POWERTECH (USA) INC.

United States Nuclear Regulatory Commission Official Hearing Exhibit			
In the Matter of:	POWERTECH USA, INC. (Dewey-Burdock In Situ Uranium Recovery Facility)		
	ASLBP #: 10-898-02-MLA-BD01		
	Docket #: 04009075		
	Exhibit #: APP-021-FF-00-BD01	**Identified:** 8/19/2014	
	Admitted: 8/19/2014	**Withdrawn:**	
	Rejected:	**Stricken:**	
	Other:		

APPENDIX 2.8-G

WETLAND DETERMINATION DATA FORMS-GREAT PLAINS REGION

Note: At the time of field sampling, data forms were currently in draft form as provided by the US Army Corps of Engineers.

POWERTECH (USA) INC.

WETLAND DETERMINATION DATA FORM-Great Plains Region (DRAFT)

Project/Site: Dewey Burdock | City/County: Custer County | Sampling Date: 9/17/07

Applicant/Owner: Knight Piesold, Powertech | State: South Dakota | Sampling Point: W1

Investigator(s): C. Robinson and J. Eberly | Section, Township, Range: Section 32, T6S, R1E

Landform (hillslope, terrace, etc.) Depression into tributary | Local relief (concave, convex, none): Convex | Slope (%): 0%

Subregion (LRP): Black Hills MLRA62 | Lat: | Long: | Datum: NAD 1983, UTM Zone 13

Soil Map Unit Name: | NWI Classification: PEMC

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____ , Soil ____ , or Hydrology ____ Significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____ , Soil ____ , or Hydrology ____ Naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No	
Hydric Soil Present?	Yes	X	No	
Wetland Hydrology Present	Yes		No	X

Is the Sampled Area Within a Wetland Yes X No

Remarks:
R1 P1 - Depression
~10' x 15'

VEGETATION

Tree Stratum (Use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1. *Rosa woodsii*	100	X	FACU
2.			
3.			
4.			
5.			
Total Cover:	100		
Herb Stratum			
1. *Hordeum jubatum*	15		FACW
2. *Elymus smithii*	5		FACU
3. *Polygonum aviculare*	5		FACU
4. *Eleocharis palustris*	75	X	OBL
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover:	100		
Woody Vine Stratum			
1.			
2.			
3.			
Total Cover:			

% Bare Ground in Herb Stratum | % Cover of Biotic Crust

Remarks:

Dominance Test Worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	75	x1=	75
FACW species	15	x2=	30
FAC species		x3=	
FACU species	110	x4=	440
UPL species		x5=	
Column Totals:	200 (A)		545 (B)

Prevalence Index = B/A = 2.75

Hydrophytic Vegetation Indicators

____ Dominance Test is > 50%
X Prevalence Index is ≤ 3.0[1]
____ Morphological Adaptations[1] (Providing supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation (Explain)

[1]Indicators of hydric soils and wetland hydrology must be present

Hydrophytic Vegetation Present? Yes X No

POWERTECH (USA) INC.

SOIL Sampling Point W1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	2.5Y 3/1	90	10YR 4/8	10	C	RC	SiCL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)	___ Sandy Gleyed Matrix (S4)	___ 1 cm Muck (A9) (**LRR C**)
___ Histic Epipedon (A2)	___ Sandy Redox (S5)	___ Coast Prairie Redox (A16) (LRR F, G, H)
___ Black Histic (A3)	___ Stripped Matrix (S6)	___ Dark Surface (S7) (**LRR G**)
___ Hydrogen Sulfide (A4)	___ Loamy Mucky Mineral (F1)	___ High Plains Depressions (F16)
___ Stratified Layers (A5) (**LRR F**)	___ Loamy Gleyed Matrix (F2)	(**LRR H outside MLRA 72 & 73**)
___ 1 cm Muck (A9) (**LRR F, G, H**)	___ Depleted Matrix (F3)	___ Reduced Vertic (F18)
___ Depleted Below Dark Surface (A11)	___ Redox Dark Surface (F6)	___ Red Parent Material (TF2)
___ Thick Dark Surface (A12)	___ Depleted Dark Surface (F7)	___ Other (Explain in Remarks)
___ Sandy Mucky Mineral (S1)	X Redox Depressions (F8)	
___ 2.5 cm Mucky Peat or Peat (S2) (**LFF G, H**)	___ High Plains Depressions (F16)	[3]Indicators of hydrophytic vegetation
___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)		and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils Present? Yes X No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

___ Surface Water (A1)	___ Salt Crusts (B11)	**Secondary Indicators (2 or more required)**
___ High Water Table (A2)	___ Aquatic Invertebrates (B13)	___ Surface Soil Cracks (B6)
___ Saturation (A3)	___ Hydrogen Sulfide Oder (C1)	___ Sparsely Vegetated Concave Surfaces (B8)
___ Water Marks (B1)	___ Dry-Season Water Table (C2)	___ Drainage Patterns (B10)
___ Sediment Deposits (B2)	___ Presence of Reduced Iron (C4)	___ Oxidized Rhizospheres on Living Roots (C3)
___ Drift Deposits (B3)	___ Thin Muck Surface (C7)	___ Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	___ Other (Explain in Remark)	Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)		___ Frost-Heave Hummocks (C11) (**LRR F**)
___ Inundation Visible on Aerial Imagery (B7)		___ Geomorphic Position (D2)
___ Water Stained Leaves (B9)		___ FAC-Neutral Test (D5)
		___ Local Soil Survey Data (D8)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches):	___	
Water Table Present?	Yes ___	No X	Depth (inches):	___	
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches):	___	**Wetland Hydrology Present?** Yes ___ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspection), if available:

Remarks:

POWERTECH (USA) INC.

WETLAND DETERMINATION DATA FORM-Great Plains Region (DRAFT)

Project/Site: Dewey Burdock | City/County: Custer County | Sampling Date: 9/17/07

Applicant/Owner: Knight Piesold, Powertech | State: South Dakota | Sampling Point: W2

Investigator(s): C. Robinson and J. Eberly | Section, Township, Range: Section 32, T6S, R1E

Landform (hillslope, terrace, etc.) Drainage | Local relief (concave, convex, none): Convex | Slope (%): 3

Subregion (LRP): Black Hills MLRA62 | Lat: | Long: | Datum: NAD 1983, UTM Zone 13

Soil Map Unit Name: | NWI Classification: R2EM

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ Significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ Naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No	
Hydric Soil Present?	Yes	X	No	
Wetland Hydrology Present	Yes	X	No	

Is the Sampled Area Within a Wetland Yes X No

Remarks:
Isolated wetland

VEGETATION

Tree Stratum (Use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			

Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			

Herb Stratum			
1. *Hordeum jubatum*	10		FACW
2. *Elymus smithii*	15		FACU
3. *Spartina pectinata*	60	X	FACW
4. *Bromus japonicus*	5		FACU
5. *Xanthium strumarium*	2		FAC
6. *Poa pratensis*	3		FACU
7. *Melilotus officinalis*	5		FACU
8.			
9.			
10.			
Total Cover:	100		

Woody Vine Stratum			
1.			
2.			
3.			
Total Cover:			

% Bare Ground in Herb Stratum 10 % Cover of Biotic Crust

Remarks:

Dominance Test Worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x1=	0
FACW species	70	x2=	140
FAC species	2	x3=	6
FACU species	28	x4=	112
UPL species	0	x5=	0
Column Totals:	100 (A)		258 (B)

Prevalence Index = B/A = 2.58

Hydrophytic Vegetation Indicators

X Dominance Test is > 50%

X Prevalence Index is ≤ 3.0[1]

___ Morphological Adaptations[1] (Providing supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation (Explain)

[1]Indicators of hydric soils and wetland hydrology must be present

Hydrophytic Vegetation Present? Yes X No

POWERTECH (USA) INC.

SOIL Sampling Point W2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/1	95	7.5YR 3/3	5	C	M	C	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LFF G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- X Redox Depressions (F8)
- ___ High Plains Depressions (F16)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR C)**
- ___ Coast Prairie Redox (A16) (LRR F, G, H)
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soils Present? Yes X No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- X Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water Stained Leaves (B9)
- ___ Salt Crusts (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Oder (C1)
- ___ Dry-Season Water Table (C2)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remark)

Secondary Indicators (2 or more required)

- X Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surfaces (B8)
- X Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Frost-Heave Hummocks (C11) **(LRR F)**
- X Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Local Soil Survey Data (D8)

Field Observations:

Surface Water Present?	Yes	X	No	___	Depth (inches):	5
Water Table Present?	Yes	___	No	X	Depth (inches):	___
Saturation Present? (includes capillary fringe)	Yes	___	No	X	Depth (inches):	___

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspection), if available:

Remarks:
Soil is moist but not saturated. A definable channel is present.

POWERTECH (USA) INC.

