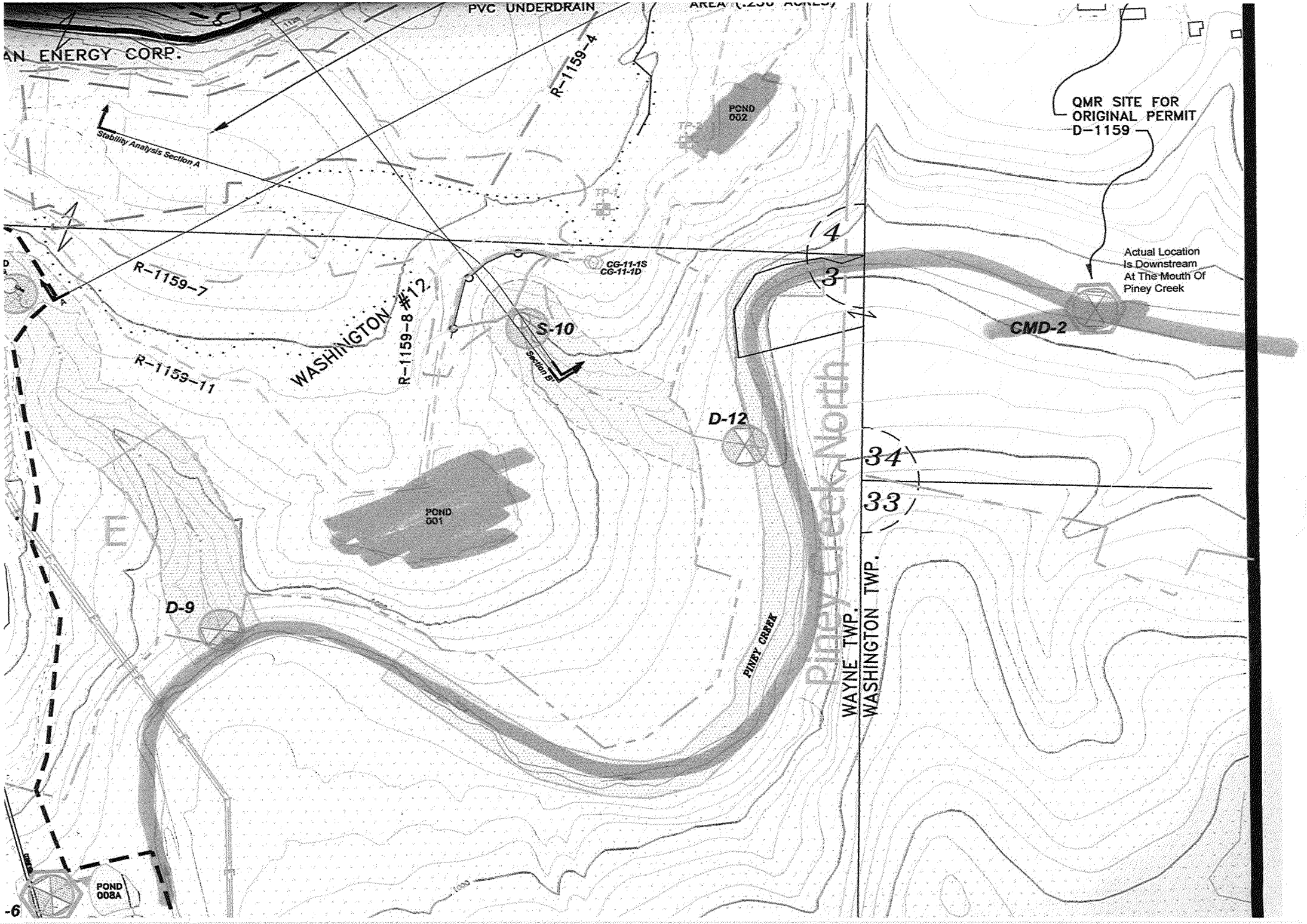


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