



LABORATORY ANALYTICAL REPORT

Client: Marathon Ashland Pipeline
Site Name: PDC AMPP

Report Date: 01/15/10

Lab ID: B09121816-001
Client Sample ID: PH, 0-2 inches
Matrix: Soil

Collection Date: 12/23/09
Date Received: 12/23/09

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Sand	19	%		1		ASA15-5	01/08/10 16:56 / srm
Silt	46	%		1		ASA15-5	01/08/10 16:56 / srm
Clay	35	%		1		ASA15-5	01/08/10 16:56 / srm
Texture	SiCL					ASA15-5	01/08/10 16:56 / 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	01/13/10 08:41 / srm
Conductivity, sat. paste	1.35	mmhos/cm		0.01		ASA10-3	01/13/10 08:41 / srm
Saturation	85.6	%		0.1		USDA27a	01/13/10 08:41 / srm
Calcium, sat. paste	7.89	meq/L		0.05		SW6010B	01/13/10 18:38 / tao
Magnesium, sat. paste	6.74	meq/L		0.08		SW6010B	01/13/10 18:38 / tao
Sodium, sat. paste	1.12	meq/L		0.04		SW6010B	01/13/10 18:38 / tao
Sodium Adsorption Ratio (SAR)	0.41	unitless		0.01		Calculation	01/14/10 10:32 / srm
CHEMICAL CHARACTERISTICS							
Lime as CaCO3	1.3	%		0.1		USDA23c	01/11/10 15:10 / srm
EXCHANGEABLES							
Cation Exchange Capacity	39.5	meq/100g	D	0.1		SW6010B	01/14/10 20:03 / tao
Exchangeable Sodium Percentage	0.24	%		0.01		USDA20a	01/15/10 11:28 / srm
METALS, AMMONIUM ACETATE EXTRACTABLE							
Sodium, extractable	0.19	meq/100g	D	0.0029		SW6010B	01/04/10 22:13 / tao

Report RL - Analyte reporting limit.

Definitions: 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
 Site Name: PDC AMPP

Report Date: 01/15/10

Lab ID: B09121816-002
 Client Sample ID: PH, 0-6 inches
 Matrix: Soil

Collection Date: 12/23/09
 Date Received: 12/23/09

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Sand	30	%		1		ASA15-5	01/08/10 16:56 / srm
Silt	35	%		1		ASA15-5	01/08/10 16:56 / srm
Clay	35	%		1		ASA15-5	01/08/10 16:56 / srm
Texture	CL					ASA15-5	01/08/10 16:56 / srm
- C = Clay, S = Sand(y), Si = Silt(y), L = Loam(y)							
SATURATED PASTE							
pH, sat. paste	6.60	s.u.		0.10		ASAM10-3.2	01/13/10 08:41 / srm
Conductivity, sat. paste	0.73	mmhos/cm		0.01		ASA10-3	01/13/10 08:41 / srm
Saturation	76.0	%		0.1		USDA27a	01/13/10 08:41 / srm
Calcium, sat. paste	4.66	meq/L		0.05		SW6010B	01/13/10 18:42 / tao
Magnesium, sat. paste	3.22	meq/L		0.08		SW6010B	01/13/10 18:42 / tao
Sodium, sat. paste	0.64	meq/L		0.04		SW6010B	01/13/10 18:42 / tao
Sodium Adsorption Ratio (SAR)	0.32	unitless		0.01		Calculation	01/14/10 10:32 / srm
Sulfate, sat. paste	39	mg/L		1		ASA10-3	01/13/10 15:43 / kh
CHEMICAL CHARACTERISTICS							
Lime as CaCO3	1.0	%		0.1		USDA23c	01/11/10 15:10 / srm
Phosphorus, Olsen	6	mg/kg		1		ASA24-5	01/08/10 10:27 / srm
Nitrate as N, KCL Extract	7	mg/kg		1		ASA33-8	12/31/09 14:22 / srm
Organic Matter	4.97	%		0.02		ASA29-3	01/07/10 16:08 / srm
EXCHANGEABLES							
Cation Exchange Capacity	39.6	meq/100g	D	0.1		SW6010B	01/14/10 20:11 / tao
Exchangeable Sodium Percentage	0.15	%		0.01		USDA20a	01/15/10 11:28 / srm
METALS, AMMONIUM ACETATE EXTRACTABLE							
Sodium, extractable	0.11	meq/100g	D	0.0029		SW6010B	01/04/10 22:17 / tao
Potassium, available	232	mg/kg	D	0.11		SW6010B	01/04/10 22:17 / tao
METALS, DTPA EXTRACTABLE							
Zinc	0.7	mg/kg		0.1		SW6010B	01/07/10 16:44 / tao

Report Definitions: RL - Analyte reporting limit.
 QCL - Quality control limit.