WETLAND DETERMINATION DATA FORM-Great Plains Region (DRAFT)

Project/Site: Dewey Burdock | City/County: Custer County | Sampling Date: 9/17/07

Applicant/Owner: Knight Piesold, Powertech | State: South Dakota | Sampling Point: W3

Investigator(s): C. Robinson and J. Eberly | Section, Township, Range: Section 32, T6S, R1E

Landform (hillslope, terrace, etc.) Drainage | Local relief (concave, convex, none): Convex | Slope (%): 0

Subregion (LRP): Black Hills MLRA62 | Lat: | Long: | Datum: NAD 1983, UTM Zone 13

Soil Map Unit Name: | NWI Classification:

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ Significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ Naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes		No	X
Hydric Soil Present?	Yes		No	X
Wetland Hydrology Present	Yes	X	No	

Is the Sampled Area Within a Wetland Yes ____ No X

Remarks:
R1 P 12: Upstream
R1 P13: Downstream

VEGETATION

Tree Stratum (Use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. *Elymus smithii*	40	X	FACU
2. *Xanthium strumarium*	1		FAC
3. *Bromus japonicus*	20	X	FACU
4. *Polygonum aviculare*	5		FACU
5. *Lepidium densiflorum*	15		FACU
6. *Poa pratensis*	6		FACU
7. *Melilotus officinalis*	10		FACU-
8. *Symphoricarpos sp.*	3		NI
9.			
10.			
Total Cover:	100		
Woody Vine Stratum			
1.			
2.			
3.			
Total Cover:			

% Bare Ground in Herb Stratum 50 % Cover of Biotic Crust

Dominance Test Worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:	
OBL species	x1=	
FACW species	x2=	
FAC species	x3=	
FACU species	x4=	
UPL species	x5=	
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators

____ Dominance Test is > 50%
____ Prevalence Index is ≤ 3.0[1]
____ Morphological Adaptations[1] (Providing supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation (Explain)

[1]Indicators of hydric soils and wetland hydrology must be present

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:

POWERTECH (USA) INC.

SOIL Sampling Point W3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 3/1	100					SiCL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5) **(LRR F)**
- ____ 1 cm Muck (A9) **(LRR F, G, H)**
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1)
- ____ 2.5 cm Mucky Peat or Peat (S2) **(LFF G, H)**
- ____ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Loamy Mucky Mineral (F1)
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ High Plains Depressions (F16)

Indicators for Problematic Hydric Soils[3]:

- ____ 1 cm Muck (A9) **(LRR C)**
- ____ Coast Prairie Redox (A16) (LRR F, G, H)
- ____ Dark Surface (S7) **(LRR G)**
- ____ High Plains Depressions (F16) **(LRR H outside MLRA 72 & 73)**
- ____ Reduced Vertic (F18)
- ____ Red Parent Material (TF2)
- ____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils Present? Yes ____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- X Surface Water (A1)
- ____ High Water Table (A2)
- ____ Saturation (A3)
- ____ Water Marks (B1)
- ____ Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Water Stained Leaves (B9)
- ____ Salt Crusts (B11)
- ____ Aquatic Invertebrates (B13)
- ____ Hydrogen Sulfide Oder (C1)
- ____ Dry-Season Water Table (C2)
- ____ Presence of Reduced Iron (C4)
- ____ Thin Muck Surface (C7)
- ____ Other (Explain in Remark)

Secondary Indicators (2 or more required)

- X Surface Soil Cracks (B6)
- ____ Sparsely Vegetated Concave Surfaces (B8)
- X Drainage Patterns (B10)
- ____ Oxidized Rhizospheres on Living Roots (C3)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Frost-Heave Hummocks (C11) **(LRR F)**
- X Geomorphic Position (D2)
- ____ FAC-Neutral Test (D5)
- ____ Local Soil Survey Data (D8)

Field Observations:

Surface Water Present?	Yes	X	No	____	Depth (inches): ____
Water Table Present?	Yes	____	No	X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes	____	No	X	Depth (inches): ____

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspection), if available:

Remarks:
Definable channel is present.

POWERTECH (USA) INC.

WETLAND DETERMINATION DATA FORM-Great Plains Region (DRAFT)

Project/Site: Dewey Burdock | City/County: Custer County | Sampling Date: 9/17/07

Applicant/Owner: Knight Piesold, Powertech | State: South Dakota | Sampling Point: W4

Investigator(s): C. Robinson and J. Eberly | Section, Township, Range: Section 32, T6S, R1E

Landform (hillslope, terrace, etc.) Drainage | Local relief (concave, convex, none): Convex | Slope (%): 3

Subregion (LRP): Black Hills MLRA62 | Lat: | Long: | Datum: NAD 1983, UTM Zone 13

Soil Map Unit Name: | NWI Classification: R2EM

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ Significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ Naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No		**Is the Sampled Area Within a Wetland** Yes X No
Hydric Soil Present?	Yes	X	No		
Wetland Hydrology Present	Yes	X	No		

Remarks:
R2 P2: Upstream R2 P3: Downstream R2 P4: Tributary
Channel width is approximately 17 feet
R2 P6: Upstream at waypoint 3 R2 P7: Downstream at waypoint 3
R2 P8 Upstream at waypoint 4 R2 P9: Downstream at waypoint 4

VEGETATION

Tree Stratum (Use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. *Spartina pectinata*	35	X	FACW
2. *Cirsium arvense*	10		FACU
3. *Schoenoplectus pungens*	20	X	OBL
4. *Eleocharis palustris*	35	X	OBL
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover:	100		
Woody Vine Stratum			
1.			
2.			
3.			
Total Cover:			

% Bare Ground in Herb Stratum % Cover of Biotic Crust

Remarks:

Dominance Test Worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:		(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators

X Dominance Test is > 50%
____ Prevalence Index is ≤ 3.0[1]
____ Morphological Adaptations[1] (Providing supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation (Explain)

[1]Indicators of hydric soils and wetland hydrology must be present

Hydrophytic Vegetation Present? Yes X No

POWERTECH (USA) INC.

SOIL Sampling Point W4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	Gley1 2.5/N	100					SCL	
2-10	Gley1 3/N	100					SCL	
10-14	Gley1 4/5GY	95	7.5YR 4/6	5			SC	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- X Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- X 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- X 2.5 cm Mucky Peat or Peat (S2) **(LFF G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- X Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR C)**
- ___ Coast Prairie Redox (A16) (LRR F, G, H)
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soils Present? Yes X No ___

Remarks:
Faint hydrogen sulfide odor was present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- X Surface Water (A1)
- X High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- X Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water Stained Leaves (B9)
- ___ Salt Crusts (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Oder (C1)
- ___ Dry-Season Water Table (C2)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remark)

Secondary Indicators (2 or more required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surfaces (B8)
- X Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- ___ Frost-Heave Hummocks (C11) **(LRR F)**
- X Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Local Soil Survey Data (D8)

Field Observations:

Surface Water Present?	Yes	X	No	___	Depth (inches): ___
Water Table Present?	Yes	X	No	___	Depth (inches): 2
Saturation Present? (includes capillary fringe)	Yes	X	No	___	Depth (inches): 2

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspection), if available:

Remarks:

POWERTECH (USA) INC.

WETLAND DETERMINATION DATA FORM-Great Plains Region (DRAFT)

Project/Site: Dewey Burdock | City/County: Custer County | Sampling Date: 9/17/07

Applicant/Owner: Knight Piesold, Powertech | State: South Dakota | Sampling Point: W5

Investigator(s): C. Robinson and J. Eberly | Section, Township, Range: Section 32, T6S, R1E

Landform (hillslope, terrace, etc.) Uplands | Local relief (concave, convex, none): None | Slope (%): 2

Subregion (LRP): Black Hills MLRA62 | Lat: | Long: | Datum: NAD 1983, UTM Zone 13

Soil Map Unit Name: | NWI Classification:

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ Significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ Naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	____	No	X
Hydric Soil Present?	Yes	____	No	X
Wetland Hydrology Present	Yes		No	X

Is the Sampled Area Within a Wetland Yes ____ No X

Remarks:
R1 P5: Upland area near Beaver Creek

VEGETATION

Tree Stratum (Use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. *Poa pratensis*	45	X	FACU
2. *Cirsium arvense*	15		FACU
3. *Chenopodium album*	25	X	FAC
4. *Helianthus annuus*	15		FACU
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover:	100		
Woody Vine Stratum			
1.			
2.			
3.			
Total Cover:			

% Bare Ground in Herb Stratum 40 % Cover of Biotic Crust

Dominance Test Worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species	25	x3=	75
FACU species	75	x4=	300
UPL species		x5=	
Column Totals:	100 (A)		375 (B)

Prevalence Index = B/A = 3.75

Hydrophytic Vegetation Indicators

____ Dominance Test is > 50%
____ Prevalence Index is ≤ 3.0[1]
____ Morphological Adaptations[1] (Providing supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation (Explain)

