



LABORATORY ANALYTICAL REPORT

Client: Marathon Ashland Pipeline
 Site Name: PDC AMPP

Report Date: 01/15/10

Lab ID: B09121815-001
 Client Sample ID: WD, 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	22	%		1		ASA15-5	01/08/10 16:56 / srm
Silt	52	%		1		ASA15-5	01/08/10 16:56 / srm
Clay	26	%		1		ASA15-5	01/08/10 16:56 / srm
Texture	SiL					ASA15-5	01/08/10 16:56 / srm
- C = Clay, S = Sand(y), Si = Silt(y), L = Loam(y)							
SATURATED PASTE							
pH, sat. paste	5.20	s.u.		0.10		ASAM10-3.2	01/13/10 08:41 / srm
Conductivity, sat. paste	3.07	mmhos/cm		0.01		ASA10-3	01/13/10 08:41 / srm
Saturation	64.5	%		0.1		USDA27a	01/13/10 08:41 / srm
Calcium, sat. paste	25.9	meq/L		0.05		SW6010B	01/13/10 17:48 / tao
Magnesium, sat. paste	15.9	meq/L		0.08		SW6010B	01/13/10 17:48 / tao
Sodium, sat. paste	0.69	meq/L	D	0.07		SW6010B	01/13/10 17:48 / tao
Sodium Adsorption Ratio (SAR)	0.15	unitless		0.01		Calculation	01/14/10 10:32 / srm
CHEMICAL CHARACTERISTICS							
Lime as CaCO3	0.6	%		0.1		USDA23c	01/11/10 15:10 / srm
EXCHANGEABLES							
Cation Exchange Capacity	28.0	meq/100g	D	0.1		SW6010B	01/13/10 15:50 / tao
Exchangeable Sodium Percentage	0.22	%		0.01		USDA20a	01/14/10 10:32 / srm
METALS, AMMONIUM ACETATE EXTRACTABLE							
Sodium, extractable	0.11	meq/100g	D	0.0029		SW6010B	01/04/10 21:16 / 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: B09121815-002
Client Sample ID: WD, 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	14	%		1		ASA15-5	01/08/10 16:56 / srm
Silt	52	%		1		ASA15-5	01/08/10 16:56 / srm
Clay	34	%		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	1.05	mmhos/cm		0.01		ASA10-3	01/13/10 08:41 / srm
Saturation	67.9	%		0.1		USDA27a	01/13/10 08:41 / srm
Calcium, sat. paste	4.85	meq/L		0.05		SW6010B	01/13/10 17:52 / tao
Magnesium, sat. paste	4.88	meq/L		0.08		SW6010B	01/13/10 17:52 / tao
Sodium, sat. paste	0.70	meq/L		0.04		SW6010B	01/13/10 17:52 / tao
Sodium Adsorption Ratio (SAR)	0.32	unitless		0.01		Calculation	01/14/10 10:32 / srm
Sulfate, sat. paste	461	mg/L		1		ASA10-3	01/13/10 14:44 / kh
CHEMICAL CHARACTERISTICS							
Lime as CaCO3	0.8	%		0.1		USDA23c	01/11/10 15:10 / srm
Phosphorus, Olsen	13	mg/kg		1		ASA24-5	01/08/10 10:26 / srm
Nitrate as N, KCL Extract	2	mg/kg		1		ASA33-8	12/31/09 14:17 / srm
Organic Matter	3.97	%		0.02		ASA29-3	01/07/10 16:08 / srm
EXCHANGEABLES							
Cation Exchange Capacity	29.0	meq/100g	D	0.1		SW6010B	01/13/10 15:54 / tao
Exchangeable Sodium Percentage	0.26	%		0.01		USDA20a	01/14/10 10:32 / srm
METALS, AMMONIUM ACETATE EXTRACTABLE							
Sodium, extractable	0.12	meq/100g	D	0.0029		SW6010B	01/04/10 21:27 / tao
Potassium, available	515	mg/kg	D	0.11		SW6010B	01/04/10 21:27 / tao
METALS, DTPA EXTRACTABLE							
Zinc	0.9	mg/kg		0.1		SW6010B	01/07/10 16:27 / 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: B09121815-003
Client Sample ID: WD, 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	6	%		1		ASA15-5	01/08/10 16:56 / srm
Silt	50	%		1		ASA15-5	01/08/10 16:56 / srm
Clay	44	%		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	1.34	mmhos/cm		0.01		ASA10-3	01/13/10 08:41 / srm
Saturation	78.5	%		0.1		USDA27a	01/13/10 08:41 / srm
Calcium, sat. paste	7.26	meq/L		0.05		SW6010B	01/13/10 17:56 / tao
Magnesium, sat. paste	7.10	meq/L		0.08		SW6010B	01/13/10 17:56 / tao
Sodium, sat. paste	0.89	meq/L		0.04		SW6010B	01/13/10 17:56 / tao
Sodium Adsorption Ratio (SAR)	0.33	unitless		0.01		Calculation	01/14/10 10:32 / srm
Sulfate, sat. paste	577	mg/L		1		ASA10-3	01/13/10 14:56 / kh
CHEMICAL CHARACTERISTICS							
Lime as CaCO3	2.1	%		0.1		USDA23c	01/11/10 15:10 / srm
Nitrate as N, KCL Extract	2	mg/kg		1		ASA33-8	12/31/09 14:20 / srm
EXCHANGEABLES							
Cation Exchange Capacity	30.6	meq/100g	D	0.1		SW6010B	01/13/10 15:57 / tao
Exchangeable Sodium Percentage	0.22	%		0.01		USDA20a	01/14/10 10:32 / srm
METALS, AMMONIUM ACETATE EXTRACTABLE							
Sodium, extractable	0.14	meq/100g	D	0.0029		SW6010B	01/04/10 21:31 / tao