MCL - Maximum contaminant level.
 ND - Not detected at the reporting limit.

D - RL increased due to sample matrix interference.



LABORATORY ANALYTICAL REPORT

Client: Marathon Ashland Pipeline
Site Name: PDC AMPP

Report Date: 01/15/10

Lab ID: B09121816-003
Client Sample ID: PH, 6-12 inches
Matrix: Soil

Collection Date: 12/23/09
Date Received: 12/23/09

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Sand	21	%		1		ASA15-5	01/08/10 16:56 / srm
Silt	44	%		1		ASA15-5	01/08/10 16:56 / srm
Clay	35	%		1		ASA15-5	01/08/10 16:56 / srm
Texture	CL					ASA15-5	01/08/10 16:56 / 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	01/13/10 08:41 / srm
Conductivity, sat. paste	0.92	mmhos/cm		0.01		ASA10-3	01/13/10 08:41 / srm
Saturation	66.1	%		0.1		USDA27a	01/13/10 08:41 / srm
Calcium, sat. paste	4.63	meq/L		0.05		SW6010B	01/13/10 19:17 / tao
Magnesium, sat. paste	4.23	meq/L		0.08		SW6010B	01/13/10 19:17 / tao
Sodium, sat. paste	1.62	meq/L		0.04		SW6010B	01/13/10 19:17 / tao
Sodium Adsorption Ratio (SAR)	0.77	unitless		0.01		Calculation	01/14/10 10:32 / srm
Sulfate, sat. paste	267	mg/L		1		ASA10-3	01/13/10 15:54 / kh
CHEMICAL CHARACTERISTICS							
Lime as CaCO3	1.3	%		0.1		USDA23c	01/11/10 15:10 / srm
Nitrate as N, KCL Extract	7	mg/kg		1		ASA33-8	12/31/09 14:23 / srm
EXCHANGEABLES							
Cation Exchange Capacity	30.8	meq/100g	D	0.1		SW6010B	01/14/10 20:15 / tao
Exchangeable Sodium Percentage	0.58	%		0.01		USDA20a	01/15/10 11:28 / srm
METALS, AMMONIUM ACETATE EXTRACTABLE							
Sodium, extractable	0.28	meq/100g	D	0.0029		SW6010B	01/04/10 22:21 / tao

Report RL - Analyte reporting limit.

Definitions: 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
 Site Name: PDC AMPP

Report Date: 01/15/10

Lab ID: B09121816-004
 Client Sample ID: PH, 12-24 inches
 Matrix: Soil

Collection Date: 12/23/09
 Date Received: 12/23/09

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Sand	20	%		1		ASA15-5	01/08/10 16:56 / srm
Silt	49	%		1		ASA15-5	01/08/10 16:56 / srm
Clay	31	%		1		ASA15-5	01/08/10 16:56 / srm
Texture	SiCL					ASA15-5	01/08/10 16:56 / 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	01/13/10 08:41 / srm
Conductivity, sat. paste	1.59	mmhos/cm		0.01		ASA10-3	01/13/10 08:41 / srm
Saturation	57.1	%		0.1		USDA27a	01/13/10 08:41 / srm
Calcium, sat. paste	7.96	meq/L		0.05		SW6010B	01/13/10 19:21 / tao
Magnesium, sat. paste	6.52	meq/L		0.08		SW6010B	01/13/10 19:21 / tao
Sodium, sat. paste	5.10	meq/L		0.04		SW6010B	01/13/10 19:21 / tao
Sodium Adsorption Ratio (SAR)	1.89	unitless		0.01		Calculation	01/14/10 10:32 / srm
Sulfate, sat. paste	776	mg/L		1		ASA10-3	01/13/10 16:06 / kh
CHEMICAL CHARACTERISTICS							
Lime as CaCO3	4.3	%		0.1		USDA23c	01/11/10 15:10 / srm
Nitrate as N, KCL Extract	3	mg/kg		1		ASA33-8	12/31/09 14:24 / srm
EXCHANGEABLES							
Cation Exchange Capacity	28.9	meq/100g	D	0.1		SW6010B	01/14/10 20:19 / tao
Exchangeable Sodium Percentage	1.24	%		0.01		USDA20a	01/15/10 11:28 / srm
METALS, AMMONIUM ACETATE EXTRACTABLE							
Sodium, extractable	0.65	meq/100g	D	0.0029		SW6010B	01/04/10 22:25 / tao

