



LABORATORY ANALYTICAL REPORT

Client: Marathon Ashland Pipeline
Project: PDC AMPP
Lab ID: B08060409-001
Client Sample ID: PA, 0-2 Inches

Report Date: 07/24/08
Collection Date: 06/02/08 09:30
Date Received: 06/04/08
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Sand	11	%		1		ASA15-5	06/18/08 14:43 / srm
Silt	57	%		1		ASA15-5	06/18/08 14:43 / srm
Clay	32	%		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	7.40	s.u.		0.10		ASAM10-3.2	06/17/08 14:50 / srm
Conductivity, sat. paste	0.77	mmhos/cm		0.01		ASA10-3	06/18/08 14:43 / srm
Saturation	50.7	%		0.1		USDA27a	06/18/08 14:43 / srm
Calcium, sat. paste	4.05	meq/L		0.05		SW6010B	06/18/08 21:18 / rlh
Magnesium, sat. paste	3.05	meq/L		0.08		SW6010B	06/18/08 21:18 / rlh
Sodium, sat. paste	0.58	meq/L		0.04		SW6010B	06/18/08 21:18 / rlh
Sodium Adsorption Ratio (SAR)	0.31	unitless		0.01		Calculation	06/19/08 14:48 / srm
CHEMICAL CHARACTERISTICS							
Lime as CaCO3	3.4	%		0.1		USDA23c	06/17/08 14:50 / srm
EXCHANGEABLES							
Cation Exchange Capacity	29.6	meq/100g	D	0.08		SW6010B	06/17/08 22:12 / rlh
Exchangeable Sodium Percentage	0.29	%		0.01		USDA20a	06/19/08 14:48 / srm
METALS, AMMONIUM ACETATE EXTRACTABLE							
Sodium, extractable	0.12	meq/100g	D	0.00039		SW6010B	06/11/08 04:32 / 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: B08060409-002
Client Sample ID: PA, 0-6 Inches

Report Date: 07/24/08
Collection Date: 06/02/08 09:30
Date Received: 06/04/08
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Sand	13	%		1		ASA15-5	06/18/08 14:43 / srm
Silt	55	%		1		ASA15-5	06/18/08 14:43 / srm
Clay	32	%		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	0.82	mmhos/cm		0.01		ASA10-3	06/18/08 14:43 / srm
Saturation	51.2	%		0.1		USDA27a	06/18/08 14:43 / srm
Calcium, sat. paste	3.81	meq/L		0.05		SW6010B	06/18/08 21:25 / rlh
Magnesium, sat. paste	2.88	meq/L		0.08		SW6010B	06/18/08 21:25 / rlh
Sodium, sat. paste	1.70	meq/L		0.04		SW6010B	06/18/08 21:25 / rlh
Sodium Adsorption Ratio (SAR)	0.93	unitless		0.01		Calculation	06/19/08 14:48 / srm
Sulfate, sat. paste	164	mg/L		1		ASA10-3	06/18/08 17:39 / qed
CHEMICAL CHARACTERISTICS							
Lime as CaCO3	3.5	%		0.1		USDA23c	06/17/08 14:50 / srm
Phosphorus, Olsen	35	mg/kg		1		ASA24-5	06/13/08 13:17 / srm
Nitrate as N, KCL Extract	5	mg/kg		1		ASA33-8	06/13/08 15:09 / srm
Organic Matter	2.84	%		0.02		ASA29-3	06/13/08 14:25 / srm
EXCHANGEABLES							
Cation Exchange Capacity	30.5	meq/100g	D	0.08		SW6010B	06/17/08 22:27 / rlh
Exchangeable Sodium Percentage	0.77	%		0.01		USDA20a	06/19/08 14:48 / srm
METALS, AMMONIUM ACETATE EXTRACTABLE							
Sodium, extractable	0.32	meq/100g	D	0.00039		SW6010B	06/11/08 04:39 / rlh
Potassium, available	168	mg/kg	D	0.13		SW6010B	06/11/08 04:39 / rlh
METALS, DTPA EXTRACTABLE							
Zinc	1.2	mg/kg		0.1		SW6010B	06/13/08 21:51 / 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: B08060409-003
Client Sample ID: PA, 6-12 Inches