Report RL - Analyte reporting limit.

Definitions: QCL - Quality control limit.

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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: B09121815-004
Client Sample ID: WD, 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	14	%		1		ASA15-5	01/08/10 16:56 / srm
Silt	43	%		1		ASA15-5	01/08/10 16:56 / srm
Clay	43	%		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	2.95	mmhos/cm		0.01		ASA10-3	01/13/10 08:41 / srm
Saturation	73.5	%		0.1		USDA27a	01/13/10 08:41 / srm
Calcium, sat. paste	26.2	meq/L		0.05		SW6010B	01/13/10 18:08 / tao
Magnesium, sat. paste	18.1	meq/L		0.08		SW6010B	01/13/10 18:08 / tao
Sodium, sat. paste	0.94	meq/L	D	0.07		SW6010B	01/13/10 18:08 / tao
Sodium Adsorption Ratio (SAR)	0.20	unitless		0.01		Calculation	01/14/10 10:32 / srm
Sulfate, sat. paste	2120	mg/L	D	5		ASA10-3	01/13/10 15:08 / kh
CHEMICAL CHARACTERISTICS							
Lime as CaCO3	6.7	%		0.1		USDA23c	01/11/10 15:10 / srm
Nitrate as N, KCL Extract	ND	mg/kg		1		ASA33-8	12/31/09 14:22 / srm
EXCHANGEABLES							
Cation Exchange Capacity	24.6	meq/100g	D	0.1		SW6010B	01/13/10 16:01 / tao
Exchangeable Sodium Percentage	0.26	%		0.01		USDA20a	01/14/10 10:32 / srm
METALS, AMMONIUM ACETATE EXTRACTABLE							
Sodium, extractable	0.13	meq/100g	D	0.0029		SW6010B	01/04/10 21:35 / tao

Report RL - Analyte reporting limit.

