



LABORATORY ANALYTICAL REPORT

Client: Marathon Ashland Pipeline
Project: PDC AMPP
Lab ID: B08060409-010
Client Sample ID: PB, 0-2 Inches

Report Date: 07/24/08
Collection Date: 06/02/08 12:15
Date Received: 06/04/08
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Sand	5	%		1		ASA15-5	06/18/08 14:43 / srm
Silt	57	%		1		ASA15-5	06/18/08 14:43 / srm
Clay	38	%		1		ASA15-5	06/18/08 14:43 / srm
Texture	SiCL					ASA15-5	06/18/08 14:43 / 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	06/17/08 14:50 / srm
Conductivity, sat. paste	0.67	mmhos/cm		0.01		ASA10-3	06/18/08 14:43 / srm
Saturation	77.3	%		0.1		USDA27a	06/18/08 14:43 / srm
Calcium, sat. paste	3.66	meq/L		0.05		SW6010B	06/18/08 22:07 / rlh
Magnesium, sat. paste	2.36	meq/L		0.08		SW6010B	06/18/08 22:07 / rlh
Sodium, sat. paste	0.28	meq/L		0.04		SW6010B	06/18/08 22:07 / rlh
Sodium Adsorption Ratio (SAR)	0.16	unitless		0.01		Calculation	06/19/08 14:48 / srm
CHEMICAL CHARACTERISTICS							
Lime as CaCO3	3.2	%		0.1		USDA23c	06/17/08 14:50 / srm
EXCHANGEABLES							
Cation Exchange Capacity	34.5	meq/100g	D	0.08		SW6010B	06/17/08 23:02 / rlh
Exchangeable Sodium Percentage	0.19	%		0.01		USDA20a	06/19/08 14:48 / srm
METALS, AMMONIUM ACETATE EXTRACTABLE							
Sodium, extractable	0.088	meq/100g	D	0.00039		SW6010B	06/11/08 05:21 / 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: B08060409-011
Client Sample ID: PB, 0-6 Inches

Report Date: 07/24/08
Collection Date: 06/02/08 12:15
Date Received: 06/04/08
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Sand	5	%		1		ASA15-5	06/18/08 14:43 / srm
Silt	57	%		1		ASA15-5	06/18/08 14:43 / srm
Clay	38	%		1		ASA15-5	06/18/08 14:43 / srm
Texture	SiCL					ASA15-5	06/18/08 14:43 / 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	06/17/08 14:50 / srm
Conductivity, sat. paste	0.55	mmhos/cm		0.01		ASA10-3	06/18/08 14:43 / srm
Saturation	70.9	%		0.1		USDA27a	06/18/08 14:43 / srm
Calcium, sat. paste	2.83	meq/L		0.05		SW6010B	06/18/08 22:10 / rlh
Magnesium, sat. paste	1.79	meq/L		0.08		SW6010B	06/18/08 22:10 / rlh
Sodium, sat. paste	0.52	meq/L		0.04		SW6010B	06/18/08 22:10 / rlh
Sodium Adsorption Ratio (SAR)	0.34	unitless		0.01		Calculation	06/19/08 14:48 / srm
Sulfate, sat. paste	57	mg/L		1		ASA10-3	06/18/08 19:00 / qed
CHEMICAL CHARACTERISTICS							
Lime as CaCO3	3.1	%		0.1		USDA23c	06/17/08 14:50 / srm
Phosphorus, Olsen	46	mg/kg		1		ASA24-5	06/13/08 13:18 / srm
Nitrate as N, KCL Extract	5	mg/kg		1		ASA33-8	06/13/08 15:12 / srm
Organic Matter	3.34	%		0.02		ASA29-3	06/13/08 14:25 / srm
EXCHANGEABLES							
Cation Exchange Capacity	35.2	meq/100g	D	0.08		SW6010B	06/17/08 23:17 / rlh
Exchangeable Sodium Percentage	0.33	%		0.01		USDA20a	06/19/08 14:48 / srm
METALS, AMMONIUM ACETATE EXTRACTABLE							
Sodium, extractable	0.15	meq/100g	D	0.00039		SW6010B	06/11/08 05:25 / rlh
Potassium, available	309	mg/kg	D	0.13		SW6010B	06/11/08 05:25 / rlh
METALS, DTPA EXTRACTABLE							
Zinc	1.7	mg/kg		0.1		SW6010B	06/13/08 21:55 / 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: B08060409-012
Client Sample ID: PB, 6-12 Inches

