



LABORATORY ANALYTICAL REPORT

Client: Marathon Ashland Pipeline
Project: PDC AMPP
Lab ID: B08120270-010
Client Sample ID: PG, 0-2 inches

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

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Sand	36	%		1		ASA15-5	12/22/08 13:43 / srm
Silt	32	%		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	7.90	s.u.		0.10		ASAM10-3.2	12/22/08 13:43 / srm
Conductivity, sat. paste	0.72	mmhos/cm		0.01		ASA10-3	12/22/08 13:43 / srm
Saturation	68.1	%		0.1		USDA27a	12/22/08 13:43 / srm
Calcium, sat. paste	4.83	meq/L		0.05		SW6010B	12/17/08 18:51 / rlh
Magnesium, sat. paste	3.36	meq/L		0.08		SW6010B	12/17/08 18:51 / rlh
Sodium, sat. paste	0.45	meq/L		0.04		SW6010B	12/17/08 18:51 / rlh
Sodium Adsorption Ratio (SAR)	0.22	unitless		0.01		Calculation	12/22/08 13:43 / srm
CHEMICAL CHARACTERISTICS							
Lime as CaCO3	1.2	%		0.1		USDA23c	12/29/08 16:43 / srm
EXCHANGEABLES							
Cation Exchange Capacity	40.7	meq/100g	D	0.08		SW6010B	12/17/08 22:02 / rlh
Exchangeable Sodium Percentage	0.15	%		0.01		USDA20a	12/22/08 13:43 / srm
METALS, AMMONIUM ACETATE EXTRACTABLE							
Sodium, extractable	0.093	meq/100g	D	0.0016		SW6010B	12/16/08 14:13 / 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: B08120270-011
Client Sample ID: PG, 0-6 inches

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

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Sand	34	%		1		ASA15-5	12/22/08 13:43 / srm
Silt	33	%		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	6.80	s.u.		0.10		ASAM10-3.2	12/22/08 13:43 / srm
Conductivity, sat. paste	0.67	mmhos/cm		0.01		ASA10-3	12/22/08 13:43 / srm
Saturation	67.3	%		0.1		USDA27a	12/22/08 13:43 / srm
Calcium, sat. paste	4.29	meq/L		0.05		SW6010B	12/17/08 18:54 / rlh
Magnesium, sat. paste	2.85	meq/L		0.08		SW6010B	12/17/08 18:54 / rlh
Sodium, sat. paste	0.51	meq/L		0.04		SW6010B	12/17/08 18:54 / rlh
Sodium Adsorption Ratio (SAR)	0.27	unitless		0.01		Calculation	12/22/08 13:43 / srm
Sulfate, sat. paste	120	mg/L		1		ASA10-3	12/17/08 23:55 / kh
CHEMICAL CHARACTERISTICS							
Lime as CaCO3	1.1	%		0.1		USDA23c	12/29/08 16:43 / srm
Phosphorus, Olsen	2	mg/kg		1		ASA24-5	12/12/08 10:25 / srm
Nitrate as N, KCL Extract	9	mg/kg		1		ASA33-8	12/19/08 13:28 / srm
Organic Matter	4.03	%		0.02		ASA29-3	12/22/08 14:33 / srm
EXCHANGEABLES							
Cation Exchange Capacity	41.3	meq/100g	D	0.08		SW6010B	12/17/08 22:06 / rlh
Exchangeable Sodium Percentage	0.17	%		0.01		USDA20a	12/22/08 13:43 / srm
METALS, AMMONIUM ACETATE EXTRACTABLE							
Sodium, extractable	0.11	meq/100g	D	0.0016		SW6010B	12/16/08 14:17 / rlh
Potassium, available	227	mg/kg	D	0.13		SW6010B	12/16/08 14:17 / rlh
METALS, DTPA EXTRACTABLE							
Zinc	0.8	mg/kg		0.1		SW6010B	12/23/08 22:21 / 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: B08120270-012
Client Sample ID: PG, 6-12 inches

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

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Sand	36	%		1		ASA15-5	12/22/08 13:43 / srm
Silt	30	%		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	6.90	s.u.		0.10		ASAM10-3.2	12/22/08 13:43 / srm
Conductivity, sat. paste	0.46	mmhos/cm		0.01		ASA10-3	12/22/08 13:43 / srm
Saturation	64.1	%		0.1		USDA27a	12/22/08 13:43 / srm
Calcium, sat. paste	2.53	meq/L		0.05		SW6010B	12/17/08 19:10 / rlh
Magnesium, sat. paste	1.71	meq/L		0.08		SW6010B	12/17/08 19:10 / rlh
Sodium, sat. paste	0.50	meq/L		0.04		SW6010B	12/17/08 19:10 / rlh
Sodium Adsorption Ratio (SAR)	0.34	unitless		0.01		Calculation	12/22/08 13:43 / srm
Sulfate, sat. paste	102	mg/L		1		ASA10-3	12/18/08 00:18 / kh
CHEMICAL CHARACTERISTICS							
Lime as CaCO ₃	1.1	%		0.1		USDA23c	12/29/08 16:43 / srm
Nitrate as N, KCL Extract	8	mg/kg		1		ASA33-8	12/19/08 13:29 / srm
EXCHANGEABLES							
Cation Exchange Capacity	40.7	meq/100g	D	0.08		SW6010B	12/17/08 22:14 / rlh
Exchangeable Sodium Percentage	0.22	%		0.01		USDA20a	12/22/08 13:43 / srm
METALS, AMMONIUM ACETATE EXTRACTABLE							
Sodium, extractable	0.12	meq/100g	D	0.0016		SW6010B	12/16/08 14:25 / 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: B08120270-013
Client Sample ID: PG, 12-24 inches