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
 Site Name: PDC AMPP

Report Date: 01/15/10

Lab ID: B09121816-005
 Client Sample ID: PH, 24-36 inches
 Matrix: Soil

Collection Date: 12/23/09
 Date Received: 12/23/09

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Sand	19	%		1		ASA15-5	01/08/10 16:56 / srm
Silt	46	%		1		ASA15-5	01/08/10 16:56 / srm
Clay	35	%		1		ASA15-5	01/08/10 16:56 / srm
Texture	SiCL					ASA15-5	01/08/10 16:56 / 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	01/13/10 08:41 / srm
Conductivity, sat. paste	4.11	mmhos/cm		0.01		ASA10-3	01/13/10 08:41 / srm
Saturation	63.6	%		0.1		USDA27a	01/13/10 08:41 / srm
Calcium, sat. paste	24.4	meq/L		0.05		SW6010B	01/13/10 19:25 / tao
Magnesium, sat. paste	34.3	meq/L		0.08		SW6010B	01/13/10 19:25 / tao
Sodium, sat. paste	9.61	meq/L	D	0.07		SW6010B	01/13/10 19:25 / tao
Sodium Adsorption Ratio (SAR)	1.77	unitless		0.01		Calculation	01/14/10 10:32 / srm
CHEMICAL CHARACTERISTICS							
Lime as CaCO3	7.2	%		0.1		USDA23c	01/11/10 15:10 / srm
EXCHANGEABLES							
Cation Exchange Capacity	22.6	meq/100g	D	0.1		SW6010B	01/14/10 20:30 / tao
Exchangeable Sodium Percentage	1.10	%		0.01		USDA20a	01/15/10 11:28 / srm
METALS, AMMONIUM ACETATE EXTRACTABLE							
Sodium, extractable	0.86	meq/100g	D	0.0029		SW6010B	01/04/10 22:29 / tao

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
Site Name: PDC AMPP

Report Date: 01/15/10

Lab ID: B09121816-006
Client Sample ID: PH, 36-48 inches
Matrix: Soil

Collection Date: 12/23/09
Date Received: 12/23/09

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Sand	24	%		1		ASA15-5	01/08/10 16:56 / srm
Silt	39	%		1		ASA15-5	01/08/10 16:56 / srm
Clay	37	%		1		ASA15-5	01/08/10 16:56 / srm
Texture	CL					ASA15-5	01/08/10 16:56 / 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	01/13/10 08:41 / srm
Conductivity, sat. paste	0.69	mmhos/cm		0.01		ASA10-3	01/13/10 08:41 / srm
Saturation	61.9	%		0.1		USDA27a	01/13/10 08:41 / srm
Calcium, sat. paste	3.75	meq/L		0.05		SW6010B	01/13/10 19:29 / tao
Magnesium, sat. paste	2.79	meq/L		0.08		SW6010B	01/13/10 19:29 / tao
Sodium, sat. paste	1.08	meq/L		0.04		SW6010B	01/13/10 19:29 / tao
Sodium Adsorption Ratio (SAR)	0.60	unitless		0.01		Calculation	01/14/10 10:32 / srm
CHEMICAL CHARACTERISTICS							
Lime as CaCO3	5.7	%		0.1		USDA23c	01/11/10 15:10 / srm
EXCHANGEABLES							
Cation Exchange Capacity	38.0	meq/100g	D	0.1		SW6010B	01/14/10 20:34 / tao
Exchangeable Sodium Percentage	0.30	%		0.01		USDA20a	01/15/10 11:28 / srm
METALS, AMMONIUM ACETATE EXTRACTABLE							
Sodium, extractable	0.18	meq/100g	D	0.0029		SW6010B	01/04/10 22:32 / tao