Report Date: 07/24/08
Collection Date: 06/02/08 12:15
Date Received: 06/04/08
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Sand	7	%		1		ASA15-5	06/18/08 14:43 / srm
Silt	53	%		1		ASA15-5	06/18/08 14:43 / srm
Clay	40	%		1		ASA15-5	06/18/08 14:43 / srm
Texture	SiC					ASA15-5	06/18/08 14:43 / 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	06/17/08 14:50 / srm
Conductivity, sat. paste	0.63	mmhos/cm		0.01		ASA10-3	06/18/08 14:43 / srm
Saturation	74.3	%		0.1		USDA27a	06/18/08 14:43 / srm
Calcium, sat. paste	3.01	meq/L		0.05		SW6010B	06/18/08 22:26 / rlh
Magnesium, sat. paste	1.95	meq/L		0.08		SW6010B	06/18/08 22:26 / rlh
Sodium, sat. paste	0.90	meq/L		0.04		SW6010B	06/18/08 22:26 / rlh
Sodium Adsorption Ratio (SAR)	0.57	unitless		0.01		Calculation	06/19/08 14:48 / srm
Sulfate, sat. paste	141	mg/L		1		ASA10-3	06/18/08 19:24 / qed
CHEMICAL CHARACTERISTICS							
Lime as CaCO3	3.8	%		0.1		USDA23c	06/17/08 14:50 / srm
Nitrate as N, KCL Extract	6	mg/kg		1		ASA33-8	06/13/08 15:12 / srm
EXCHANGEABLES							
Cation Exchange Capacity	32.0	meq/100g	D	0.08		SW6010B	06/17/08 23:24 / rlh
Exchangeable Sodium Percentage	0.56	%		0.01		USDA20a	06/19/08 14:48 / srm
METALS, AMMONIUM ACETATE EXTRACTABLE							
Sodium, extractable	0.25	meq/100g	D	0.00039		SW6010B	06/11/08 05:33 / 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: B08060409-013
Client Sample ID: PB, 12-24 Inches

Report Date: 07/24/08
Collection Date: 06/02/08 12:15
Date Received: 06/04/08
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Sand	1	%		1		ASA15-5	06/18/08 14:43 / srm
Silt	59	%		1		ASA15-5	06/18/08 14:43 / srm
Clay	40	%		1		ASA15-5	06/18/08 14:43 / srm
Texture	SiC					ASA15-5	06/18/08 14:43 / 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	06/17/08 14:50 / srm
Conductivity, sat. paste	2.38	mmhos/cm		0.01		ASA10-3	06/18/08 14:43 / srm
Saturation	71.6	%		0.1		USDA27a	06/18/08 14:43 / srm
Calcium, sat. paste	18.2	meq/L		0.05		SW6010B	06/18/08 22:29 / rlh
Magnesium, sat. paste	9.94	meq/L		0.08		SW6010B	06/18/08 22:29 / rlh
Sodium, sat. paste	1.92	meq/L		0.04		SW6010B	06/18/08 22:29 / rlh
Sodium Adsorption Ratio (SAR)	0.51	unitless		0.01		Calculation	06/19/08 14:48 / srm
Sulfate, sat. paste	1440	mg/L	D	5		ASA10-3	06/18/08 19:35 / qed
CHEMICAL CHARACTERISTICS							
Lime as CaCO3	3.8	%		0.1		USDA23c	06/17/08 14:50 / srm
Nitrate as N, KCL Extract	4	mg/kg		1		ASA33-8	06/13/08 15:13 / srm
EXCHANGEABLES							
Cation Exchange Capacity	32.7	meq/100g	D	0.08		SW6010B	06/17/08 23:28 / rlh
Exchangeable Sodium Percentage	0.60	%		0.01		USDA20a	06/19/08 14:48 / srm
METALS, AMMONIUM ACETATE EXTRACTABLE							
Sodium, extractable	0.33	meq/100g	D	0.00039		SW6010B	06/11/08 05:41 / rlh

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: B08060409-014
Client Sample ID: PB, 24-36 Inches

