



LABORATORY ANALYTICAL REPORT

Client: Marathon Ashland Pipeline
Project: PDC AMPP
Lab ID: B08120275-010
Client Sample ID: WB, 0-2 inches

Report Date: 12/30/08
Collection Date: 11/26/08 11:30
Date Received: 12/02/08
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Sand	24	%		1		ASA15-5	12/22/08 13:43 / srm
Silt	44	%		1		ASA15-5	12/22/08 13:43 / srm
Clay	32	%		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	7.20	s.u.		0.10		ASAM10-3.2	12/22/08 13:43 / srm
Conductivity, sat. paste	1.32	mmhos/cm		0.01		ASA10-3	12/22/08 13:43 / srm
Saturation	72.2	%		0.1		USDA27a	12/22/08 13:43 / srm
Calcium, sat. paste	8.54	meq/L		0.05		SW6010B	12/17/08 20:39 / rlh
Magnesium, sat. paste	7.03	meq/L		0.08		SW6010B	12/17/08 20:39 / rlh
Sodium, sat. paste	0.81	meq/L		0.04		SW6010B	12/17/08 20:39 / rlh
Sodium Adsorption Ratio (SAR)	0.29	unitless		0.01		Calculation	12/22/08 13:43 / srm
CHEMICAL CHARACTERISTICS							
Lime as CaCO3	1.5	%		0.1		USDA23c	12/29/08 16:44 / srm
EXCHANGEABLES							
Cation Exchange Capacity	40.7	meq/100g	D	0.08		SW6010B	12/17/08 23:44 / rlh
Exchangeable Sodium Percentage	0.21	%		0.01		USDA20a	12/22/08 13:43 / srm
METALS, AMMONIUM ACETATE EXTRACTABLE							
Sodium, extractable	0.14	meq/100g	D	0.0016		SW6010B	12/16/08 15:52 / 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: B08120275-011
Client Sample ID: WB, 0-6 inches

Report Date: 12/30/08
Collection Date: 11/26/08 11:30
Date Received: 12/02/08
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Sand	24	%		1		ASA15-5	12/22/08 13:43 / srm
Silt	43	%		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	7.30	s.u.		0.10		ASAM10-3.2	12/22/08 13:43 / srm
Conductivity, sat. paste	0.96	mmhos/cm		0.01		ASA10-3	12/22/08 13:43 / srm
Saturation	71.9	%		0.1		USDA27a	12/22/08 13:43 / srm
Calcium, sat. paste	5.61	meq/L		0.05		SW6010B	12/17/08 20:43 / rlh
Magnesium, sat. paste	4.80	meq/L		0.08		SW6010B	12/17/08 20:43 / rlh
Sodium, sat. paste	1.02	meq/L		0.04		SW6010B	12/17/08 20:43 / rlh
Sodium Adsorption Ratio (SAR)	0.45	unitless		0.01		Calculation	12/22/08 13:43 / srm
Sulfate, sat. paste	89	mg/L		1		ASA10-3	12/18/08 02:03 / kh
CHEMICAL CHARACTERISTICS							
Lime as CaCO3	1.5	%		0.1		USDA23c	12/29/08 16:44 / srm
Phosphorus, Olsen	4	mg/kg		1		ASA24-5	12/12/08 10:28 / srm
Nitrate as N, KCL Extract	4	mg/kg		1		ASA33-8	12/19/08 13:32 / srm
Organic Matter	3.55	%		0.02		ASA29-3	12/22/08 14:33 / srm
EXCHANGEABLES							
Cation Exchange Capacity	39.3	meq/100g	D	0.08		SW6010B	12/17/08 23:48 / rlh
Exchangeable Sodium Percentage	0.32	%		0.01		USDA20a	12/22/08 13:43 / srm
METALS, AMMONIUM ACETATE EXTRACTABLE							
Sodium, extractable	0.20	meq/100g	D	0.0016		SW6010B	12/16/08 15:56 / rlh
Potassium, available	309	mg/kg	D	0.13		SW6010B	12/16/08 15:56 / rlh
METALS, DTPA EXTRACTABLE							
Zinc	1.3	mg/kg		0.1		SW6010B	12/23/08 22:28 / 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: B08120275-012
Client Sample ID: WB, 6-12 inches