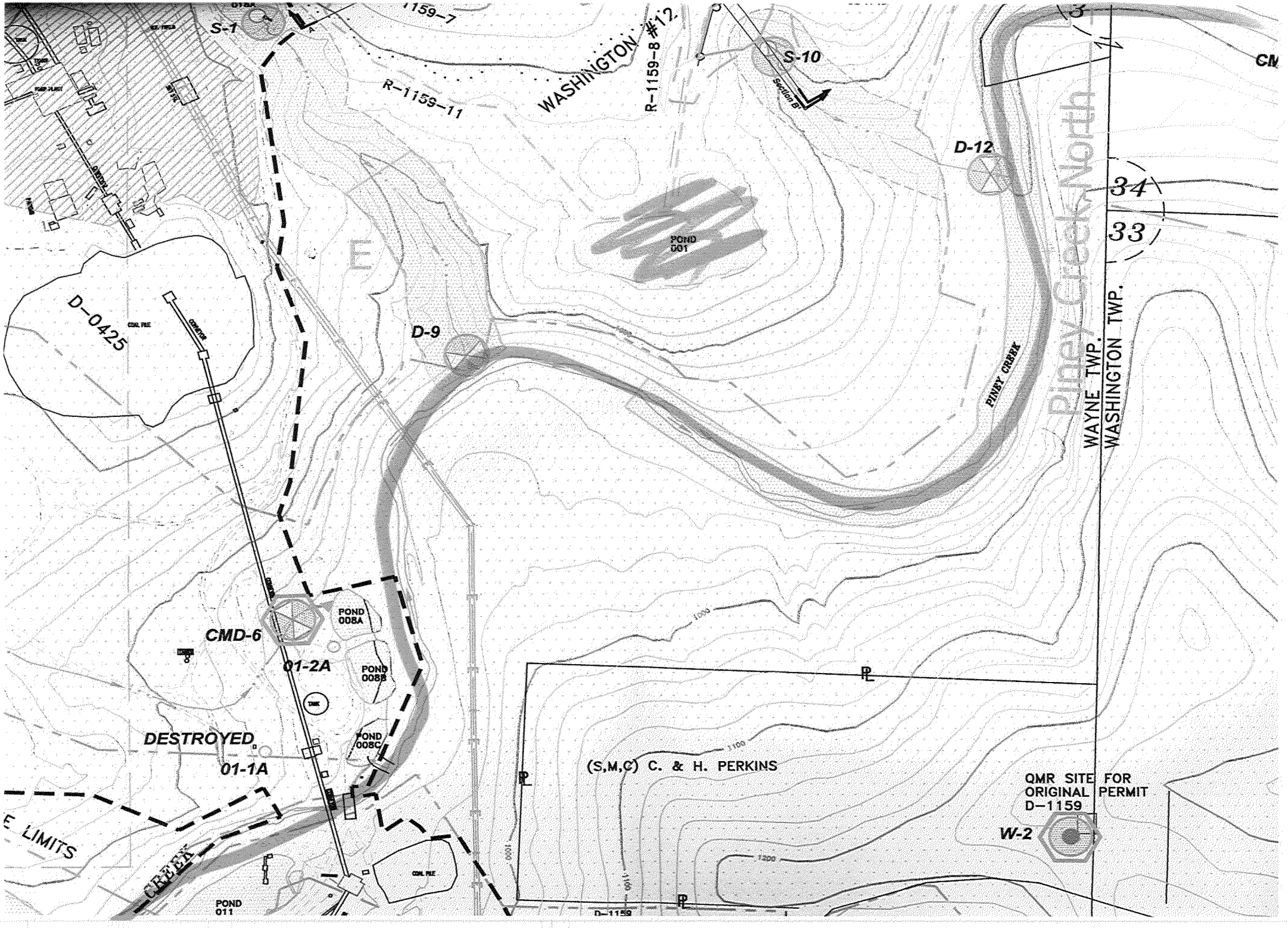