Report Date: 07/24/08
Collection Date: 06/02/08 09:30
Date Received: 06/04/08
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Sand	11	%		1		ASA15-5	06/18/08 14:43 / srm
Silt	57	%		1		ASA15-5	06/18/08 14:43 / srm
Clay	32	%		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	7.70	s.u.		0.10		ASAM10-3.2	06/17/08 14:50 / srm
Conductivity, sat. paste	1.14	mmhos/cm		0.01		ASA10-3	06/18/08 14:43 / srm
Saturation	50.5	%		0.1		USDA27a	06/18/08 14:43 / srm
Calcium, sat. paste	4.94	meq/L		0.05		SW6010B	06/18/08 21:37 / rlh
Magnesium, sat. paste	3.66	meq/L		0.08		SW6010B	06/18/08 21:37 / rlh
Sodium, sat. paste	3.21	meq/L		0.04		SW6010B	06/18/08 21:37 / rlh
Sodium Adsorption Ratio (SAR)	1.55	unitless		0.01		Calculation	06/19/08 14:48 / srm
Sulfate, sat. paste	403	mg/L	D	5		ASA10-3	06/18/08 17:51 / qed
CHEMICAL CHARACTERISTICS							
Lime as CaCO3	3.7	%		0.1		USDA23c	06/17/08 14:50 / srm
Nitrate as N, KCL Extract	3	mg/kg		1		ASA33-8	06/13/08 15:10 / srm
EXCHANGEABLES							
Cation Exchange Capacity	29.8	meq/100g	D	0.08		SW6010B	06/17/08 22:35 / rlh
Exchangeable Sodium Percentage	1.31	%		0.01		USDA20a	06/19/08 14:48 / srm
METALS, AMMONIUM ACETATE EXTRACTABLE							
Sodium, extractable	0.55	meq/100g	D	0.00039		SW6010B	06/11/08 04:47 / 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: B08060409-004
Client Sample ID: PA, 12-24 Inches

Report Date: 07/24/08
Collection Date: 06/02/08 09:30
Date Received: 06/04/08
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Sand	11	%		1		ASA15-5	06/18/08 14:43 / srm
Silt	57	%		1		ASA15-5	06/18/08 14:43 / srm
Clay	32	%		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	7.80	s.u.		0.10		ASAM10-3.2	06/17/08 14:50 / srm
Conductivity, sat. paste	1.73	mmhos/cm		0.01		ASA10-3	06/18/08 14:43 / srm
Saturation	48.8	%		0.1		USDA27a	06/18/08 14:43 / srm
Calcium, sat. paste	8.06	meq/L		0.05		SW6010B	06/18/08 21:40 / rlh
Magnesium, sat. paste	6.50	meq/L		0.08		SW6010B	06/18/08 21:40 / rlh
Sodium, sat. paste	5.00	meq/L		0.04		SW6010B	06/18/08 21:40 / rlh
Sodium Adsorption Ratio (SAR)	1.85	unitless		0.01		Calculation	06/19/08 14:48 / srm
Sulfate, sat. paste	848	mg/L	D	5		ASA10-3	06/18/08 18:02 / qed
CHEMICAL CHARACTERISTICS							
Lime as CaCO3	4.3	%		0.1		USDA23c	06/17/08 14:50 / srm
Nitrate as N, KCL Extract	2	mg/kg		1		ASA33-8	06/13/08 15:11 / srm
EXCHANGEABLES							
Cation Exchange Capacity	28.1	meq/100g	D	0.08		SW6010B	06/17/08 22:39 / rlh
Exchangeable Sodium Percentage	1.62	%		0.01		USDA20a	06/19/08 14:48 / srm
METALS, AMMONIUM ACETATE EXTRACTABLE							
Sodium, extractable	0.70	meq/100g	D	0.00039		SW6010B	06/11/08 04:51 / 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: B08060409-005
Client Sample ID: PA, 24-36 Inches