[1]Indicators of hydric soils and wetland hydrology must be present

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:

SOIL Sampling Point W5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/2	100					SCL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- _____ Histosol (A1)
- _____ Histic Epipedon (A2)
- _____ Black Histic (A3)
- _____ Hydrogen Sulfide (A4)
- _____ Stratified Layers (A5) **(LRR F)**
- _____ 1 cm Muck (A9) **(LRR F, G, H)**
- _____ Depleted Below Dark Surface (A11)
- _____ Thick Dark Surface (A12)
- _____ Sandy Mucky Mineral (S1)
- _____ 2.5 cm Mucky Peat or Peat (S2) **(LFF G, H)**
- _____ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- _____ Sandy Gleyed Matrix (S4)
- _____ Sandy Redox (S5)
- _____ Stripped Matrix (S6)
- _____ Loamy Mucky Mineral (F1)
- _____ Loamy Gleyed Matrix (F2)
- _____ Depleted Matrix (F3)
- _____ Redox Dark Surface (F6)
- _____ Depleted Dark Surface (F7)
- _____ Redox Depressions (F8)
- _____ High Plains Depressions (F16)

Indicators for Problematic Hydric Soils[3]:

- _____ 1 cm Muck (A9) **(LRR C)**
- _____ Coast Prairie Redox (A16) (LRR F, G, H)
- _____ Dark Surface (S7) **(LRR G)**
- _____ High Plains Depressions (F16) **(LRR H outside MLRA 72 & 73)**
- _____ Reduced Vertic (F18)
- _____ Red Parent Material (TF2)
- _____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- _____ Surface Water (A1)
- _____ High Water Table (A2)
- _____ Saturation (A3)
- _____ Water Marks (B1)
- _____ Sediment Deposits (B2)
- _____ Drift Deposits (B3)
- _____ Algal Mat or Crust (B4)
- _____ Iron Deposits (B5)
- _____ Inundation Visible on Aerial Imagery (B7)
- _____ Water Stained Leaves (B9)
- _____ Salt Crusts (B11)
- _____ Aquatic Invertebrates (B13)
- _____ Hydrogen Sulfide Oder (C1)
- _____ Dry-Season Water Table (C2)
- _____ Presence of Reduced Iron (C4)
- _____ Thin Muck Surface (C7)
- _____ Other (Explain in Remark)

Secondary Indicators (2 or more required)

- _____ Surface Soil Cracks (B6)
- _____ Sparsely Vegetated Concave Surfaces (B8)
- _____ Drainage Patterns (B10)
- _____ Oxidized Rhizospheres on Living Roots (C3)
- _____ Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- _____ Frost-Heave Hummocks (C11) **(LRR F)**
- _____ Geomorphic Position (D2)
- _____ FAC-Neutral Test (D5)
- _____ Local Soil Survey Data (D8)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspection), if available:

Remarks:

POWERTECH (USA) INC.

WETLAND DETERMINATION DATA FORM-Great Plains Region (DRAFT)

Project/Site: Dewey Burdock | City/County: Custer County | Sampling Date: 9/17/07

Applicant/Owner: Knight Piesold, Powertech | State: South Dakota | Sampling Point: W6

Investigator(s): C. Robinson and J. Eberly | Section, Township, Range: Section 32, T6S, R1E

Landform (hillslope, terrace, etc.) Drainage | Local relief (concave, convex, none): convex | Slope (%): 2

Subregion (LRP): Black Hills MLRA62 | Lat: | Long: | Datum: NAD 1983, UTM Zone 13

Soil Map Unit Name: | NWI Classification:

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ Significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ Naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes		No	X	**Is the Sampled Area Within a Wetland** Yes ____ No X
Hydric Soil Present?	Yes		No	X	
Wetland Hydrology Present	Yes		No	X	

Remarks:
R1 P 17: Upstream
R1 P18: Downstream

VEGETATION

Tree Stratum (Use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1. *Rosa woodsii*	100	X	FACU
2.			
3.			
4.			
5.			
Total Cover:	100		
Herb Stratum			
1. *Elymus smithii*	85	X	FACU
2. *Astragalus* sp.	5		UPL
3. *Nassella viridula*	5		NI
4. *Ratibida columnifera*	5		NI
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover:	100		
Woody Vine Stratum			
1.			
2.			
3.			
Total Cover:			

% Bare Ground in Herb Stratum 30 % Cover of Biotic Crust

Dominance Test Worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species	85	x4=	340
UPL species	5	x5=	25
Column Totals:	90	(A)	365 (B)

Prevalence Index = B/A = 4.05

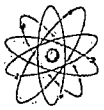
Hydrophytic Vegetation Indicators

____ Dominance Test is > 50%
____ Prevalence Index is ≤ 3.0[1]
____ Morphological Adaptations[1] (Providing supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation (Explain)

[1]Indicators of hydric soils and wetland hydrology must be present

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:



POWERTECH (USA) INC.

SOIL Sampling Point W6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 4/1	100					SiC	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- _____ Histosol (A1)
- _____ Histic Epipedon (A2)
- _____ Black Histic (A3)
- _____ Hydrogen Sulfide (A4)
- _____ Stratified Layers (A5) **(LRR F)**
- _____ 1 cm Muck (A9) **(LRR F, G, H)**
- _____ Depleted Below Dark Surface (A11)
- _____ Thick Dark Surface (A12)
- _____ Sandy Mucky Mineral (S1)
- _____ 2.5 cm Mucky Peat or Peat (S2) **(LFF G, H)**
- _____ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- _____ Sandy Gleyed Matrix (S4)
- _____ Sandy Redox (S5)
- _____ Stripped Matrix (S6)
- _____ Loamy Mucky Mineral (F1)
- _____ Loamy Gleyed Matrix (F2)
- _____ Depleted Matrix (F3)
- _____ Redox Dark Surface (F6)
- _____ Depleted Dark Surface (F7)
- _____ Redox Depressions (F8)
- _____ High Plains Depressions (F16)

Indicators for Problematic Hydric Soils[3]:

- _____ 1 cm Muck (A9) **(LRR C)**
- _____ Coast Prairie Redox (A16) (LRR F, G, H)
- _____ Dark Surface (S7) **(LRR G)**
- _____ High Plains Depressions (F16) **(LRR H outside MLRA 72 & 73)**
- _____ Reduced Vertic (F18)
- _____ Red Parent Material (TF2)
- _____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- _____ Surface Water (A1)
- _____ High Water Table (A2)
- _____ Saturation (A3)
- _____ Water Marks (B1)
- _____ Sediment Deposits (B2)
- _____ Drift Deposits (B3)
- _____ Algal Mat or Crust (B4)
- _____ Iron Deposits (B5)
- _____ Inundation Visible on Aerial Imagery (B7)
- _____ Water Stained Leaves (B9)
- _____ Salt Crusts (B11)
- _____ Aquatic Invertebrates (B13)
- _____ Hydrogen Sulfide Oder (C1)
- _____ Dry-Season Water Table (C2)
- _____ Presence of Reduced Iron (C4)
- _____ Thin Muck Surface (C7)
- _____ Other (Explain in Remark)

Secondary Indicators (2 or more required)

- _____ Surface Soil Cracks (B6)
- _____ Sparsely Vegetated Concave Surfaces (B8)
- _____ Drainage Patterns (B10)
- _____ Oxidized Rhizospheres on Living Roots (C3)
- _____ Crayfish Burrows (C8)
- _____ Saturation Visible on Aerial Imagery (C9)
- _____ Frost-Heave Hummocks (C11) **(LRR F)**
- X Geomorphic Position (D2)
- _____ FAC-Neutral Test (D5)
- _____ Local Soil Survey Data (D8)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspection), if available:

Remarks:

POWERTECH (USA) INC.