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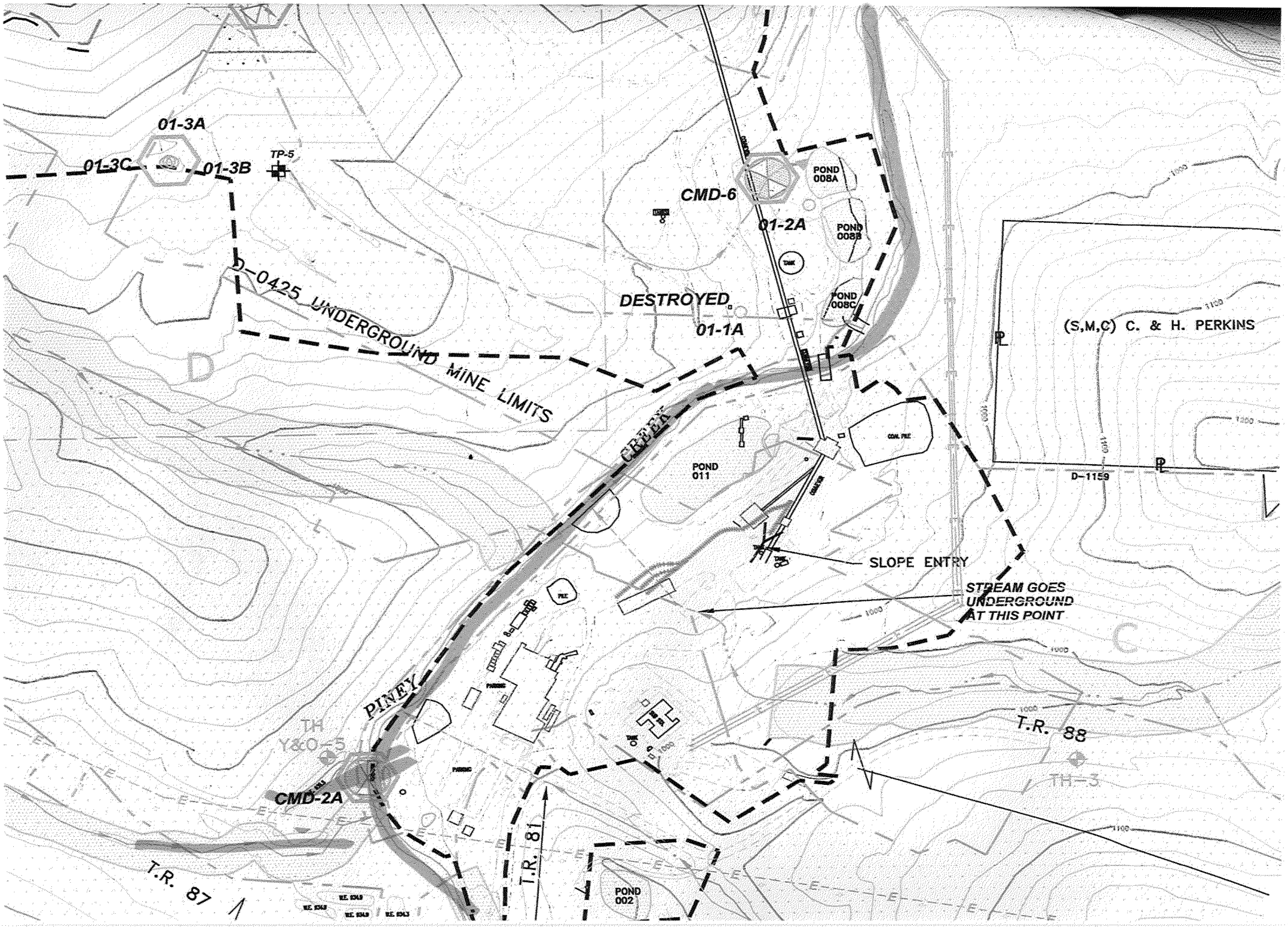