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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: B09121815-005
 Client Sample ID: WD, 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	12	%		1		ASA15-5	01/08/10 16:56 / srm
Silt	51	%		1		ASA15-5	01/08/10 16:56 / srm
Clay	37	%		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	7.70	s.u.		0.10		ASAM10-3.2	01/13/10 08:41 / srm
Conductivity, sat. paste	4.25	mmhos/cm		0.01		ASA10-3	01/13/10 08:41 / srm
Saturation	68.3	%		0.1		USDA27a	01/13/10 08:41 / srm
Calcium, sat. paste	23.7	meq/L		0.05		SW6010B	01/13/10 18:11 / tao
Magnesium, sat. paste	39.1	meq/L		0.08		SW6010B	01/13/10 18:11 / tao
Sodium, sat. paste	10.4	meq/L	D	0.07		SW6010B	01/13/10 18:11 / tao
Sodium Adsorption Ratio (SAR)	1.86	unitless		0.01		Calculation	01/14/10 10:32 / srm
CHEMICAL CHARACTERISTICS							
Lime as CaCO3	7.6	%		0.1		USDA23c	01/11/10 15:10 / srm
EXCHANGEABLES							
Cation Exchange Capacity	22.9	meq/100g	D	0.1		SW6010B	01/13/10 16:05 / tao
Exchangeable Sodium Percentage	1.09	%		0.01		USDA20a	01/14/10 10:32 / srm
METALS, AMMONIUM ACETATE EXTRACTABLE							
Sodium, extractable	0.96	meq/100g	D	0.0029		SW6010B	01/04/10 21:39 / 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: B09121815-006
Client Sample ID: WD, 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	10	%		1		ASA15-5	01/08/10 16:56 / srm
Silt	49	%		1		ASA15-5	01/08/10 16:56 / srm
Clay	41	%		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	8.10	s.u.		0.10		ASAM10-3.2	01/13/10 08:41 / srm
Conductivity, sat. paste	6.33	mmhos/cm		0.01		ASA10-3	01/13/10 08:41 / srm
Saturation	72.5	%		0.1		USDA27a	01/13/10 08:41 / srm
Calcium, sat. paste	21.6	meq/L	D	0.09		SW6010B	01/13/10 18:15 / tao
Magnesium, sat. paste	78.8	meq/L		0.08		SW6010B	01/13/10 18:15 / tao
Sodium, sat. paste	28.0	meq/L	D	0.1		SW6010B	01/13/10 18:15 / tao
Sodium Adsorption Ratio (SAR)	3.95	unitless		0.01		Calculation	01/14/10 10:32 / srm
CHEMICAL CHARACTERISTICS							
Lime as CaCO3	8.7	%		0.1		USDA23c	01/11/10 15:10 / srm
EXCHANGEABLES							
Cation Exchange Capacity	22.1	meq/100g	D	0.1		SW6010B	01/14/10 19:44 / tao
Exchangeable Sodium Percentage	2.47	%		0.01		USDA20a	01/15/10 11:28 / srm
METALS, AMMONIUM ACETATE EXTRACTABLE							
Sodium, extractable	2.6	meq/100g	D	0.0029		SW6010B	01/04/10 21:43 / 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: B09121815-007
Client Sample ID: WD, 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	11	%		1		ASA15-5	01/08/10 16:56 / srm
Silt	53	%		1		ASA15-5	01/08/10 16:56 / srm
Clay	36	%		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	8.20	s.u.		0.10		ASAM10-3.2	01/13/10 08:41 / srm
Conductivity, sat. paste	7.30	mmhos/cm		0.01		ASA10-3	01/13/10 08:41 / srm
Saturation	71.6	%		0.1		USDA27a	01/13/10 08:41 / srm
Calcium, sat. paste	21.5	meq/L	D	0.09		SW6010B	01/13/10 18:19 / tao