Report Date: 07/24/08
Collection Date: 06/02/08 09:30
Date Received: 06/04/08
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Sand	13	%		1		ASA15-5	06/18/08 14:43 / srm
Silt	53	%		1		ASA15-5	06/18/08 14:43 / srm
Clay	34	%		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	7.90	s.u.		0.10		ASAM10-3.2	06/17/08 14:50 / srm
Conductivity, sat. paste	2.50	mmhos/cm		0.01		ASA10-3	06/18/08 14:43 / srm
Saturation	48.1	%		0.1		USDA27a	06/18/08 14:43 / srm
Calcium, sat. paste	12.1	meq/L		0.05		SW6010B	06/18/08 21:44 / rlh
Magnesium, sat. paste	11.4	meq/L		0.08		SW6010B	06/18/08 21:44 / rlh
Sodium, sat. paste	7.84	meq/L		0.04		SW6010B	06/18/08 21:44 / rlh
Sodium Adsorption Ratio (SAR)	2.29	unitless		0.01		Calculation	06/19/08 14:48 / srm
CHEMICAL CHARACTERISTICS							
Lime as CaCO3	5.3	%		0.1		USDA23c	06/17/08 14:50 / srm
EXCHANGEABLES							
Cation Exchange Capacity	26.0	meq/100g	D	0.08		SW6010B	06/17/08 22:43 / rlh
Exchangeable Sodium Percentage	1.98	%		0.01		USDA20a	06/19/08 14:48 / srm
METALS, AMMONIUM ACETATE EXTRACTABLE							
Sodium, extractable	0.89	meq/100g	D	0.00039		SW6010B	06/11/08 04:55 / 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: B08060409-006
Client Sample ID: PA, 36-48 Inches

Report Date: 07/24/08
Collection Date: 06/02/08 09:30
Date Received: 06/04/08
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Sand	14	%		1		ASA15-5	06/18/08 14:43 / srm
Silt	55	%		1		ASA15-5	06/18/08 14:43 / srm
Clay	31	%		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	7.80	s.u.		0.10		ASAM10-3.2	06/17/08 14:50 / srm
Conductivity, sat. paste	3.99	mmhos/cm		0.01		ASA10-3	06/18/08 14:43 / srm
Saturation	46.1	%		0.1		USDA27a	06/18/08 14:43 / srm
Calcium, sat. paste	25.0	meq/L		0.05		SW6010B	06/18/08 21:52 / rlh
Magnesium, sat. paste	24.7	meq/L		0.08		SW6010B	06/18/08 21:52 / rlh
Sodium, sat. paste	10.4	meq/L		0.04		SW6010B	06/18/08 21:52 / rlh
Sodium Adsorption Ratio (SAR)	2.08	unitless		0.01		Calculation	06/19/08 14:48 / srm
CHEMICAL CHARACTERISTICS							
Lime as CaCO3	5.8	%		0.1		USDA23c	06/17/08 14:50 / srm
EXCHANGEABLES							
Cation Exchange Capacity	25.4	meq/100g	D	0.08		SW6010B	06/17/08 22:46 / rlh
Exchangeable Sodium Percentage	1.85	%		0.01		USDA20a	06/19/08 14:48 / srm
METALS, AMMONIUM ACETATE EXTRACTABLE							
Sodium, extractable	0.95	meq/100g	D	0.00039		SW6010B	06/11/08 04:58 / 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: B08060409-007
Client Sample ID: PA, 48-60 Inches

Report Date: 07/24/08
Collection Date: 06/02/08 09:30
Date Received: 06/04/08
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Sand	25	%		1		ASA15-5	06/18/08 14:43 / srm
Silt	47	%		1		ASA15-5	06/18/08 14:43 / srm
Clay	28	%		1		ASA15-5	06/18/08 14:43 / srm
Texture	CL					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	3.93	mmhos/cm		0.01		ASA10-3	06/18/08 14:43 / srm
Saturation	42.0	%		0.1		USDA27a	06/18/08 14:43 / srm
Calcium, sat. paste	24.3	meq/L		0.05		SW6010B	06/18/08 21:55 / rlh
Magnesium, sat. paste	23.3	meq/L		0.08		SW6010B	06/18/08 21:55 / rlh
Sodium, sat. paste	10.4	meq/L		0.04		SW6010B	06/18/08 21:55 / rlh
Sodium Adsorption Ratio (SAR)	2.12	unitless		0.01		Calculation	06/19/08 14:48 / srm
CHEMICAL CHARACTERISTICS							
Lime as CaCO3	5.5	%		0.1		USDA23c	06/17/08 14:50 / srm
EXCHANGEABLES							
Cation Exchange Capacity	21.7	meq/100g	D	0.08		SW6010B	06/17/08 22:50 / rlh
Exchangeable Sodium Percentage	1.95	%		0.01		USDA20a	06/19/08 14:48 / srm
METALS, AMMONIUM ACETATE EXTRACTABLE							
Sodium, extractable	0.86	meq/100g	D	0.00039		SW6010B	06/11/08 05:02 / 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: B08060409-008
Client Sample ID: PA, 60-72 Inches