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

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Sand	38	%		1		ASA15-5	12/22/08 13:43 / srm
Silt	28	%		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	0.42	mmhos/cm		0.01		ASA10-3	12/22/08 13:43 / srm
Saturation	62.1	%		0.1		USDA27a	12/22/08 13:43 / srm
Calcium, sat. paste	2.33	meq/L		0.05		SW6010B	12/17/08 19:14 / rlh
Magnesium, sat. paste	1.53	meq/L		0.08		SW6010B	12/17/08 19:14 / rlh
Sodium, sat. paste	0.55	meq/L		0.04		SW6010B	12/17/08 19:14 / rlh
Sodium Adsorption Ratio (SAR)	0.39	unitless		0.01		Calculation	12/22/08 13:43 / srm
Sulfate, sat. paste	36	mg/L		1		ASA10-3	12/18/08 00:30 / kh
CHEMICAL CHARACTERISTICS							
Lime as CaCO3	1.4	%		0.1		USDA23c	12/29/08 16:43 / srm
Nitrate as N, KCL Extract	5	mg/kg		1		ASA33-8	12/19/08 13:29 / srm
EXCHANGEABLES							
Cation Exchange Capacity	39.0	meq/100g	D	0.08		SW6010B	12/17/08 22:22 / rlh
Exchangeable Sodium Percentage	0.26	%		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 14:40 / 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: B08120270-014
Client Sample ID: PG, 24-36 inches

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

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Sand	52	%		1		ASA15-5	12/22/08 13:43 / srm
Silt	24	%		1		ASA15-5	12/22/08 13:43 / srm
Clay	24	%		1		ASA15-5	12/22/08 13:43 / srm
Texture	SCL					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	0.55	mmhos/cm		0.01		ASA10-3	12/22/08 13:43 / srm
Saturation	44.8	%		0.1		USDA27a	12/22/08 13:43 / srm
Calcium, sat. paste	3.09	meq/L		0.05		SW6010B	12/17/08 19:18 / rlh
Magnesium, sat. paste	2.10	meq/L		0.08		SW6010B	12/17/08 19:18 / rlh
Sodium, sat. paste	0.92	meq/L		0.04		SW6010B	12/17/08 19:18 / rlh
Sodium Adsorption Ratio (SAR)	0.57	unitless		0.01		Calculation	12/22/08 13:43 / srm
CHEMICAL CHARACTERISTICS							
Lime as CaCO3	2.6	%		0.1		USDA23c	12/29/08 16:44 / srm
EXCHANGEABLES							
Cation Exchange Capacity	33.3	meq/100g	D	0.08		SW6010B	12/17/08 22:26 / rlh
Exchangeable Sodium Percentage	0.26	%		0.01		USDA20a	12/22/08 13:43 / srm
METALS, AMMONIUM ACETATE EXTRACTABLE							
Sodium, extractable	0.13	meq/100g	D	0.0016		SW6010B	12/16/08 14:44 / 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: B08120270-015
Client Sample ID: PG, 36-48 inches

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

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Sand	58	%		1		ASA15-5	12/22/08 13:43 / srm
Silt	20	%		1		ASA15-5	12/22/08 13:43 / srm
Clay	22	%		1		ASA15-5	12/22/08 13:43 / srm
Texture	SCL					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	0.73	mmhos/cm		0.01		ASA10-3	12/22/08 13:43 / srm
Saturation	37.9	%		0.1		USDA27a	12/22/08 13:43 / srm
Calcium, sat. paste	5.04	meq/L		0.05		SW6010B	12/17/08 19:22 / rlh
Magnesium, sat. paste	2.68	meq/L		0.08		SW6010B	12/17/08 19:22 / rlh
Sodium, sat. paste	0.83	meq/L		0.04		SW6010B	12/17/08 19:22 / rlh
Sodium Adsorption Ratio (SAR)	0.42	unitless		0.01		Calculation	12/22/08 13:43 / srm
CHEMICAL CHARACTERISTICS							
Lime as CaCO3	3.6	%		0.1		USDA23c	12/29/08 16:44 / srm
EXCHANGEABLES							
Cation Exchange Capacity	30.2	meq/100g	D	0.08		SW6010B	12/17/08 22:37 / rlh
Exchangeable Sodium Percentage	0.29	%		0.01		USDA20a	12/22/08 13:43 / srm
METALS, AMMONIUM ACETATE EXTRACTABLE							
Sodium, extractable	0.12	meq/100g	D	0.0016		SW6010B	12/16/08 14:47 / 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: B08120270-016
Client Sample ID: PG, 48-60 inches