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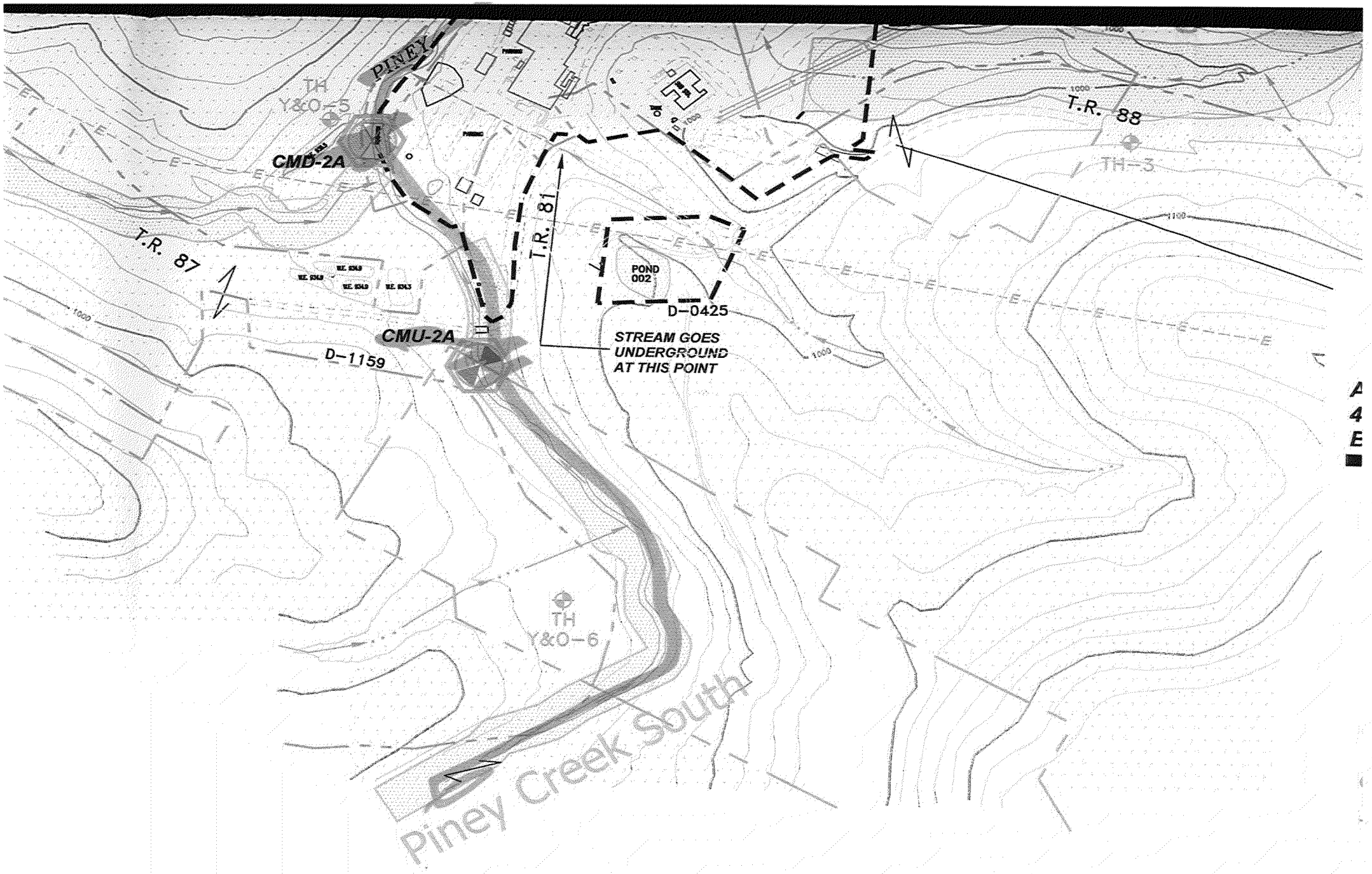


BUFFER ZONE (100')

DEDICATED CONSERVATION EASEMENT AREAS A,B,C

TP-# TEST PITS (18 January 2012)

TP-# TEST PITS

2014-00657203451

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# OHIO DEPARTMENT OF NATURAL RESOURCES
# DIVISION OF MINES AND RECLAMATION

Quarterly Monitoring Report Sheet
(Submit in Quadruplicate)

Permittee: American Energy Corporation Permit Number: D-0425

____ 1st Qtr., ____ 2nd Qtr., ____ 3rd Qtr., X 4th Qtr., (X appropriate blank )

____ Premining X Mining ____ Postmining ( X appropriate blank for mine status )

| Monitoring Site ID No. (e.g. S-1, W-3) | CMD-1 | CMD-2 | CMD-2A | CMD-6 | | |
|---|---|---|---|---|---|---|
| Surface Elevation of Monitoring Site | | | | | | |
| Depth of Well Below Land Surface (Feet) | ---- | ---- | ---- | ---- | | |
| Static Water Level of Well Below Land Surface (feet) | ---- | ---- | ---- | ---- | | |
| Stream or Spring Discharge (cfs or gpm) | 2.86 cfs | 12.9 cfs | 0.53 cfs | 0.041 cfs | | |
| Date Measured | 11/30/12 | 11/30/12 | 11/30/12 | 11/30/12 | | |
| pH (Standard Units) | 8.35[H] | 8.31[H] | 8.30[H] | 8.00[H] | | |
| Total Acidity (mg/L $CaCO_3$) | ND | ND | ND | 13.0 | | |
| Total Alkalinity (mg/L $CaCO_3$) | 181 | 139 | 179 | 497 | | |
| Total Iron (mg/L) | 0.046 | 0.057 | 0.083 | 0.170 | | |
| Total Manganese (mg/L) | 0.004 | 0.014 | 0.199 | 0.505 | | |
| Total Suspended Solids (mg/L) | ND | ND | ND | 35.0 | | |
| Total Hardness (mg/L $CaCO_3$) | 226 | 203 | 142 | 963 | | |
| Total Sulfates (mg/L) | 596 | 77.1 | 71.2 | 5120 | | |
| Specific Conductance (at 25°C in µmhos/cm) | 1720 | 486 | 503 | 11,500 | | |