Magnesium, sat. paste	95.4	meq/L		0.08		SW6010B	01/13/10 18:19 / tao
Sodium, sat. paste	40.3	meq/L	D	0.1		SW6010B	01/13/10 18:19 / tao
Sodium Adsorption Ratio (SAR)	5.27	unitless		0.01		Calculation	01/14/10 10:32 / srm
CHEMICAL CHARACTERISTICS							
Lime as CaCO3	7.0	%		0.1		USDA23c	01/11/10 15:10 / srm
EXCHANGEABLES							
Cation Exchange Capacity	20.7	meq/100g	D	0.1		SW6010B	01/14/10 19:48 / tao
Exchangeable Sodium Percentage	1.50	%		0.01		USDA20a	01/15/10 11:28 / srm
METALS, AMMONIUM ACETATE EXTRACTABLE							
Sodium, extractable	3.2	meq/100g	D	0.0029		SW6010B	01/04/10 21:46 / 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: B09121815-008
Client Sample ID: WD, 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	12	%		1		ASA15-5	01/08/10 16:56 / srm
Silt	54	%		1		ASA15-5	01/08/10 16:56 / srm
Clay	34	%		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	8.30	s.u.		0.10		ASAM10-3.2	01/13/10 08:41 / srm
Conductivity, sat. paste	8.04	mmhos/cm		0.01		ASA10-3	01/13/10 08:41 / srm
Saturation	63.8	%		0.1		USDA27a	01/13/10 08:41 / srm
Calcium, sat. paste	21.6	meq/L	D	0.09		SW6010B	01/13/10 18:23 / tao
Magnesium, sat. paste	100	meq/L		0.08		SW6010B	01/13/10 18:23 / tao
Sodium, sat. paste	52.3	meq/L	D	0.1		SW6010B	01/13/10 18:23 / tao
Sodium Adsorption Ratio (SAR)	6.70	unitless		0.01		Calculation	01/14/10 10:32 / srm
CHEMICAL CHARACTERISTICS							
Lime as CaCO3	5.1	%		0.1		USDA23c	01/11/10 15:10 / srm
EXCHANGEABLES							
Cation Exchange Capacity	23.3	meq/100g	D	0.1		SW6010B	01/14/10 19:52 / tao
Exchangeable Sodium Percentage	2.15	%		0.01		USDA20a	01/15/10 11:28 / srm
METALS, AMMONIUM ACETATE EXTRACTABLE							
Sodium, extractable	3.8	meq/100g	D	0.0029		SW6010B	01/04/10 21:50 / 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: B09121815-009
 Client Sample ID: WD, 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	14	%		1		ASA15-5	01/08/10 16:56 / srm
Silt	48	%		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	8.10	s.u.		0.10		ASAM10-3.2	01/13/10 08:41 / srm
Conductivity, sat. paste	7.75	mmhos/cm		0.01		ASA10-3	01/13/10 08:41 / srm
Saturation	65.8	%		0.1		USDA27a	01/13/10 08:41 / srm
Calcium, sat. paste	22.3	meq/L	D	0.09		SW6010B	01/13/10 18:30 / tao
Magnesium, sat. paste	88.3	meq/L		0.08		SW6010B	01/13/10 18:30 / tao
Sodium, sat. paste	51.8	meq/L	D	0.1		SW6010B	01/13/10 18:30 / tao
Sodium Adsorption Ratio (SAR)	6.96	unitless		0.01		Calculation	01/14/10 10:32 / srm
CHEMICAL CHARACTERISTICS							
Lime as CaCO3	5.4	%		0.1		USDA23c	01/11/10 15:10 / srm
EXCHANGEABLES							
Cation Exchange Capacity	24.4	meq/100g	D	0.1		SW6010B	01/14/10 19:56 / tao
Exchangeable Sodium Percentage	2.21	%		0.01		USDA20a	01/15/10 11:28 / srm
METALS, AMMONIUM ACETATE EXTRACTABLE							
Sodium, extractable	3.9	meq/100g	D	0.0029		SW6010B	01/04/10 21:58 / 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.