Report Date: 12/30/08
Collection Date: 11/26/08 11:30
Date Received: 12/02/08
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Sand	23	%		1		ASA15-5	12/22/08 13:43 / srm
Silt	43	%		1		ASA15-5	12/22/08 13:43 / srm
Clay	34	%		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	7.60	s.u.		0.10		ASAM10-3.2	12/22/08 13:43 / srm
Conductivity, sat. paste	0.98	mmhos/cm		0.01		ASA10-3	12/22/08 13:43 / srm
Saturation	61.3	%		0.1		USDA27a	12/22/08 13:43 / srm
Calcium, sat. paste	4.90	meq/L		0.05		SW6010B	12/17/08 20:51 / rlh
Magnesium, sat. paste	4.85	meq/L		0.08		SW6010B	12/17/08 20:51 / rlh
Sodium, sat. paste	1.67	meq/L		0.04		SW6010B	12/17/08 20:51 / rlh
Sodium Adsorption Ratio (SAR)	0.76	unitless		0.01		Calculation	12/22/08 13:43 / srm
Sulfate, sat. paste	349	mg/L		1		ASA10-3	12/18/08 02:26 / kh
CHEMICAL CHARACTERISTICS							
Lime as CaCO3	1.5	%		0.1		USDA23c	12/29/08 16:44 / srm
Nitrate as N, KCL Extract	4	mg/kg		1		ASA33-8	12/19/08 13:33 / srm
EXCHANGEABLES							
Cation Exchange Capacity	36.6	meq/100g	D	0.08		SW6010B	12/17/08 23:56 / rlh
Exchangeable Sodium Percentage	0.54	%		0.01		USDA20a	12/22/08 13:43 / srm
METALS, AMMONIUM ACETATE EXTRACTABLE							
Sodium, extractable	0.30	meq/100g	D	0.0016		SW6010B	12/16/08 16:11 / 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: B08120275-013
Client Sample ID: WB, 12-24 inches

Report Date: 12/30/08
Collection Date: 11/26/08 11:30
Date Received: 12/02/08
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Sand	13	%		1		ASA15-5	12/22/08 13:43 / srm
Silt	50	%		1		ASA15-5	12/22/08 13:43 / srm
Clay	37	%		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	7.80	s.u.		0.10		ASAM10-3.2	12/22/08 13:43 / srm
Conductivity, sat. paste	3.12	mmhos/cm		0.01		ASA10-3	12/22/08 13:43 / srm
Saturation	64.4	%		0.1		USDA27a	12/22/08 13:43 / srm
Calcium, sat. paste	18.1	meq/L		0.05		SW6010B	12/17/08 20:55 / rlh
Magnesium, sat. paste	21.5	meq/L		0.08		SW6010B	12/17/08 20:55 / rlh
Sodium, sat. paste	4.64	meq/L		0.04		SW6010B	12/17/08 20:55 / rlh
Sodium Adsorption Ratio (SAR)	1.04	unitless		0.01		Calculation	12/22/08 13:43 / srm
Sulfate, sat. paste	2160	mg/L	D	5		ASA10-3	12/18/08 02:38 / kh
CHEMICAL CHARACTERISTICS							
Lime as CaCO ₃	6.4	%		0.1		USDA23c	12/29/08 16:44 / srm
Nitrate as N, KCL Extract	5	mg/kg		1		ASA33-8	12/19/08 13:34 / srm
EXCHANGEABLES							
Cation Exchange Capacity	33.1	meq/100g	D	0.08		SW6010B	12/18/08 00:11 / rlh
Exchangeable Sodium Percentage	0.79	%		0.01		USDA20a	12/22/08 13:43 / srm
METALS, AMMONIUM ACETATE EXTRACTABLE							
Sodium, extractable	0.56	meq/100g	D	0.0016		SW6010B	12/16/08 16:19 / 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: B08120275-014
Client Sample ID: WB, 24-36 inches