[H] Holding times for preparation or analysis exceeded
[J] Analyte detected below quantitation limits
[ND] Not Detected at PQL or MDL

Permittee's Signature: Michael Kelley Date: 1-14-13

Laboratory Name: TraDet Laboratories, Inc.

Analyst's Signature: [illegible] Date: January 8, 2013

COLUMBUS

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DIVISION OF MINES AND RECLAMATION

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DIVISION OF MINERAL RESOURCES
CAMBRIDGE

Quarterly Monitoring Report Sheet
(Submit in Quadruplicate)

Permittee: American Energy Corporation Permit Number: D-0425

____ 1st Qtr., ____ 2nd Qtr., ____ 3rd Qtr., X 4th Qtr., (X appropriate blank )

____ Premining X Mining ____ Postmining ( X appropriate blank for mine status )

| Monitoring Site ID No. (e.g. S-1, W-3) | CMD-1 | CMD-2 | CMD-2A | CMD-6 | | |
|---|---|---|---|---|---|---|
| Surface Elevation of Monitoring Site | | | | | | |
| Depth of Well Below Land Surface (Feet) | ---- | ---- | ---- | ---- | | |
| Static Water Level of Well Below Land Surface (feet) | ---- | ---- | ---- | ---- | | |
| Stream or Spring Discharge (cfs or gpm) | 2.86 cfs | 12.9 cfs | 0.53 cfs | 0.041 cfs | | |
| Date Measured | 11/30/12 | 11/30/12 | 11/30/12 | 11/30/12 | | |
| pH (Standard Units) | 8.35[H] | 8.31[H] | 8.30[H] | 8.00[H] | | |
| Total Acidity (mg/L $CaCO_3$) | ND | ND | ND | 13.0 | | |
| Total Alkalinity (mg/L $CaCO_3$) | 181 | 139 | 179 | 497 | | |
| Total Iron (mg/L) | 0.046 | 0.057 | 0.083 | 0.170 | | |
| Total Manganese (mg/L) | 0.004 | 0.014 | 0.199 | 0.505 | | |
| Total Suspended Solids (mg/L) | ND | ND | ND | 35.0 | | |
| Total Hardness (mg/L $CaCO_3$) | 226 | 203 | 142 | 963 | | |
| Total Sulfates (mg/L) | 596 | 77.1 | 71.2 | 5120 | | |
| Specific Conductance (at 25°C in µmhos/cm) | 1720 | 486 | 503 | 11,500 | | |

[H] Holding times for preparation or analysis exceeded
[J] Analyte detected below quantitation limits
[ND] Not Detected at PQL or MDL

Permittee's Signature: Michael Kelley Date: 1-14-13

Laboratory Name: TraDet Laboratories, Inc.

Analyst's Signature: [illegible] Date: January 8, 2013

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CAMBRIDGE

# OHIO DEPARTMENT OF NATURAL RESOURCES
## DIVISION OF MINES AND RECLAMATION

Quarterly Monitoring Report Sheet
(Submit in Quadruplicate)

Permittee: American Energy Corporation  Permit Number: D-0425

X 1st Qtr., ____ 2nd Qtr., ____ 3rd Qtr., ____ 4th Qtr., (X appropriate blank )