Report Date: 07/24/08
Collection Date: 06/02/08 09:30
Date Received: 06/04/08
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Sand	21	%		1		ASA15-5	06/18/08 14:43 / srm
Silt	47	%		1		ASA15-5	06/18/08 14:43 / srm
Clay	32	%		1		ASA15-5	06/18/08 14:43 / srm
Texture	CL					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	4.22	mmhos/cm		0.01		ASA10-3	06/18/08 14:43 / srm
Saturation	51.3	%		0.1		USDA27a	06/18/08 14:43 / srm
Calcium, sat. paste	27.2	meq/L		0.05		SW6010B	06/18/08 21:59 / rlh
Magnesium, sat. paste	25.7	meq/L		0.08		SW6010B	06/18/08 21:59 / rlh
Sodium, sat. paste	11.7	meq/L		0.04		SW6010B	06/18/08 21:59 / rlh
Sodium Adsorption Ratio (SAR)	2.27	unitless		0.01		Calculation	06/19/08 14:48 / srm
CHEMICAL CHARACTERISTICS							
Lime as CaCO3	5.3	%		0.1		USDA23c	06/17/08 14:50 / srm
EXCHANGEABLES							
Cation Exchange Capacity	24.2	meq/100g	D	0.08		SW6010B	06/17/08 22:54 / rlh
Exchangeable Sodium Percentage	1.44	%		0.01		USDA20a	06/19/08 14:48 / srm
METALS, AMMONIUM ACETATE EXTRACTABLE							
Sodium, extractable	0.95	meq/100g	D	0.00039		SW6010B	06/11/08 05:14 / 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: B08060409-009
Client Sample ID: PA, 72-96 Inches

Report Date: 07/24/08
Collection Date: 06/02/08 09:30
Date Received: 06/04/08
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Sand	14	%		1		ASA15-5	06/18/08 14:43 / srm
Silt	51	%		1		ASA15-5	06/18/08 14:43 / srm
Clay	35	%		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	7.80	s.u.		0.10		ASAM10-3.2	06/17/08 14:50 / srm
Conductivity, sat. paste	3.75	mmhos/cm		0.01		ASA10-3	06/18/08 14:43 / srm
Saturation	49.9	%		0.1		USDA27a	06/18/08 14:43 / srm
Calcium, sat. paste	24.0	meq/L		0.05		SW6010B	06/18/08 22:03 / rlh
Magnesium, sat. paste	19.2	meq/L		0.08		SW6010B	06/18/08 22:03 / rlh
Sodium, sat. paste	10.3	meq/L		0.04		SW6010B	06/18/08 22:03 / rlh
Sodium Adsorption Ratio (SAR)	2.21	unitless		0.01		Calculation	06/19/08 14:48 / srm
CHEMICAL CHARACTERISTICS							
Lime as CaCO3	5.3	%		0.1		USDA23c	06/17/08 14:50 / srm
EXCHANGEABLES							
Cation Exchange Capacity	25.2	meq/100g	D	0.08		SW6010B	06/17/08 22:58 / rlh
Exchangeable Sodium Percentage	2.17	%		0.01		USDA20a	06/19/08 14:48 / srm
METALS, AMMONIUM ACETATE EXTRACTABLE							
Sodium, extractable	1.1	meq/100g	D	0.00039		SW6010B	06/11/08 05:18 / 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.