Report Date: 12/30/08
Collection Date: 11/26/08 11:30
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	49	%		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	8.00	s.u.		0.10		ASAM10-3.2	12/22/08 13:43 / srm
Conductivity, sat. paste	4.75	mmhos/cm		0.01		ASA10-3	12/22/08 13:43 / srm
Saturation	55.7	%		0.1		USDA27a	12/22/08 13:43 / srm
Calcium, sat. paste	24.6	meq/L		0.05		SW6010B	12/17/08 21:03 / rlh
Magnesium, sat. paste	45.7	meq/L		0.08		SW6010B	12/17/08 21:03 / rlh
Sodium, sat. paste	10.5	meq/L		0.04		SW6010B	12/17/08 21:03 / rlh
Sodium Adsorption Ratio (SAR)	1.77	unitless		0.01		Calculation	12/22/08 13:43 / srm
CHEMICAL CHARACTERISTICS							
Lime as CaCO3	11.4	%		0.1		USDA23c	12/29/08 16:44 / srm
EXCHANGEABLES							
Cation Exchange Capacity	25.2	meq/100g	D	0.08		SW6010B	12/18/08 00:15 / rlh
Exchangeable Sodium Percentage	1.18	%		0.01		USDA20a	12/22/08 13:43 / srm
METALS, AMMONIUM ACETATE EXTRACTABLE							
Sodium, extractable	0.88	meq/100g	D	0.0016		SW6010B	12/16/08 16:23 / 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: B08120275-015
Client Sample ID: WB, 36-48 inches

Report Date: 12/30/08
Collection Date: 11/26/08 11:30
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	42	%		1		ASA15-5	12/22/08 13:43 / srm
Clay	32	%		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	4.15	mmhos/cm		0.01		ASA10-3	12/22/08 13:43 / srm
Saturation	53.2	%		0.1		USDA27a	12/22/08 13:43 / srm
Calcium, sat. paste	25.6	meq/L		0.05		SW6010B	12/17/08 21:07 / rlh
Magnesium, sat. paste	34.8	meq/L		0.08		SW6010B	12/17/08 21:07 / rlh
Sodium, sat. paste	7.15	meq/L		0.04		SW6010B	12/17/08 21:07 / rlh
Sodium Adsorption Ratio (SAR)	1.30	unitless		0.01		Calculation	12/22/08 13:43 / srm
CHEMICAL CHARACTERISTICS							
Lime as CaCO3	10.1	%		0.1		USDA23c	12/29/08 16:44 / srm
EXCHANGEABLES							
Cation Exchange Capacity	27.1	meq/100g	D	0.08		SW6010B	12/18/08 00:19 / rlh
Exchangeable Sodium Percentage	0.81	%		0.01		USDA20a	12/22/08 13:43 / srm
METALS, AMMONIUM ACETATE EXTRACTABLE							
Sodium, extractable	0.60	meq/100g	D	0.0016		SW6010B	12/16/08 16:27 / 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: B08120275-016
Client Sample ID: WB, 48-60 inches