____ Premining X Mining ____ Postmining ( X appropriate blank for mine status )

| Monitoring Site ID No. (e.g. S-1, W-3) | CMD-1 | CMD-2 | CMD-2A | CMD-6 | | |
|---|---|---|---|---|---|---|
| Surface Elevation of Monitoring Site | | | | | | |
| Depth of Well Below Land Surface (Feet) | ---- | ---- | ---- | ---- | | |
| Static Water Level of Well Below Land Surface (feet) | ---- | ---- | ---- | ---- | | |
| Stream or Spring Discharge (cfs or gpm) | 67.36 cfs | 8.77 cfs | 2.25 cfs | 100 gpm | | |
| Date Measured | 03/20/13 | 03/15/13 | 03/15/13 | 03/15/13 | | |
| pH (Standard Units) | 8.23[H] | 8.07[H] | 8.08[H] | 8.15[H] | | |
| Total Acidity (mg/L $CaCO_3$) | 0.40[J] | 1.19 | 1.30 | 6.11 | | |
| Total Alkalinity (mg/L $CaCO_3$) | 98.8 | 89.4 | 101 | 417 | | |
| Total Iron (mg/L) | 0.237 | 0.161 | 0.134 | 0.075 | | |
| Total Manganese (mg/L) | 0.028 | 0.045 | 0.049 | 0.776 | | |
| Total Suspended Solids (mg/L) | 4.0[J] | ND | ND | 16.0 | | |
| Total Hardness (mg/L $CaCO_3$) | 144 | 110 | 120 | 970 | | |
| Total Sulfates (mg/L) | 430 | 43.7 | 41.2 | 3360 | | |
| Specific Conductance (at 25°C in µmhos/cm) | 318 | 398 | 338 | 10,400 | | |

[H] Holding times for preparation or analysis exceeded
[J] Analyte detected below quantitation limits
Minimum Detection Limit for Flow = 0.01 GPM
Minimum Detection Limit for Flow = 0.01 CFS

Permittee's Signature: Michael Kelley  Date: 4-15-13

Laboratory Name: TraDet Laboratories

Analyst's Signature: RRW  Date: April 15, 2013

COLUMBUS

# OHIO DEPARTMENT OF NATURAL RESOURCES
# DIVISION OF MINES AND RECLAMATION

Quarterly Monitoring Report Sheet
(Submit in Quadruplicate)

Permittee: American Energy Corporation Permit Number: D-0425

X 1st Qtr., ____ 2nd Qtr., ____ 3rd Qtr., ____ 4th Qtr., (X appropriate blank )

____ Premining X Mining ____ Postmining ( X appropriate blank for mine status )

| Monitoring Site ID No. (e.g. S-1, W-3) | CMU-1 | CMU-2 | CMU-2A | | | |
|---|---|---|---|---|---|---|
| Surface Elevation of Monitoring Site | | | | | | |
| Depth of Well Below Land Surface (Feet) | ---- | ---- | ---- | | | |
| Static Water Level of Well Below Land Surface (feet) | ---- | ---- | ---- | | | |
| Stream or Spring Discharge (cfs or gpm) | 77.21 cfs | 1.68 cfs | 4.80 cfs | | | |
| Date Measured | 03/20/13 | 03/15/13 | 03/15/13 | | | |
| pH (Standard Units) | 8.20[H] | 8.00[H] | 8.02[H] | | | |
| Total Acidity (mg/L $CaCO_3$) | 0.48[J] | 1.82 | 1.24 | | | |
| Total Alkalinity (mg/L $CaCO_3$) | 100 | 99.2 | 83.0 | | | |
| Total Iron (mg/L) | 0.210 | 0.140 | 0.175 | | | |
| Total Manganese (mg/L) | 0.029 | 0.015 | 0.039 | | | |
| Total Suspended Solids (mg/L) | 4.0[J] | ND | ND | | | |
| Total Hardness (mg/L $CaCO_3$) | 143 | 115 | 103 | | | |
| Total Sulfates (mg/L) | 40.9 | 39.0 | 27.0 | | | |
| Specific Conductance (at 25°C in µmhos/cm) | 312 | 379 | 247 | | | |

[H] Holding times for preparation or analysis exceeded
[J] Analyte detected below quantitation limits
Minimum Detection Limit for Flow = 0.01 GPM
Minimum Detection Limit for Flow = 0.01 CFS

Permittee's Signature: Michael Kelley Date: 4-15-13

Laboratory Name: TraDet Laboratories

Analyst's Signature: RHW Date: April 15, 2013

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINES AND RECLAMATION

Quarterly Monitoring Report Sheet
(Submit in Quadruplicate)

Permittee: American Energy Corporation Permit Number: D-0425

X 1st Qtr., ____ 2nd Qtr., ____ 3rd Qtr., ____ 4th Qtr., (X appropriate blank )