WETLAND DETERMINATION DATA FORM-Great Plains Region (DRAFT)

Project/Site: Dewey Burdock | City/County: Custer County | Sampling Date: 9/17/07

Applicant/Owner: Knight Piesold, Powertech | State: South Dakota | Sampling Point: W7

Investigator(s): C. Robinson and J. Eberly | Section, Township, Range: Section 32, T6S, R1E

Landform (hillslope, terrace, etc.) Drainage | Local relief (concave, convex, none): Convex | Slope (%): 2

Subregion (LRP): Black Hills MLRA62 | Lat: | Long: | Datum: NAD 1983, UTM Zone 13

Soil Map Unit Name: | NWI Classification: R4SB7

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ Significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ Naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No	
Hydric Soil Present?	Yes	X	No	
Wetland Hydrology Present	Yes	X	No	

Is the Sampled Area Within a Wetland Yes X No

Remarks:
R1 P17 Upstream
R1 P18 Downstream

VEGETATION

Tree Stratum (Use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			

Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			

Herb Stratum			
1. *Elymus smithii*	5		FACU
2. *Cirsium arvense*	5		FACU
3. *Spartina pectinata*	75	X	FACW
4. *Helianthus annuus*	10		FACU
5. *Cynoglossum officinale*	5		NI
6.			
7.			
8.			
9.			
10.			
Total Cover:	100		

Woody Vine Stratum			
1.			
2.			
3.			
Total Cover:			

% Bare Ground in Herb Stratum 5 % Cover of Biotic Crust

Remarks:

Dominance Test Worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:	
OBL species	x1=	
FACW species	x2=	
FAC species	x3=	
FACU species	x4=	
UPL species	x5=	
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators

X Dominance Test is > 50%
____ Prevalence Index is ≤ 3.0[1]
____ Morphological Adaptations[1] (Providing supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation (Explain)

[1]Indicators of hydric soils and wetland hydrology must be present

Hydrophytic Vegetation Present? Yes ____ No ____

SOIL Sampling Point W7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/1	70	7.5 YR 4/6	30	C	RC	SiC	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LFF G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- X Redox Depressions (F8)
- ___ High Plains Depressions (F16)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR C)**
- ___ Coast Prairie Redox (A16) (LRR F, G, H)
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soils Present? Yes X No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water Stained Leaves (B9)
- ___ Salt Crusts (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Oder (C1)
- ___ Dry-Season Water Table (C2)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remark)

Secondary Indicators (2 or more required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surfaces (B8)
- ___ Drainage Patterns (B10)
- X Oxidized Rhizospheres on Living Roots (C3)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Frost-Heave Hummocks (C11) **(LRR F)**
- X Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Local Soil Survey Data (D8)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___		
Water Table Present?	Yes ___	No X	Depth (inches): ___		
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): ___	**Wetland Hydrology Present?**	Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspection), if available:

Remarks:

POWERTECH (USA) INC.

WETLAND DETERMINATION DATA FORM-Great Plains Region (DRAFT)

Project/Site: Dewey Burdock | City/County: Custer County | Sampling Date: 9/17/07

Applicant/Owner: Knight Piesold, Powertech | State: South Dakota | Sampling Point: W8

Investigator(s): C. Robinson and J. Eberly | Section, Township, Range: Section 31, T6S, R1E

Landform (hillslope, terrace, etc.) Drainage | Local relief (concave, convex, none): Convex | Slope (%): 1

Subregion (LRP): Black Hills MLRA62 | Lat: | Long: | Datum: NAD 1983, UTM Zone 13

Soil Map Unit Name: | NWI Classification: R2EM

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ Significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ Naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No	
Hydric Soil Present?	Yes	X	No	
Wetland Hydrology Present	Yes	X	No	

Is the Sampled Area Within a Wetland Yes X No

Remarks:
R1 P19 Upstream
R1 P20 Downstream
Similar to W4 and all in between

VEGETATION

Tree Stratum (Use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. *Spartina pectinata*	15		FACW
2. *Eleocharis palustris*	35	X	OBL
3. *Schoenoplectus pungens*	25	X	OBL
4. *Eleocharis acicularis*	25	X	OBL
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover:	100		
Woody Vine Stratum			
1.			
2.			
3.			
Total Cover:			

% Bare Ground in Herb Stratum 40 % Cover of Biotic Crust

Dominance Test Worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:	
OBL species	x1=	
FACW species	x2=	
FAC species	x3=	
FACU species	x4=	
UPL species	x5=	
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators

X Dominance Test is > 50%
___ Prevalence Index is ≤ 3.0[1]
___ Morphological Adaptations[1] (Providing supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation (Explain)

[1]Indicators of hydric soils and wetland hydrology must be present

Hydrophytic Vegetation Present? Yes X No

Remarks:

SOIL Sampling Point W8

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	Gley1 3/10Y	70	7.5YR 4/4	20	C	M, RC	SC	
			2.5N	10	D	M	SC	
5+	Rock							

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

	Histosol (A1)	X	Sandy Gleyed Matrix (S4)		1 cm Muck (A9) (**LRR C**)
	Histic Epipedon (A2)		Sandy Redox (S5)		Coast Prairie Redox (A16) (LRR F, G, H)
	Black Histic (A3)		Stripped Matrix (S6)		Dark Surface (S7) (**LRR G**)
	Hydrogen Sulfide (A4)		Loamy Mucky Mineral (F1)		High Plains Depressions (F16)
	Stratified Layers (A5) (**LRR F**)		Loamy Gleyed Matrix (F2)		(**LRR H outside MLRA 72 & 73**)
	1 cm Muck (A9) (**LRR F, G, H**)		Depleted Matrix (F3)		Reduced Vertic (F18)
	Depleted Below Dark Surface (A11)		Redox Dark Surface (F6)		Red Parent Material (TF2)
	Thick Dark Surface (A12)		Depleted Dark Surface (F7)		Other (Explain in Remarks)
	Sandy Mucky Mineral (S1)		Redox Depressions (F8)		
	2.5 cm Mucky Peat or Peat (S2) (**LFF G, H**)		High Plains Depressions (F16)		[3]Indicators of hydrophytic vegetation
	5 cm Mucky Peat or Peat (S3) (**LRR F**)				and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils Present? Yes X No _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

X	Surface Water (A1)		Salt Crusts (B11)		Surface Soil Cracks (B6)
	High Water Table (A2)		Aquatic Invertebrates (B13)		Sparsely Vegetated Concave Surfaces (B8)
	Saturation (A3)		Hydrogen Sulfide Oder (C1)	X	Drainage Patterns (B10)
	Water Marks (B1)		Dry-Season Water Table (C2)	X	Oxidized Rhizospheres on Living Roots (C3)
	Sediment Deposits (B2)		Presence of Reduced Iron (C4)		Crayfish Burrows (C8)
	Drift Deposits (B3)		Thin Muck Surface (C7)		Saturation Visible on Aerial Imagery (C9)
	Algal Mat or Crust (B4)		Other (Explain in Remark)		Frost-Heave Hummocks (C11) (**LRR F**)
	Iron Deposits (B5)			X	Geomorphic Position (D2)
	Inundation Visible on Aerial Imagery (B7)				FAC-Neutral Test (D5)
	Water Stained Leaves (B9)				Local Soil Survey Data (D8)

Secondary Indicators (2 or more required)

Field Observations:

Surface Water Present?	Yes	X	No	_____	Depth (inches):	5	
Water Table Present?	Yes	X	No	_____	Depth (inches):	5	
Saturation Present? (includes capillary fringe)	Yes	X	No	_____	Depth (inches):	5	**Wetland Hydrology Present?** Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspection), if available:

Remarks:

POWERTECH (USA) INC.

WETLAND DETERMINATION DATA FORM-Great Plains Region (DRAFT)

Project/Site: Dewey Burdock | City/County: Custer County | Sampling Date: 9/17/07

Applicant/Owner: Knight Piesold, Powertech | State: South Dakota | Sampling Point: W9

Investigator(s): C. Robinson and J. Eberly | Section, Township, Range: Section 30-31, T6S R1E

Landform (hillslope, terrace, etc.) Drainage | Local relief (concave, convex, none): Convex | Slope (%): ____

Subregion (LRP): Black Hills MLRA62 | Lat: ____ | Long: ____ | Datum: NAD 1983, UTM Zone 13

Soil Map Unit Name: ____ | NWI Classification: PABJH

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ Significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ Naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No	
Hydric Soil Present?	Yes	X	No	
Wetland Hydrology Present	Yes	X	No	

Is the Sampled Area Within a Wetland Yes X No ____

Remarks:
R1 P23 Upstream
R1 P24 Downstream

VEGETATION

Tree Stratum (Use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. *Xanthium strumarium*	40	X	FAC
2. *Suckleya suckleyanna*	60	X	OBL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover:	100		
Woody Vine Stratum			
1.			
2.			
3.			
Total Cover:			

% Bare Ground in Herb Stratum 50 % Cover of Biotic Crust

Remarks:

Dominance Test Worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:	
OBL species	x1=	
FACW species	x2=	
FAC species	x3=	
FACU species	x4=	
UPL species	x5=	
Column Totals:	(A)	(B)

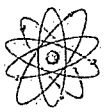
Prevalence Index = B/A =

Hydrophytic Vegetation Indicators

X Dominance Test is > 50%
____ Prevalence Index is ≤ 3.0[1]
____ Morphological Adaptations[1] (Providing supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation (Explain)

[1]Indicators of hydric soils and wetland hydrology must be present

Hydrophytic Vegetation Present? Yes X No ____



POWERTECH (USA) INC.