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
 Site Name: PDC AMPP

Report Date: 01/15/10

Lab ID: B09121816-007
 Client Sample ID: PH, 48-60 inches
 Matrix: Soil

Collection Date: 12/23/09
 Date Received: 12/23/09

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Sand	4	%		1		ASA15-5	01/08/10 16:56 / srm
Silt	54	%		1		ASA15-5	01/08/10 16:56 / srm
Clay	42	%		1		ASA15-5	01/08/10 16:56 / srm
Texture	SiC					ASA15-5	01/08/10 16:56 / 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	01/13/10 08:41 / srm
Conductivity, sat. paste	3.20	mmhos/cm		0.01		ASA10-3	01/13/10 08:41 / srm
Saturation	66.3	%		0.1		USDA27a	01/13/10 08:41 / srm
Calcium, sat. paste	27.7	meq/L		0.05		SW6010B	01/13/10 19:33 / tao
Magnesium, sat. paste	20.6	meq/L		0.08		SW6010B	01/13/10 19:33 / tao
Sodium, sat. paste	3.30	meq/L	D	0.07		SW6010B	01/13/10 19:33 / tao
Sodium Adsorption Ratio (SAR)	0.67	unitless		0.01		Calculation	01/14/10 10:32 / srm
CHEMICAL CHARACTERISTICS							
Lime as CaCO3	3.7	%		0.1		USDA23c	01/14/10 07:10 / srm
EXCHANGEABLES							
Cation Exchange Capacity	32.4	meq/100g	D	0.1		SW6010B	01/14/10 20:38 / tao
Exchangeable Sodium Percentage	0.40	%		0.01		USDA20a	01/15/10 11:28 / srm
METALS, AMMONIUM ACETATE EXTRACTABLE							
Sodium, extractable	0.35	meq/100g	D	0.0029		SW6010B	01/04/10 22:36 / tao

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
 Site Name: PDC AMPP

Report Date: 01/15/10

Lab ID: B09121816-008
 Client Sample ID: PH, 60-72 inches
 Matrix: Soil

Collection Date: 12/23/09
 Date Received: 12/23/09

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Sand	20	%		1		ASA15-5	01/08/10 16:56 / srm
Silt	42	%		1		ASA15-5	01/08/10 16:56 / srm
Clay	38	%		1		ASA15-5	01/08/10 16:56 / srm
Texture	SiCL					ASA15-5	01/08/10 16:56 / 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	01/13/10 08:41 / srm
Conductivity, sat. paste	3.00	mmhos/cm		0.01		ASA10-3	01/13/10 08:41 / srm
Saturation	70.5	%		0.1		USDA27a	01/13/10 08:41 / srm
Calcium, sat. paste	27.7	meq/L		0.05		SW6010B	01/13/10 19:36 / tao
Magnesium, sat. paste	17.2	meq/L		0.08		SW6010B	01/13/10 19:36 / tao
Sodium, sat. paste	2.64	meq/L	D	0.07		SW6010B	01/13/10 19:36 / tao
Sodium Adsorption Ratio (SAR)	0.56	unitless		0.01		Calculation	01/14/10 10:32 / srm
CHEMICAL CHARACTERISTICS							
Lime as CaCO3	10.6	%		0.1		USDA23c	01/14/10 07:10 / srm
EXCHANGEABLES							
Cation Exchange Capacity	27.6	meq/100g	D	0.1		SW6010B	01/14/10 20:41 / tao
Exchangeable Sodium Percentage	0.26	%		0.01		USDA20a	01/15/10 11:28 / srm
METALS, AMMONIUM ACETATE EXTRACTABLE							
Sodium, extractable	0.26	meq/100g	D	0.0029		SW6010B	01/04/10 22:40 / tao

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
 Site Name: PDC AMPP

Report Date: 01/15/10

Lab ID: B09121816-009
 Client Sample ID: PH, 72-96 inches
 Matrix: Soil

Collection Date: 12/23/09
 Date Received: 12/23/09

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Sand	36	%		1		ASA15-5	01/08/10 16:56 / srm
Silt	34	%		1		ASA15-5	01/08/10 16:56 / srm
Clay	30	%		1		ASA15-5	01/08/10 16:56 / srm
Texture	CL					ASA15-5	01/08/10 16:56 / 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	01/13/10 08:41 / srm
Conductivity, sat. paste	2.63	mmhos/cm		0.01		ASA10-3	01/13/10 08:41 / srm
Saturation	51.6	%		0.1		USDA27a	01/13/10 08:41 / srm
Calcium, sat. paste	25.1	meq/L		0.05		SW6010B	01/13/10 19:44 / tao
Magnesium, sat. paste	12.6	meq/L		0.08		SW6010B	01/13/10 19:44 / tao
Sodium, sat. paste	1.65	meq/L	D	0.07		SW6010B	01/13/10 19:44 / tao
Sodium Adsorption Ratio (SAR)	0.38	unitless		0.01		Calculation	01/14/10 10:32 / srm
CHEMICAL CHARACTERISTICS							
Lime as CaCO3	4.4	%		0.1		USDA23c	01/14/10 07:10 / srm
EXCHANGEABLES							
Cation Exchange Capacity	31.4	meq/100g	D	0.1		SW6010B	01/14/10 20:45 / tao
Exchangeable Sodium Percentage	0.33	%		0.01		USDA20a	01/15/10 11:28 / srm
METALS, AMMONIUM ACETATE EXTRACTABLE							
Sodium, extractable	0.14	meq/100g	D	0.0029		SW6010B	01/04/10 22:48 / tao

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.