Report Date: 12/30/08
Collection Date: 11/26/08 11:30
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	3.70	mmhos/cm		0.01		ASA10-3	12/22/08 13:43 / srm
Saturation	54.9	%		0.1		USDA27a	12/22/08 13:43 / srm
Calcium, sat. paste	26.1	meq/L		0.05		SW6010B	12/17/08 21:11 / rlh
Magnesium, sat. paste	27.5	meq/L		0.08		SW6010B	12/17/08 21:11 / rlh
Sodium, sat. paste	4.25	meq/L		0.04		SW6010B	12/17/08 21:11 / rlh
Sodium Adsorption Ratio (SAR)	0.82	unitless		0.01		Calculation	12/22/08 13:43 / srm
CHEMICAL CHARACTERISTICS							
Lime as CaCO3	11.5	%		0.1		USDA23c	12/29/08 16:44 / srm
EXCHANGEABLES							
Cation Exchange Capacity	24.7	meq/100g	D	0.08		SW6010B	12/18/08 00:23 / rlh
Exchangeable Sodium Percentage	0.56	%		0.01		USDA20a	12/22/08 13:43 / srm
METALS, AMMONIUM ACETATE EXTRACTABLE							
Sodium, extractable	0.37	meq/100g	D	0.0016		SW6010B	12/16/08 16:30 / 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: B08120275-017
Client Sample ID: WB, 60-72 inches

Report Date: 12/30/08
Collection Date: 11/26/08 11:30
Date Received: 12/02/08
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Sand	30	%		1		ASA15-5	12/22/08 13:43 / srm
Silt	40	%		1		ASA15-5	12/22/08 13:43 / srm
Clay	30	%		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	3.48	mmhos/cm		0.01		ASA10-3	12/22/08 13:43 / srm
Saturation	49.6	%		0.1		USDA27a	12/22/08 13:43 / srm
Calcium, sat. paste	27.0	meq/L		0.05		SW6010B	12/17/08 21:15 / rlh
Magnesium, sat. paste	24.5	meq/L		0.08		SW6010B	12/17/08 21:15 / rlh
Sodium, sat. paste	2.70	meq/L		0.04		SW6010B	12/17/08 21:15 / rlh
Sodium Adsorption Ratio (SAR)	0.53	unitless		0.01		Calculation	12/22/08 13:43 / srm
CHEMICAL CHARACTERISTICS							
Lime as CaCO3	10.2	%		0.1		USDA23c	12/29/08 16:44 / srm
EXCHANGEABLES							
Cation Exchange Capacity	25.5	meq/100g	D	0.08		SW6010B	12/18/08 00:27 / rlh
Exchangeable Sodium Percentage	0.36	%		0.01		USDA20a	12/22/08 13:43 / srm
METALS, AMMONIUM ACETATE EXTRACTABLE							
Sodium, extractable	0.22	meq/100g	D	0.0016		SW6010B	12/16/08 16:34 / 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: B08120275-018
Client Sample ID: WB, 72-96 inches

Report Date: 12/30/08
Collection Date: 11/26/08 11:30
Date Received: 12/02/08
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Sand	30	%		1		ASA15-5	12/22/08 13:43 / srm
Silt	40	%		1		ASA15-5	12/22/08 13:43 / srm
Clay	30	%		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	3.21	mmhos/cm		0.01		ASA10-3	12/22/08 13:43 / srm
Saturation	48.8	%		0.1		USDA27a	12/22/08 13:43 / srm
Calcium, sat. paste	23.6	meq/L		0.05		SW6010B	12/17/08 21:50 / rlh
Magnesium, sat. paste	21.8	meq/L		0.08		SW6010B	12/17/08 21:50 / rlh
Sodium, sat. paste	2.60	meq/L		0.04		SW6010B	12/17/08 21:50 / rlh
Sodium Adsorption Ratio (SAR)	0.54	unitless		0.01		Calculation	12/22/08 13:43 / srm
CHEMICAL CHARACTERISTICS							
Lime as CaCO3	8.4	%		0.1		USDA23c	12/29/08 16:44 / srm
EXCHANGEABLES							
Cation Exchange Capacity	29.4	meq/100g	D	0.08		SW6010B	12/18/08 00:31 / rlh
Exchangeable Sodium Percentage	0.32	%		0.01		USDA20a	12/22/08 13:43 / srm
METALS, AMMONIUM ACETATE EXTRACTABLE							
Sodium, extractable	0.22	meq/100g	D	0.0016		SW6010B	12/16/08 16:38 / 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.