SOIL Sampling Point W9

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 4/1	50	5YR 4/6	50	C	RC/M	C	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LFF G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- X Redox Depressions (F8)
- ___ High Plains Depressions (F16)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ Coast Prairie Redox (A16) (LRR F, G, H)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soils Present? Yes X No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water Stained Leaves (B9)
- ___ Salt Crusts (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Oder (C1)
- ___ Dry-Season Water Table (C2)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remark)

Secondary Indicators (2 or more required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surfaces (B8)
- ___ Drainage Patterns (B10)
- X Oxidized Rhizospheres on Living Roots (C3)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Frost-Heave Hummocks (C11) (**LRR F**)
- X Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Local Soil Survey Data (D8)

Field Observations:

Surface Water Present?	Yes ___	No	X	Depth (inches):	___
Water Table Present?	Yes ___	No	X	Depth (inches):	___
Saturation Present? (includes capillary fringe)	Yes ___	No	X	Depth (inches):	___

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspection), if available:

Remarks:

Slight soil cracks were present.

POWERTECH (USA) INC.

WETLAND DETERMINATION DATA FORM-Great Plains Region (DRAFT)

Project/Site: Dewey Burdock | City/County: Custer County | Sampling Date: 9/17/07

Applicant/Owner: Knight Piesold, Powertech | State: South Dakota | Sampling Point: W10

Investigator(s): C. Robinson and J. Eberly | Section, Township, Range: Section 32, T6S, R1E

Landform (hillslope, terrace, etc.) Drainage/ Depression | Local relief (concave, convex, none): Convex | Slope (%):

Subregion (LRP): Black Hills MLRA62 | Lat: | Long: | Datum: NAD 1983, UTM Zone 13

Soil Map Unit Name: | NWI Classification: PUSA

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ Significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ Naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes		No	X
Hydric Soil Present?	Yes	X	No	
Wetland Hydrology Present	Yes	X	No	

Is the Sampled Area Within a Wetland Yes X No

Remarks:
NWI previously mapped: PEMF
R2 P1: Downstream
R2 P2: Upstream
Transitioning area changing to an upland area.

VEGETATION

Tree Stratum (Use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. *Carex filifolia*	80	X	UPL
2. *Hordeum jubatum*	20	X	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover:	100		
Woody Vine Stratum			
1.			
2.			
3.			
Total Cover:			

% Bare Ground in Herb Stratum 10 % Cover of Biotic Crust

Remarks:

Dominance Test Worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species	20	x2=	40
FAC species		x3=	
FACU species		x4=	
UPL species	80	x5=	400
Column Totals:	100 (A)		440 (B)

Prevalence Index = B/A = 4.40

Hydrophytic Vegetation Indicators

____ Dominance Test is > 50%
____ Prevalence Index is ≤ 3.0[1]
____ Morphological Adaptations[1] (Providing supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation (Explain)

[1]Indicators of hydric soils and wetland hydrology must be present

Hydrophytic Vegetation Present? Yes ____ No X

SOIL Sampling Point W10

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 4/1	75	5YR 5/8	25	C	RC	C	
5-9	10YR 4/1	93	10YR 5/8	7	C	M	C	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)	___ Sandy Gleyed Matrix (S4)	___ 1 cm Muck (A9) **(LRR C)**
___ Histic Epipedon (A2)	___ Sandy Redox (S5)	___ Coast Prairie Redox (A16) (LRR F, G, H)
___ Black Histic (A3)	___ Stripped Matrix (S6)	___ Dark Surface (S7) **(LRR G)**
___ Hydrogen Sulfide (A4)	___ Loamy Mucky Mineral (F1)	___ High Plains Depressions (F16)
___ Stratified Layers (A5) **(LRR F)**	___ Loamy Gleyed Matrix (F2)	**(LRR H outside MLRA 72 & 73)**
___ 1 cm Muck (A9) **(LRR F, G, H)**	X Depleted Matrix (F3)	___ Reduced Vertic (F18)
___ Depleted Below Dark Surface (A11)	___ Redox Dark Surface (F6)	___ Red Parent Material (TF2)
___ Thick Dark Surface (A12)	___ Depleted Dark Surface (F7)	___ Other (Explain in Remarks)
___ Sandy Mucky Mineral (S1)	X Redox Depressions (F8)	
___ 2.5 cm Mucky Peat or Peat (S2) **(LFF G, H)**	___ High Plains Depressions (F16)	[3]Indicators of hydrophytic vegetation
___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**		and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils Present? Yes X No ___

Remarks:

A few oxidized root channels existed, with a greater percentage in the top five inches.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

___ Surface Water (A1)	___ Salt Crusts (B11)	**Secondary Indicators (2 or more required)**
___ High Water Table (A2)	___ Aquatic Invertebrates (B13)	___ Surface Soil Cracks (B6)
___ Saturation (A3)	___ Hydrogen Sulfide Oder (C1)	___ Sparsely Vegetated Concave Surfaces (B8)
___ Water Marks (B1)	___ Dry-Season Water Table (C2)	___ Drainage Patterns (B10)
___ Sediment Deposits (B2)	___ Presence of Reduced Iron (C4)	X Oxidized Rhizospheres on Living Roots (C3)
___ Drift Deposits (B3)	___ Thin Muck Surface (C7)	___ Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	___ Other (Explain in Remark)	Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)		___ Frost-Heave Hummocks (C11) **(LRR F)**
___ Inundation Visible on Aerial Imagery (B7)		X Geomorphic Position (D2)
___ Water Stained Leaves (B9)		___ FAC-Neutral Test (D5)
		___ Local Soil Survey Data (D8)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspection), if available:

Remarks:

POWERTECH (USA) INC.

WETLAND DETERMINATION DATA FORM-Great Plains Region (DRAFT)

Project/Site: Dewey Burdock | City/County: Custer County | Sampling Date: 9/18/07

Applicant/Owner: Knight Piesold, Powertech | State: South Dakota | Sampling Point: W11

Investigator(s): C. Robinson and J. Eberly | Section, Township, Range: Section 32, T6S, R1E

Landform (hillslope, terrace, etc.) Drainage | Local relief (concave, convex, none): Convex | Slope (%): 1

Subregion (LRP): Black Hills MLRA62 | Lat: | Long: | Datum: NAD 1983, UTM Zone 13

Soil Map Unit Name: | NWI Classification:

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ Significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ Naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes		No	X	**Is the Sampled Area Within a Wetland** Yes ____ No X
Hydric Soil Present?	Yes		No	X	
Wetland Hydrology Present	Yes		No	X	

Remarks:
NWI previously mapped: PEMF
Cottonwoods in area but not in five foot radius
R2 P3: West
R2 P4: East

VEGETATION

Tree Stratum (Use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. *Bassia sieveriana*	70	X	FACU
2. *Hordeum jubatum*	5		FACW
3. *Chenopodium album*	15		FAC
4. *Cirsium arvense*	5		FACU
5. *Thlaspi arvense*	5		FACU
6.			
7.			
8.			
9.			
10.			
Total Cover:	100		
Woody Vine Stratum			
1.			
2.			
3.			
Total Cover:			

% Bare Ground in Herb Stratum 40 % Cover of Biotic Crust

Dominance Test Worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species	5	x2=	10
FAC species	15	x3=	45
FACU species	80	x4=	320
UPL species		x5=	
Column Totals:	100 (A)		375 (B)

Prevalence Index = B/A = 3.75

Hydrophytic Vegetation Indicators

____ Dominance Test is > 50%
____ Prevalence Index is ≤ 3.0[1]
____ Morphological Adaptations[1] (Providing supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation (Explain)

[1]Indicators of hydric soils and wetland hydrology must be present

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:

SOIL Sampling Point W11

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 4/1	100					SiC	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5) **(LRR F)**
- ____ 1 cm Muck (A9) **(LRR F, G, H)**
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1)
- ____ 2.5 cm Mucky Peat or Peat (S2) **(LFF G, H)**
- ____ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Loamy Mucky Mineral (F1)
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ High Plains Depressions (F16)

Indicators for Problematic Hydric Soils[3]:

- ____ 1 cm Muck (A9) **(LRR C)**
- ____ Coast Prairie Redox (A16) (LRR F, G, H)
- ____ Dark Surface (S7) **(LRR G)**
- ____ High Plains Depressions (F16) **(LRR H outside MLRA 72 & 73)**
- ____ Reduced Vertic (F18)
- ____ Red Parent Material (TF2)
- ____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils Present? Yes ____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ____ Surface Water (A1)
- ____ High Water Table (A2)
- ____ Saturation (A3)
- ____ Water Marks (B1)
- ____ Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Water Stained Leaves (B9)
- ____ Salt Crusts (B11)
- ____ Aquatic Invertebrates (B13)
- ____ Hydrogen Sulfide Oder (C1)
- ____ Dry-Season Water Table (C2)
- ____ Presence of Reduced Iron (C4)
- ____ Thin Muck Surface (C7)
- ____ Other (Explain in Remark)

Secondary Indicators (2 or more required)

- ____ Surface Soil Cracks (B6)
- ____ Sparsely Vegetated Concave Surfaces (B8)
- ____ Drainage Patterns (B10)
- ____ Oxidized Rhizospheres on Living Roots (C3)
- ____ Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- ____ Frost-Heave Hummocks (C11) **(LRR F)**
- X Geomorphic Position (D2)
- ____ FAC-Neutral Test (D5)
- ____ Local Soil Survey Data (D8)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ____

Water Table Present? Yes ____ No X Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): ____

Wetland Hydrology Present? Yes ____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspection), if available:

Remarks:

POWERTECH (USA) INC.