Report Date: 07/24/08
Collection Date: 06/02/08 12:15
Date Received: 06/04/08
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Sand	1	%		1		ASA15-5	06/18/08 14:43 / srm
Silt	59	%		1		ASA15-5	06/18/08 14:43 / srm
Clay	40	%		1		ASA15-5	06/18/08 14:43 / srm
Texture	SiC					ASA15-5	06/18/08 14:43 / 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	06/17/08 14:50 / srm
Conductivity, sat. paste	2.35	mmhos/cm		0.01		ASA10-3	06/18/08 14:43 / srm
Saturation	70.0	%		0.1		USDA27a	06/18/08 14:43 / srm
Calcium, sat. paste	17.5	meq/L		0.05		SW6010B	06/18/08 22:37 / rlh
Magnesium, sat. paste	11.1	meq/L		0.08		SW6010B	06/18/08 22:37 / rlh
Sodium, sat. paste	2.19	meq/L		0.04		SW6010B	06/18/08 22:37 / rlh
Sodium Adsorption Ratio (SAR)	0.58	unitless		0.01		Calculation	06/19/08 14:48 / srm
CHEMICAL CHARACTERISTICS							
Lime as CaCO3	3.5	%		0.1		USDA23c	06/17/08 14:50 / srm
EXCHANGEABLES							
Cation Exchange Capacity	31.8	meq/100g	D	0.08		SW6010B	06/17/08 23:32 / rlh
Exchangeable Sodium Percentage	0.63	%		0.01		USDA20a	06/19/08 14:48 / srm
METALS, AMMONIUM ACETATE EXTRACTABLE							
Sodium, extractable	0.35	meq/100g	D	0.00039		SW6010B	06/11/08 05:44 / 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: B08060409-015
Client Sample ID: PB, 36-48 Inches

Report Date: 07/24/08
Collection Date: 06/02/08 12:15
Date Received: 06/04/08
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Sand	1	%		1		ASA15-5	06/18/08 14:43 / srm
Silt	61	%		1		ASA15-5	06/18/08 14:43 / srm
Clay	38	%		1		ASA15-5	06/18/08 14:43 / srm
Texture	SiCL					ASA15-5	06/18/08 14:43 / 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	06/17/08 14:50 / srm
Conductivity, sat. paste	3.10	mmhos/cm		0.01		ASA10-3	06/18/08 14:43 / srm
Saturation	66.6	%		0.1		USDA27a	06/18/08 14:43 / srm
Calcium, sat. paste	24.8	meq/L		0.05		SW6010B	06/18/08 22:41 / rlh
Magnesium, sat. paste	16.3	meq/L		0.08		SW6010B	06/18/08 22:41 / rlh
Sodium, sat. paste	3.00	meq/L		0.04		SW6010B	06/18/08 22:41 / rlh
Sodium Adsorption Ratio (SAR)	0.66	unitless		0.01		Calculation	06/19/08 14:48 / srm
CHEMICAL CHARACTERISTICS							
Lime as CaCO3	4.0	%		0.1		USDA23c	06/17/08 14:50 / srm
EXCHANGEABLES							
Cation Exchange Capacity	28.4	meq/100g	D	0.08		SW6010B	06/17/08 23:36 / rlh
Exchangeable Sodium Percentage	0.76	%		0.01		USDA20a	06/19/08 14:48 / srm
METALS, AMMONIUM ACETATE EXTRACTABLE							
Sodium, extractable	0.42	meq/100g	D	0.00039		SW6010B	06/11/08 05:48 / 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: B08060409-016
Client Sample ID: PB, 48-60 Inches

Report Date: 07/24/08
Collection Date: 06/02/08 12:15
Date Received: 06/04/08
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Sand	5	%		1		ASA15-5	06/18/08 14:43 / srm
Silt	55	%		1		ASA15-5	06/18/08 14:43 / srm
Clay	40	%		1		ASA15-5	06/18/08 14:43 / srm
Texture	SiC					ASA15-5	06/18/08 14:43 / 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	06/17/08 14:50 / srm
Conductivity, sat. paste	3.24	mmhos/cm		0.01		ASA10-3	06/18/08 14:43 / srm
Saturation	73.1	%		0.1		USDA27a	06/18/08 14:43 / srm
Calcium, sat. paste	26.5	meq/L		0.05		SW6010B	06/18/08 22:44 / rlh
Magnesium, sat. paste	18.6	meq/L		0.08		SW6010B	06/18/08 22:44 / rlh
Sodium, sat. paste	3.42	meq/L		0.04		SW6010B	06/18/08 22:44 / rlh
Sodium Adsorption Ratio (SAR)	0.72	unitless		0.01		Calculation	06/19/08 14:48 / srm
CHEMICAL CHARACTERISTICS							
Lime as CaCO ₃	4.2	%		0.1		USDA23c	06/17/08 14:50 / srm
EXCHANGEABLES							
Cation Exchange Capacity	30.1	meq/100g	D	0.08		SW6010B	06/17/08 23:40 / rlh
Exchangeable Sodium Percentage	0.79	%		0.01		USDA20a	06/19/08 14:48 / srm
METALS, AMMONIUM ACETATE EXTRACTABLE							
Sodium, extractable	0.49	meq/100g	D	0.00039		SW6010B	06/11/08 06:00 / 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: B08060409-017
Client Sample ID: PB, 60-72 Inches