____ Premining X Mining ____ Postmining ( X appropriate blank for mine status )

| Monitoring Site ID No. (e.g. S-1, W-3) | CMD-1 | CMD-2 | CMD-2A | CMD-6 | | |
|---|---|---|---|---|---|---|
| Surface Elevation of Monitoring Site | | | | | | |
| Depth of Well Below Land Surface (Feet) | ---- | ---- | ---- | ---- | | |
| Static Water Level of Well Below Land Surface (feet) | ---- | ---- | ---- | ---- | | |
| Stream or Spring Discharge (cfs or gpm) | 110 cfs | 12.1 cfs | 14.1 cfs | 221,730 GPD | | |
| Date Measured | 03/06/12 | 03/08/12 | 03/08/12 | 03/10/12 | | |
| pH (Standard Units) | 8.11[H] | 8.14[H] | 8.11[H] | 8.04[H] | | |
| Total Acidity (mg/L $CaCO_3$) | 1.44 | 1.61 | 1.55 | 5.82 | | |
| Total Alkalinity (mg/L $CaCO_3$) | 119 | 154 | 128 | 287 | | |
| Total Iron (mg/L) | 0.068 | 0.068 | 0.066 | 0.178 | | |
| Total Manganese (mg/L) | 0.022 | 0.027 | 0.067 | 0.596 | | |
| Total Suspended Solids (mg/L) | 5.0[J] | ND | ND | ND | | |
| Total Hardness (mg/L $CaCO_3$) | 177 | 208 | 133 | 762 | | |
| Total Sulfates (mg/L) | 65.2 | 562 | 61.0 | 3240 | | |
| Specific Conductance (at 25°C in µmhos/cm) | 354 | 1300 | 341 | 5805 | | |

[H] Holding times for preparation or analysis exceeded
[J] Analyte detected below quantitation limits

Permittee's Signature: Mike Kelley Date: 4-17-12

Laboratory Name: TraDet Laboratories

Analyst's Signature: William Thompson (SAP) Date: April 16, 2012

COLUMBUS

# OHIO DEPARTMENT OF NATURAL RESOURCES
# DIVISION OF MINES AND RECLAMATION

Quarterly Monitoring Report Sheet
(Submit in Quadruplicate)

;mittee: American Energy Corporation Permit Number: D-0425

X 1st Qtr., ___ 2nd Qtr., ___ 3rd Qtr., ___ 4th Qtr., (X appropriate blank )

___ Premining X Mining ___ Postmining ( X appropriate blank for mine status )

| Monitoring Site ID No. (e.g. S-1, W-3) | CMU-1 | CMU-2 | CMU-2A | | | |
|---|---|---|---|---|---|---|
| Surface Elevation of Monitoring Site | | | | | | |
| Depth of Well Below Land Surface (Feet) | ---- | ---- | ---- | | | |
| Static Water Level of Well Below Land Surface (feet) | ---- | ---- | ---- | | | |
| Stream or Spring Discharge (cfs or gpm) | 105 cfs | 11.6 cfs | 13.6 cfs | | | |
| Date Measured | 03/06/12 | 03/08/12 | 03/08/12 | | | |
| pH (Standard Units) | 8.11[H] | 7.98[H] | 7.42[H] | | | |
| Total Acidity (mg/L $CaCO_3$) | 1.61 | 2.61 | 2.76 | | | |
| Total Alkalinity (mg/L $CaCO_3$) | 127 | 125 | 96.6 | | | |
| Total Iron (mg/L) | 0.038 | 0.057 | 0.097 | | | |
| Total Manganese (mg/L) | 0.039 | 0.029 | 0.060 | | | |
| Total Suspended Solids (mg/L) | ND | ND | ND | | | |
| Total Hardness (mg/L $CaCO_3$) | 160 | 121 | 107 | | | |
| Total Sulfates (mg/L) | 45.0 | 51.7 | 37.5 | | | |
| Specific Conductance (at 25°C in µmhos/cm) | 320 | 323 | 258 | | | |

[H] Holding times for preparation or analysis exceeded
[J] Analyte detected below quantitation limits

Permittee's Signature: Mik Kelley Date: 4-17-12

Laboratory Name: TraDet Laboratories

Analyst's Signature: William Thompson (SMP) Date: April 16, 2012