WETLAND DETERMINATION DATA FORM-Great Plains Region (DRAFT)

Project/Site: Dewey Burdock | City/County: Custer County | Sampling Date: 9/18/07

Applicant/Owner: Knight Piesold, Powertech | State: South Dakota | Sampling Point: W12

Investigator(s): C. Robinson and J. Eberly | Section, Township, Range: Section 32, T6S, R1E

Landform (hillslope, terrace, etc.) Drainage | Local relief (concave, convex, none): Convex | Slope (%): 1

Subregion (LRP): Black Hills MLRA62 | Lat: | Long: | Datum: NAD 1983, UTM Zone 13

Soil Map Unit Name: | NWI Classification:

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ Significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ Naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	____	No	X
Hydric Soil Present?	Yes	X	No	____
Wetland Hydrology Present	Yes		No	X

Is the Sampled Area Within a Wetland Yes ____ No X

Remarks:
NWI previously mapped: PEMF
R2 P5: West
R2 P6: East

VEGETATION

Tree Stratum (Use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. *Spartina pectinata*	5		FACW
2. *Chenopodium album*	50	X	FAC
3. *Cirsium arvense*	15		FACU
4. *Thlaspi arvense*	30	X	FACU
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover:	100		
Woody Vine Stratum			
1.			
2.			
3.			
Total Cover:			

% Bare Ground in Herb Stratum 30 % Cover of Biotic Crust

Remarks:

Dominance Test Worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species	5	x2=	10
FAC species	50	x3=	150
FACU species	45	x4=	180
UPL species		x5=	
Column Totals:	100 (A)		340 (B)

Prevalence Index = B/A = 3.40

Hydrophytic Vegetation Indicators

____ Dominance Test is > 50%
____ Prevalence Index is ≤ 3.0[1]
____ Morphological Adaptations[1] (Providing supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation (Explain)

[1]Indicators of hydric soils and wetland hydrology must be present

Hydrophytic Vegetation Present? Yes ____ No X

POWERTECH (USA) INC.

SOIL Sampling Point W12

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 4/1	75	10YR 5/8	25	C	M	C	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)	___ Sandy Gleyed Matrix (S4)	___ 1 cm Muck (A9) **(LRR C)**
___ Histic Epipedon (A2)	___ Sandy Redox (S5)	___ Coast Prairie Redox (A16) (LRR F, G, H)
___ Black Histic (A3)	___ Stripped Matrix (S6)	___ Dark Surface (S7) **(LRR G)**
___ Hydrogen Sulfide (A4)	___ Loamy Mucky Mineral (F1)	___ High Plains Depressions (F16)
___ Stratified Layers (A5) **(LRR F)**	___ Loamy Gleyed Matrix (F2)	**(LRR H outside MLRA 72 & 73)**
___ 1 cm Muck (A9) **(LRR F, G, H)**	X Depleted Matrix (F3)	___ Reduced Vertic (F18)
___ Depleted Below Dark Surface (A11)	___ Redox Dark Surface (F6)	___ Red Parent Material (TF2)
___ Thick Dark Surface (A12)	___ Depleted Dark Surface (F7)	___ Other (Explain in Remarks)
___ Sandy Mucky Mineral (S1)	X Redox Depressions (F8)	
___ 2.5 cm Mucky Peat or Peat (S2) **(LFF G, H)**	___ High Plains Depressions (F16)	[3]Indicators of hydrophytic vegetation
___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**		and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils Present? Yes X No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

___ Surface Water (A1)	___ Salt Crusts (B11)	**Secondary Indicators (2 or more required)**
___ High Water Table (A2)	___ Aquatic Invertebrates (B13)	___ Surface Soil Cracks (B6)
___ Saturation (A3)	___ Hydrogen Sulfide Oder (C1)	___ Sparsely Vegetated Concave Surfaces (B8)
___ Water Marks (B1)	___ Dry-Season Water Table (C2)	___ Drainage Patterns (B10)
___ Sediment Deposits (B2)	___ Presence of Reduced Iron (C4)	___ Oxidized Rhizospheres on Living Roots (C3)
___ Drift Deposits (B3)	___ Thin Muck Surface (C7)	___ Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	___ Other (Explain in Remark)	Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)		___ Frost-Heave Hummocks (C11) **(LRR F)**
___ Inundation Visible on Aerial Imagery (B7)		X Geomorphic Position (D2)
___ Water Stained Leaves (B9)		___ FAC-Neutral Test (D5)
		___ Local Soil Survey Data (D8)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___		
Water Table Present?	Yes ___	No X	Depth (inches): ___		
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): ___	**Wetland Hydrology Present?**	Yes ___ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspection), if available:

Remarks:

POWERTECH (USA) INC.

WETLAND DETERMINATION DATA FORM-Great Plains Region (DRAFT)

Project/Site: Dewey Burdock | City/County: Custer County | Sampling Date: 9/18/07

Applicant/Owner: Knight Piesold, Powertech | State: South Dakota | Sampling Point: W13

Investigator(s): C. Robinson and J. Eberly | Section, Township, Range: Section 32, T6S, R1E

Landform (hillslope, terrace, etc.) Drainage | Local relief (concave, convex, none): Convex | Slope (%): 1

Subregion (LRP): Black Hills MLRA62 | Lat: | Long: | Datum: NAD 1983, UTM Zone 13

Soil Map Unit Name: | NWI Classification: R4US

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ Significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ Naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No	
Hydric Soil Present?	Yes		No	X
Wetland Hydrology Present	Yes	X	No	

Is the Sampled Area Within a Wetland Yes X No

Remarks:
Just North of the area little bluestem is creeping into the drainage but it is still dominated by *Spartina pectinata.*

VEGETATION

Tree Stratum (Use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. *Spartina pectinata*	90	X	FACW
2. *Andropogon scoparius*	5		NI
3. *Chenopodium album*	5		FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover:	100		
Woody Vine Stratum			
1.			
2.			
3.			
Total Cover:			

% Bare Ground in Herb Stratum 10 % Cover of Biotic Crust

Dominance Test Worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:	
OBL species	x1=	
FACW species	x2=	
FAC species	x3=	
FACU species	x4=	
UPL species	x5=	
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators

X Dominance Test is > 50%

Prevalence Index is ≤ 3.0[1]

Morphological Adaptations[1] (Providing supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation (Explain)

[1]Indicators of hydric soils and wetland hydrology must be present

Hydrophytic Vegetation Present? Yes X No

Remarks:

SOIL Sampling Point W13

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/1	50	7.5YR 5/8	50	C	M	SiCL	
4-10	10YR 4/1	100					SiCL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5) **(LRR F)**
- ____ 1 cm Muck (A9) **(LRR F, G, H)**
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1)
- ____ 2.5 cm Mucky Peat or Peat (S2) **(LFF G, H)**
- ____ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Loamy Mucky Mineral (F1)
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ High Plains Depressions (F16)

Indicators for Problematic Hydric Soils[3]:

- ____ 1 cm Muck (A9) **(LRR C)**
- ____ Coast Prairie Redox (A16) (LRR F, G, H)
- ____ Dark Surface (S7) **(LRR G)**
- ____ High Plains Depressions (F16) **(LRR H outside MLRA 72 & 73)**
- ____ Reduced Vertic (F18)
- ____ Red Parent Material (TF2)
- ____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils Present? Yes ____ No X

Remarks:
There were small inclusions of mottles present in depths 4-10 in the matrix.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ____ Surface Water (A1)
- ____ High Water Table (A2)
- ____ Saturation (A3)
- ____ Water Marks (B1)
- ____ Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Water Stained Leaves (B9)
- ____ Salt Crusts (B11)
- ____ Aquatic Invertebrates (B13)
- ____ Hydrogen Sulfide Oder (C1)
- ____ Dry-Season Water Table (C2)
- ____ Presence of Reduced Iron (C4)
- ____ Thin Muck Surface (C7)
- ____ Other (Explain in Remark)

Secondary Indicators (2 or more required)

- ____ Surface Soil Cracks (B6)
- ____ Sparsely Vegetated Concave Surfaces (B8)
- X Drainage Patterns (B10)
- ____ Oxidized Rhizospheres on Living Roots (C3)
- ____ Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- ____ Frost-Heave Hummocks (C11) **(LRR F)**
- X Geomorphic Position (D2)
- ____ FAC-Neutral Test (D5)
- ____ Local Soil Survey Data (D8)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches):	____	
Water Table Present?	Yes ____	No X	Depth (inches):	____	
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches):	____	**Wetland Hydrology Present?** Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspection), if available:

Remarks:

POWERTECH (USA) INC.