Report Date: 07/24/08
Collection Date: 06/02/08 12:15
Date Received: 06/04/08
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Sand	2	%		1		ASA15-5	06/18/08 14:43 / srm
Silt	55	%		1		ASA15-5	06/18/08 14:43 / srm
Clay	43	%		1		ASA15-5	06/18/08 14:43 / srm
Texture	SiC					ASA15-5	06/18/08 14:43 / 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	06/17/08 14:50 / srm
Conductivity, sat. paste	3.62	mmhos/cm		0.01		ASA10-3	06/18/08 14:43 / srm
Saturation	74.1	%		0.1		USDA27a	06/18/08 14:43 / srm
Calcium, sat. paste	25.7	meq/L		0.05		SW6010B	06/18/08 22:48 / rlh
Magnesium, sat. paste	18.3	meq/L		0.08		SW6010B	06/18/08 22:48 / rlh
Sodium, sat. paste	9.82	meq/L		0.04		SW6010B	06/18/08 22:48 / rlh
Sodium Adsorption Ratio (SAR)	2.10	unitless		0.01		Calculation	06/19/08 14:48 / srm
CHEMICAL CHARACTERISTICS							
Lime as CaCO3	4.2	%		0.1		USDA23c	06/17/08 14:50 / srm
EXCHANGEABLES							
Cation Exchange Capacity	30.6	meq/100g	D	0.08		SW6010B	06/17/08 23:43 / rlh
Exchangeable Sodium Percentage	2.02	%		0.01		USDA20a	06/19/08 14:48 / srm
METALS, AMMONIUM ACETATE EXTRACTABLE							
Sodium, extractable	1.3	meq/100g	D	0.00039		SW6010B	06/11/08 06:04 / 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: B08060409-018
Client Sample ID: PB, 72-96 Inches

Report Date: 07/24/08
Collection Date: 06/02/08 12:15
Date Received: 06/04/08
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Sand	5	%		1		ASA15-5	06/18/08 14:43 / srm
Silt	53	%		1		ASA15-5	06/18/08 14:43 / srm
Clay	42	%		1		ASA15-5	06/18/08 14:43 / srm
Texture	SiC					ASA15-5	06/18/08 14:43 / 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	06/17/08 14:50 / srm
Conductivity, sat. paste	3.52	mmhos/cm		0.01		ASA10-3	06/18/08 14:43 / srm
Saturation	74.1	%		0.1		USDA27a	06/18/08 14:43 / srm
Calcium, sat. paste	25.2	meq/L		0.05		SW6010B	06/18/08 22:52 / rlh
Magnesium, sat. paste	16.9	meq/L		0.08		SW6010B	06/18/08 22:52 / rlh
Sodium, sat. paste	8.00	meq/L		0.04		SW6010B	06/18/08 22:52 / rlh
Sodium Adsorption Ratio (SAR)	1.75	unitless		0.01		Calculation	06/19/08 14:48 / srm
CHEMICAL CHARACTERISTICS							
Lime as CaCO ₃	4.4	%		0.1		USDA23c	06/17/08 14:50 / srm
EXCHANGEABLES							
Cation Exchange Capacity	27.3	meq/100g	D	0.08		SW6010B	06/17/08 23:47 / rlh
Exchangeable Sodium Percentage	2.10	%		0.01		USDA20a	06/19/08 14:48 / srm
METALS, AMMONIUM ACETATE EXTRACTABLE							
Sodium, extractable	1.2	meq/100g	D	0.00039		SW6010B	06/11/08 06:08 / 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.