
Saturation	59.1	%		0.1		USDA27a	12/22/08 13:43 / srm
Calcium, sat. paste	10.7	meq/L		0.05		SW6010B	12/17/08 17:33 / rlh
Magnesium, sat. paste	10.1	meq/L		0.08		SW6010B	12/17/08 17:33 / rlh
Sodium, sat. paste	1.89	meq/L		0.04		SW6010B	12/17/08 17:33 / rlh
Sodium Adsorption Ratio (SAR)	0.59	unitless		0.01		Calculation	12/22/08 13:43 / srm
Sulfate, sat. paste	978	mg/L		1		ASA10-3	12/17/08 22:45 / kh
CHEMICAL CHARACTERISTICS							
Lime as CaCO ₃	6.1	%		0.1		USDA23c	12/22/08 13:43 / srm
Nitrate as N, KCL Extract	5	mg/kg		1		ASA33-8	12/19/08 13:22 / srm
EXCHANGEABLES							
Cation Exchange Capacity	29.0	meq/100g	D	0.08		SW6010B	12/17/08 06:23 / rlh
Exchangeable Sodium Percentage	0.39	%		0.01		USDA20a	12/22/08 13:43 / srm
METALS, AMMONIUM ACETATE EXTRACTABLE							
Sodium, extractable	0.23	meq/100g	D	0.0016		SW6010B	12/16/08 09:13 / rlh

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: B08120268-005
Client Sample ID: PC, 24-36 inches

Report Date: 12/30/08
Collection Date: 11/25/08 11:50
Date Received: 12/02/08
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Sand	26	%		1		ASA15-5	12/22/08 13:43 / srm
Silt	41	%		1		ASA15-5	12/22/08 13:43 / srm
Clay	33	%		1		ASA15-5	12/22/08 13:43 / srm
Texture	CL					ASA15-5	12/22/08 13:43 / 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	12/22/08 13:43 / srm
Conductivity, sat. paste	3.72	mmhos/cm		0.01		ASA10-3	12/22/08 13:43 / srm
Saturation	60.5	%		0.1		USDA27a	12/22/08 13:43 / srm
Calcium, sat. paste	26.9	meq/L		0.05		SW6010B	12/17/08 17:41 / rlh
Magnesium, sat. paste	30.1	meq/L		0.08		SW6010B	12/17/08 17:41 / rlh
Sodium, sat. paste	3.85	meq/L		0.04		SW6010B	12/17/08 17:41 / rlh
Sodium Adsorption Ratio (SAR)	0.72	unitless		0.01		Calculation	12/22/08 13:43 / srm
CHEMICAL CHARACTERISTICS							
Lime as CaCO3	5.5	%		0.1		USDA23c	12/22/08 13:43 / srm
EXCHANGEABLES							
Cation Exchange Capacity	28.7	meq/100g	D	0.08		SW6010B	12/17/08 06:27 / rlh
Exchangeable Sodium Percentage	0.46	%		0.01		USDA20a	12/22/08 13:43 / srm
METALS, AMMONIUM ACETATE EXTRACTABLE							
Sodium, extractable	0.36	meq/100g	D	0.0016		SW6010B	12/16/08 09:16 / rlh

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: B08120268-006
Client Sample ID: PC, 36-48 inches

Report Date: 12/30/08
Collection Date: 11/25/08 11:50
Date Received: 12/02/08
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Sand	26	%		1		ASA15-5	12/22/08 13:43 / srm
Silt	41	%		1		ASA15-5	12/22/08 13:43 / srm
Clay	33	%		1		ASA15-5	12/22/08 13:43 / srm
Texture	CL					ASA15-5	12/22/08 13:43 / srm
- C = Clay, S = Sand(y), Si = Silt(y), L = Loam(y)							
SATURATED PASTE							
pH, sat. paste	7.90	s.u.		0.10		ASAM10-3.2	12/22/08 13:43 / srm
Conductivity, sat. paste	4.01	mmhos/cm		0.01		ASA10-3	12/22/08 13:43 / srm
Saturation	62.9	%		0.1		USDA27a	12/22/08 13:43 / srm
Calcium, sat. paste	25.7	meq/L		0.05		SW6010B	12/17/08 17:45 / rlh
Magnesium, sat. paste	35.2	meq/L		0.08		SW6010B	12/17/08 17:45 / rlh
Sodium, sat. paste	7.29	meq/L		0.04		SW6010B	12/17/08 17:45 / rlh
Sodium Adsorption Ratio (SAR)	1.32	unitless		0.01		Calculation	12/22/08 13:43 / srm
CHEMICAL CHARACTERISTICS							
Lime as CaCO3	5.2	%		0.1		USDA23c	12/22/08 13:43 / srm
EXCHANGEABLES							
Cation Exchange Capacity	28.3	meq/100g	D	0.08		SW6010B	12/17/08 06:31 / rlh
Exchangeable Sodium Percentage	0.74	%		0.01		USDA20a	12/22/08 13:43 / srm
METALS, AMMONIUM ACETATE EXTRACTABLE							
Sodium, extractable	0.67	meq/100g	D	0.0016		SW6010B	12/16/08 09:28 / rlh

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: B08120268-007
Client Sample ID: PC, 48-60 inches