Project/Site: Dewey Burdock | City/County: Custer County | Sampling Date: 9/18/07

Applicant/Owner: Knight Piesold, Powertech | State: South Dakota | Sampling Point: W14

Investigator(s): C. Robinson and J. Eberly | Section, Township, Range: Section 32, T6S, R1E

Landform (hillslope, terrace, etc.) Drainage | Local relief (concave, convex, none): Convex | Slope (%): 1

Subregion (LRP): Black Hills MLRA62 | Lat: | Long: | Datum: NAD 1983, UTM Zone 13

Soil Map Unit Name: | NWI Classification: R4US

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ Significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ Naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No	
Hydric Soil Present?	Yes	X	No	
Wetland Hydrology Present	Yes	X	No	

Is the Sampled Area Within a Wetland Yes X No

Remarks:
R2 P7: Upstream area extends from waypoints 015-019
R2P8: Downstream
R2 P9: General area of PEMC

VEGETATION

Tree Stratum (Use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. *Spartina pectinata*	40	X	FACW
2. *Typha latifolia*	20	X	OBL
3. *Juncus balticus*	40	X	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover:	100		
Woody Vine Stratum			
1.			
2.			
3.			
Total Cover:			

% Bare Ground in Herb Stratum 10 % Cover of Biotic Crust

Dominance Test Worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	20	x1=	20
FACW species	80	x2=	160
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	100 (A)		180 (B)

Prevalence Index = B/A = 1.80

Hydrophytic Vegetation Indicators

X Dominance Test is > 50%
X Prevalence Index is ≤ 3.0[1]
____ Morphological Adaptations[1] (Providing supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation (Explain)

[1]Indicators of hydric soils and wetland hydrology must be present

Hydrophytic Vegetation Present? Yes X No

Remarks:

POWERTECH (USA) INC.

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	Gley1 4/N	55	7.5YR 5/8	45	C	RC	SiCL	
4-14	Gley1 4/N	80	7.5YR 4/6	20	C	M	SiCL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)	___ Sandy Gleyed Matrix (S4)	___ 1 cm Muck (A9) (**LRR C**)
___ Histic Epipedon (A2)	___ Sandy Redox (S5)	___ Coast Prairie Redox (A16) (LRR F, G, H)
___ Black Histic (A3)	___ Stripped Matrix (S6)	___ Dark Surface (S7) (**LRR G**)
___ Hydrogen Sulfide (A4)	___ Loamy Mucky Mineral (F1)	___ High Plains Depressions (F16)
___ Stratified Layers (A5) (**LRR F**)	X Loamy Gleyed Matrix (F2)	(**LRR H outside MLRA 72 & 73**)
___ 1 cm Muck (A9) (**LRR F, G, H**)	___ Depleted Matrix (F3)	___ Reduced Vertic (F18)
___ Depleted Below Dark Surface (A11)	___ Redox Dark Surface (F6)	___ Red Parent Material (TF2)
___ Thick Dark Surface (A12)	___ Depleted Dark Surface (F7)	___ Other (Explain in Remarks)
___ Sandy Mucky Mineral (S1)	___ Redox Depressions (F8)	
___ 2.5 cm Mucky Peat or Peat (S2) (**LFF G, H**)	___ High Plains Depressions (F16)	[3]Indicators of hydrophytic vegetation
___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)		and wetland hydrology must be present.

Indicators for Problematic Hydric Soils[3]:

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils Present? Yes X No ___

Remarks:

There were small inclusions of mottles present in depths 4-10 in the matrix.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

___ Surface Water (A1)	___ Salt Crusts (B11)	**Secondary Indicators (2 or more required)**
___ High Water Table (A2)	___ Aquatic Invertebrates (B13)	___ Surface Soil Cracks (B6)
___ Saturation (A3)	___ Hydrogen Sulfide Oder (C1)	___ Sparsely Vegetated Concave Surfaces (B8)
___ Water Marks (B1)	___ Dry-Season Water Table (C2)	X Drainage Patterns (B10)
___ Sediment Deposits (B2)	___ Presence of Reduced Iron (C4)	X Oxidized Rhizospheres on Living Roots (C3)
___ Drift Deposits (B3)	___ Thin Muck Surface (C7)	___ Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	___ Other (Explain in Remark)	___ Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)		___ Frost-Heave Hummocks (C11) (**LRR F**)
___ Inundation Visible on Aerial Imagery (B7)		X Geomorphic Position (D2)
___ Water Stained Leaves (B9)		___ FAC-Neutral Test (D5)
		___ Local Soil Survey Data (D8)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___		
Water Table Present?	Yes ___	No X	Depth (inches): ___		
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): ___	**Wetland Hydrology Present?**	Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspection), if available:

Remarks:

POWERTECH (USA) INC.

WETLAND DETERMINATION DATA FORM-Great Plains Region (DRAFT)

Project/Site: Dewey Burdock | City/County: Custer County | Sampling Date: 9/18/07

Applicant/Owner: Knight Piesold, Powertech | State: South Dakota | Sampling Point: W15

Investigator(s): C. Robinson and J. Eberly | Section, Township, Range: Section 30, T6S, R1E

Landform (hillslope, terrace, etc.) Drainage | Local relief (concave, convex, none): Concave | Slope (%): 1

Subregion (LRP): Black Hills MLRA62 | Lat: | Long: | Datum: NAD 1983, UTM Zone 13

Soil Map Unit Name: | NWI Classification: R2EM

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ Significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ Naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No	
Hydric Soil Present?	Yes	X	No	
Wetland Hydrology Present	Yes	X	No	

Is the Sampled Area Within a Wetland Yes X No

Remarks:
R2 P12: Upstream
R2 P13: Downstream
Wetland is upstream and the channel width is about 8 feet wide.

VEGETATION

Tree Stratum (Use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. *Spartina pectinata*	55	X	FACW
2. *Eleocharis palustris*	15		OBL
3. *Juncus balticus*	10		FACW
4. *Kochia scoparia*	10		FAC
5. *Bassia sieveriana*	10		FACU
6.			
7.			
8.			
9.			
10.			
Total Cover:	100		
Woody Vine Stratum			
1.			
2.			
3.			
Total Cover:			

% Bare Ground in Herb Stratum % Cover of Biotic Crust

Dominance Test Worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:	
OBL species	x1=	
FACW species	x2=	
FAC species	x3=	
FACU species	x4=	
UPL species	x5=	
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators

X Dominance Test is > 50%
____ Prevalence Index is ≤ 3.0[1]
____ Morphological Adaptations[1] (Providing supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation (Explain)

[1]Indicators of hydric soils and wetland hydrology must be present

Hydrophytic Vegetation Present? Yes X No

Remarks:

SOIL Sampling Point W15

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	2.5Y 4/1	90	7.5YR 4/6	10	C	RC, M	CL	
8-10	Gley1 3/N	70	7.5YR 5/8	30	C	M	SiC	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

	Histosol (A1)		Sandy Gleyed Matrix (S4)
	Histic Epipedon (A2)		Sandy Redox (S5)
	Black Histic (A3)		Stripped Matrix (S6)
	Hydrogen Sulfide (A4)		Loamy Mucky Mineral (F1)
	Stratified Layers (A5) **(LRR F)**	X	Loamy Gleyed Matrix (F2)
	1 cm Muck (A9) **(LRR F, G, H)**	X	Depleted Matrix (F3)
	Depleted Below Dark Surface (A11)		Redox Dark Surface (F6)
	Thick Dark Surface (A12)		Depleted Dark Surface (F7)
	Sandy Mucky Mineral (S1)		Redox Depressions (F8)
	2.5 cm Mucky Peat or Peat (S2) **(LFF G, H)**		High Plains Depressions (F16)
	5 cm Mucky Peat or Peat (S3) **(LRR F)**		

Indicators for Problematic Hydric Soils[3]:

	1 cm Muck (A9) **(LRR C)**
	Coast Prairie Redox (A16) (LRR F, G, H)
	Dark Surface (S7) **(LRR G)**
	High Plains Depressions (F16) **(LRR H outside MLRA 72 & 73)**
	Reduced Vertic (F18)
	Red Parent Material (TF2)
	Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soils Present? Yes X No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

X	Surface Water (A1)		Salt Crusts (B11)
	High Water Table (A2)		Aquatic Invertebrates (B13)
	Saturation (A3)		Hydrogen Sulfide Oder (C1)
	Water Marks (B1)		Dry-Season Water Table (C2)
	Sediment Deposits (B2)		Presence of Reduced Iron (C4)
	Drift Deposits (B3)		Thin Muck Surface (C7)
	Algal Mat or Crust (B4)		Other (Explain in Remark)
	Iron Deposits (B5)		
	Inundation Visible on Aerial Imagery (B7)		
	Water Stained Leaves (B9)		

Secondary Indicators (2 or more required)

	Surface Soil Cracks (B6)
	Sparsely Vegetated Concave Surfaces (B8)
X	Drainage Patterns (B10)
X	Oxidized Rhizospheres on Living Roots (C3)
	Crayfish Burrows (C8)
	Saturation Visible on Aerial Imagery (C9)
	Frost-Heave Hummocks (C11) **(LRR F)**
X	Geomorphic Position (D2)
	FAC-Neutral Test (D5)
	Local Soil Survey Data (D8)

Field Observations:

Surface Water Present?	Yes X	No	Depth (inches):	10	
Water Table Present?	Yes	No X	Depth (inches):		
Saturation Present? (includes capillary fringe)	Yes	No X	Depth (inches):		**Wetland Hydrology Present?** Yes X No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspection), if available:

Remarks:

POWERTECH (USA) INC.