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

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Sand	62	%		1		ASA15-5	12/22/08 13:43 / srm
Silt	16	%		1		ASA15-5	12/22/08 13:43 / srm
Clay	22	%		1		ASA15-5	12/22/08 13:43 / srm
Texture	SCL					ASA15-5	12/22/08 13:43 / srm
- C = Clay, S = Sand(y), Si = Silt(y), L = Loam(y)							
SATURATED PASTE							
pH, sat. paste	7.40	s.u.		0.10		ASAM10-3.2	12/22/08 13:43 / srm
Conductivity, sat. paste	0.58	mmhos/cm		0.01		ASA10-3	12/22/08 13:43 / srm
Saturation	38.4	%		0.1		USDA27a	12/22/08 13:43 / srm
Calcium, sat. paste	3.86	meq/L		0.05		SW6010B	12/17/08 19:29 / rlh
Magnesium, sat. paste	1.97	meq/L		0.08		SW6010B	12/17/08 19:29 / rlh
Sodium, sat. paste	0.68	meq/L		0.04		SW6010B	12/17/08 19:29 / rlh
Sodium Adsorption Ratio (SAR)	0.40	unitless		0.01		Calculation	12/22/08 13:43 / srm
CHEMICAL CHARACTERISTICS							
Lime as CaCO ₃	4.2	%		0.1		USDA23c	12/29/08 16:44 / srm
EXCHANGEABLES							
Cation Exchange Capacity	28.7	meq/100g	D	0.08		SW6010B	12/17/08 22:41 / rlh
Exchangeable Sodium Percentage	0.32	%		0.01		USDA20a	12/22/08 13:43 / srm
METALS, AMMONIUM ACETATE EXTRACTABLE							
Sodium, extractable	0.12	meq/100g	D	0.0016		SW6010B	12/16/08 14:51 / 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: B08120270-017
Client Sample ID: PG, 60-72 inches

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

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Sand	62	%		1		ASA15-5	12/22/08 13:43 / srm
Silt	18	%		1		ASA15-5	12/22/08 13:43 / srm
Clay	20	%		1		ASA15-5	12/22/08 13:43 / srm
Texture	SCL					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	0.58	mmhos/cm		0.01		ASA10-3	12/22/08 13:43 / srm
Saturation	36.1	%		0.1		USDA27a	12/22/08 13:43 / srm
Calcium, sat. paste	4.05	meq/L		0.05		SW6010B	12/17/08 19:33 / rlh
Magnesium, sat. paste	1.82	meq/L		0.08		SW6010B	12/17/08 19:33 / rlh
Sodium, sat. paste	0.62	meq/L		0.04		SW6010B	12/17/08 19:33 / rlh
Sodium Adsorption Ratio (SAR)	0.36	unitless		0.01		Calculation	12/22/08 13:43 / srm
CHEMICAL CHARACTERISTICS							
Lime as CaCO3	3.3	%		0.1		USDA23c	12/29/08 16:44 / srm
EXCHANGEABLES							
Cation Exchange Capacity	28.1	meq/100g	D	0.08		SW6010B	12/17/08 22:45 / rlh
Exchangeable Sodium Percentage	0.31	%		0.01		USDA20a	12/22/08 13:43 / srm
METALS, AMMONIUM ACETATE EXTRACTABLE							
Sodium, extractable	0.11	meq/100g	D	0.0016		SW6010B	12/16/08 14:55 / 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: B08120270-018
Client Sample ID: PG, 72-96 inches

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

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Sand	63	%		1		ASA15-5	12/22/08 13:43 / srm
Silt	19	%		1		ASA15-5	12/22/08 13:43 / srm
Clay	18	%		1		ASA15-5	12/22/08 13:43 / srm
Texture	SL					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	0.52	mmhos/cm		0.01		ASA10-3	12/22/08 13:43 / srm
Saturation	34.6	%		0.1		USDA27a	12/22/08 13:43 / srm
Calcium, sat. paste	3.33	meq/L		0.05		SW6010B	12/17/08 19:37 / rlh
Magnesium, sat. paste	1.79	meq/L		0.08		SW6010B	12/17/08 19:37 / rlh
Sodium, sat. paste	0.69	meq/L		0.04		SW6010B	12/17/08 19:37 / rlh
Sodium Adsorption Ratio (SAR)	0.43	unitless		0.01		Calculation	12/22/08 13:43 / srm
CHEMICAL CHARACTERISTICS							
Lime as CaCO3	3.6	%		0.1		USDA23c	12/29/08 16:44 / srm
EXCHANGEABLES							
Cation Exchange Capacity	27.0	meq/100g	D	0.08		SW6010B	12/17/08 22:49 / rlh
Exchangeable Sodium Percentage	0.31	%		0.01		USDA20a	12/22/08 13:43 / srm
METALS, AMMONIUM ACETATE EXTRACTABLE							
Sodium, extractable	0.11	meq/100g	D	0.0016		SW6010B	12/16/08 14:59 / 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.