Report Date: 12/30/08
Collection Date: 11/25/08 11:50
Date Received: 12/02/08
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Sand	22	%		1		ASA15-5	12/22/08 13:43 / srm
Silt	45	%		1		ASA15-5	12/22/08 13:43 / srm
Clay	33	%		1		ASA15-5	12/22/08 13:43 / srm
Texture	CL					ASA15-5	12/22/08 13:43 / 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	12/22/08 13:43 / srm
Conductivity, sat. paste	4.38	mmhos/cm		0.01		ASA10-3	12/22/08 13:43 / srm
Saturation	66.0	%		0.1		USDA27a	12/22/08 13:43 / srm
Calcium, sat. paste	24.9	meq/L		0.05		SW6010B	12/17/08 17:49 / rlh
Magnesium, sat. paste	38.2	meq/L		0.08		SW6010B	12/17/08 17:49 / rlh
Sodium, sat. paste	10.5	meq/L		0.04		SW6010B	12/17/08 17:49 / rlh
Sodium Adsorption Ratio (SAR)	1.87	unitless		0.01		Calculation	12/22/08 13:43 / srm
CHEMICAL CHARACTERISTICS							
Lime as CaCO3	5.9	%		0.1		USDA23c	12/22/08 13:43 / srm
EXCHANGEABLES							
Cation Exchange Capacity	27.4	meq/100g	D	0.08		SW6010B	12/17/08 06:35 / rlh
Exchangeable Sodium Percentage	1.18	%		0.01		USDA20a	12/22/08 13:43 / srm
METALS, AMMONIUM ACETATE EXTRACTABLE							
Sodium, extractable	1.0	meq/100g	D	0.0016		SW6010B	12/16/08 09:32 / rlh

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: B08120268-008
Client Sample ID: PC, 60-72 inches

Report Date: 12/30/08
Collection Date: 11/25/08 11:50
Date Received: 12/02/08
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Sand	20	%		1		ASA15-5	12/22/08 13:43 / srm
Silt	46	%		1		ASA15-5	12/22/08 13:43 / srm
Clay	34	%		1		ASA15-5	12/22/08 13:43 / srm
Texture	SiCL					ASA15-5	12/22/08 13:43 / srm
- C = Clay, S = Sand(y), Si = Silt(y), L = Loam(y)							
SATURATED PASTE							
pH, sat. paste	7.90	s.u.		0.10		ASAM10-3.2	12/22/08 13:43 / srm
Conductivity, sat. paste	4.52	mmhos/cm		0.01		ASA10-3	12/22/08 13:43 / srm
Saturation	57.2	%		0.1		USDA27a	12/22/08 13:43 / srm
Calcium, sat. paste	24.1	meq/L		0.05		SW6010B	12/17/08 17:52 / rlh
Magnesium, sat. paste	38.1	meq/L		0.08		SW6010B	12/17/08 17:52 / rlh
Sodium, sat. paste	12.2	meq/L		0.04		SW6010B	12/17/08 17:52 / rlh
Sodium Adsorption Ratio (SAR)	2.18	unitless		0.01		Calculation	12/22/08 13:43 / srm
CHEMICAL CHARACTERISTICS							
Lime as CaCO3	6.5	%		0.1		USDA23c	12/22/08 13:43 / srm
EXCHANGEABLES							
Cation Exchange Capacity	26.6	meq/100g	D	0.08		SW6010B	12/17/08 06:38 / rlh
Exchangeable Sodium Percentage	1.68	%		0.01		USDA20a	12/22/08 13:43 / srm
METALS, AMMONIUM ACETATE EXTRACTABLE							
Sodium, extractable	1.1	meq/100g	D	0.0016		SW6010B	12/16/08 09:35 / rlh

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: B08120268-009
Client Sample ID: PC, 72-96 inches

Report Date: 12/30/08
Collection Date: 11/25/08 11:50
Date Received: 12/02/08
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Sand	22	%		1		ASA15-5	12/22/08 13:43 / srm
Silt	43	%		1		ASA15-5	12/22/08 13:43 / srm
Clay	35	%		1		ASA15-5	12/22/08 13:43 / srm
Texture	CL					ASA15-5	12/22/08 13:43 / srm
- C = Clay, S = Sand(y), Si = Silt(y), L = Loam(y)							
SATURATED PASTE							
pH, sat. paste	7.90	s.u.		0.10		ASAM10-3.2	12/22/08 13:43 / srm
Conductivity, sat. paste	4.00	mmhos/cm		0.01		ASA10-3	12/22/08 13:43 / srm
Saturation	61.7	%		0.1		USDA27a	12/22/08 13:43 / srm
Calcium, sat. paste	23.8	meq/L		0.05		SW6010B	12/17/08 17:56 / rlh
Magnesium, sat. paste	26.8	meq/L		0.08		SW6010B	12/17/08 17:56 / rlh
Sodium, sat. paste	10.4	meq/L		0.04		SW6010B	12/17/08 17:56 / rlh
Sodium Adsorption Ratio (SAR)	2.07	unitless		0.01		Calculation	12/22/08 13:43 / srm
CHEMICAL CHARACTERISTICS							
Lime as CaCO3	6.5	%		0.1		USDA23c	12/22/08 13:43 / srm
EXCHANGEABLES							
Cation Exchange Capacity	26.2	meq/100g	D	0.08		SW6010B	12/17/08 06:42 / rlh
Exchangeable Sodium Percentage	1.68	%		0.01		USDA20a	12/22/08 13:43 / srm
METALS, AMMONIUM ACETATE EXTRACTABLE							
Sodium, extractable	1.1	meq/100g	D	0.0016		SW6010B	12/16/08 09:39 / rlh

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.