WETLAND DETERMINATION DATA FORM-Great Plains Region (DRAFT)

Project/Site: Dewey Burdock | City/County: Custer County | Sampling Date: 9/18/07

Applicant/Owner: Knight Piesold, Powertech | State: South Dakota | Sampling Point: W16

Investigator(s): C. Robinson and J. Eberly | Section, Township, Range: Section 31, T6S, R1E

Landform (hillslope, terrace, etc.) Drainage | Local relief (concave, convex, none): Concave | Slope (%): 1

Subregion (LRP): Black Hills MLRA62 | Lat: | Long: | Datum: NAD 1983, UTM Zone 13

Soil Map Unit Name: | NWI Classification: R2EM

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ Significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ Naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No	
Hydric Soil Present?	Yes	X	No	
Wetland Hydrology Present	Yes	X	No	

Is the Sampled Area Within a Wetland Yes X No

Remarks:
R2 P18: Upstream
R2 P19: Downstream
Aquatic animals present

VEGETATION

Tree Stratum (Use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			

Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			

Herb Stratum			
1. *Spartina pectinata*	30	X	FACW
2. *Cirsium arvense*	5		FACU
3. *Eleocharis palustris*	40	X	OBL
4. *Juncus balticus*	15		FACW
5. *Xanthium strumarium*	5		FAC
6. *Chenopodium album*	3		FAC
7. *Schoenoplectus pungens*	2		OBL
8.			
9.			
10.			
Total Cover:	100		

Woody Vine Stratum			
1.			
2.			
3.			
Total Cover:			

% Bare Ground in Herb Stratum 5 % Cover of Biotic Crust

Dominance Test Worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:	
OBL species	x1=	
FACW species	x2=	
FAC species	x3=	
FACU species	x4=	
UPL species	x5=	
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators

X Dominance Test is > 50%
____ Prevalence Index is ≤ 3.0[1]
____ Morphological Adaptations[1] (Providing supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation (Explain)

[1]Indicators of hydric soils and wetland hydrology must be present

Hydrophytic Vegetation Present? Yes X No

Remarks:

SOIL Sampling Point W16

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	2.5Y 4/1	37	7.5YR 4/6	3	C	RC	C	
			Gley1 2.5/N	60	D	M	C	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)	___ Sandy Gleyed Matrix (S4)	___ 1 cm Muck (A9) **(LRR C)**
___ Histic Epipedon (A2)	___ Sandy Redox (S5)	___ Coast Prairie Redox (A16) (LRR F, G, H)
___ Black Histic (A3)	___ Stripped Matrix (S6)	___ Dark Surface (S7) **(LRR G)**
___ Hydrogen Sulfide (A4)	___ Loamy Mucky Mineral (F1)	___ High Plains Depressions (F16)
___ Stratified Layers (A5) **(LRR F)**	___ Loamy Gleyed Matrix (F2)	**(LRR H outside MLRA 72 & 73)**
___ 1 cm Muck (A9) **(LRR F, G, H)**	X Depleted Matrix (F3)	___ Reduced Vertic (F18)
___ Depleted Below Dark Surface (A11)	___ Redox Dark Surface (F6)	___ Red Parent Material (TF2)
___ Thick Dark Surface (A12)	___ Depleted Dark Surface (F7)	___ Other (Explain in Remarks)
___ Sandy Mucky Mineral (S1)	___ Redox Depressions (F8)	
___ 2.5 cm Mucky Peat or Peat (S2) **(LFF G, H)**	___ High Plains Depressions (F16)	[3]Indicators of hydrophytic vegetation
___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**		and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils Present? Yes X No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

X Surface Water (A1)	___ Salt Crusts (B11)	**Secondary Indicators (2 or more required)**
X High Water Table (A2)	___ Aquatic Invertebrates (B13)	___ Surface Soil Cracks (B6)
X Saturation (A3)	___ Hydrogen Sulfide Oder (C1)	___ Sparsely Vegetated Concave Surfaces (B8)
___ Water Marks (B1)	___ Dry-Season Water Table (C2)	X Drainage Patterns (B10)
___ Sediment Deposits (B2)	___ Presence of Reduced Iron (C4)	___ Oxidized Rhizospheres on Living Roots (C3)
___ Drift Deposits (B3)	___ Thin Muck Surface (C7)	___ Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	___ Other (Explain in Remark)	___ Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)		___ Frost-Heave Hummocks (C11) **(LRR F)**
___ Inundation Visible on Aerial Imagery (B7)		X Geomorphic Position (D2)
___ Water Stained Leaves (B9)		___ FAC-Neutral Test (D5)
		___ Local Soil Survey Data (D8)

Field Observations:

Surface Water Present?	Yes X	No ___	Depth (inches):	5	
Water Table Present?	Yes X	No ___	Depth (inches):	5	
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches):	5	**Wetland Hydrology Present?** Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspection), if available:

Remarks:

POWERTECH (USA) INC.

WETLAND DETERMINATION DATA FORM-Great Plains Region (DRAFT)

Project/Site: Dewey Burdock | City/County: Custer County | Sampling Date: 9/18/07

Applicant/Owner: Knight Piesold, Powertech | State: South Dakota | Sampling Point: W17

Investigator(s): C. Robinson and J. Eberly | Section, Township, Range: Section 31, T6S, R1E

Landform (hillslope, terrace, etc.) Ditch around agricultural area | Local relief (concave, convex, none): convex | Slope (%): 2

Subregion (LRP): Black Hills MLRA62 | Lat: | Long: | Datum: NAD 1983, UTM Zone 13

Soil Map Unit Name: | NWI Classification:

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ Significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ Naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	____	No	X
Hydric Soil Present?	Yes	____	No	X
Wetland Hydrology Present	Yes		No	X

Is the Sampled Area Within a Wetland Yes ____ No X

Remarks:
R2 P22: Upstream
R2 P23: Downstream
Previously mapped as PEMA

VEGETATION

Tree Stratum (Use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			

Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			

Herb Stratum			
1. *Bromus inermis*	95	X	FACU
2. *Cirsium arvense*	2		FACU
3. *Chenopodium album*	3		FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover:	100		

Woody Vine Stratum			
1.			
2.			
3.			
Total Cover:			

% Bare Ground in Herb Stratum | % Cover of Biotic Crust

Remarks:

Dominance Test Worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species	3	x3=	9
FACU species	97	x4=	388
UPL species		x5=	
Column Totals:	100 (A)		397 (B)

Prevalence Index = B/A = 3.97

Hydrophytic Vegetation Indicators

____ Dominance Test is > 50%
____ Prevalence Index is ≤ 3.0[1]
____ Morphological Adaptations[1] (Providing supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation (Explain)

[1]Indicators of hydric soils and wetland hydrology must be present

Hydrophytic Vegetation Present? Yes ____ No X

SOIL Sampling Point W17

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	2.5Y 2.5/1	100					C	
2-8	2.5Y 4/3	100					C	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- _____ Histosol (A1)
- _____ Histic Epipedon (A2)
- _____ Black Histic (A3)
- _____ Hydrogen Sulfide (A4)
- _____ Stratified Layers (A5) **(LRR F)**
- _____ 1 cm Muck (A9) **(LRR F, G, H)**
- _____ Depleted Below Dark Surface (A11)
- _____ Thick Dark Surface (A12)
- _____ Sandy Mucky Mineral (S1)
- _____ 2.5 cm Mucky Peat or Peat (S2) **(LFF G, H)**
- _____ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- _____ Sandy Gleyed Matrix (S4)
- _____ Sandy Redox (S5)
- _____ Stripped Matrix (S6)
- _____ Loamy Mucky Mineral (F1)
- _____ Loamy Gleyed Matrix (F2)
- _____ Depleted Matrix (F3)
- _____ Redox Dark Surface (F6)
- _____ Depleted Dark Surface (F7)
- _____ Redox Depressions (F8)
- _____ High Plains Depressions (F16)

Indicators for Problematic Hydric Soils[3]:

- _____ 1 cm Muck (A9) **(LRR C)**
- _____ Coast Prairie Redox (A16) (LRR F, G, H)
- _____ Dark Surface (S7) **(LRR G)**
- _____ High Plains Depressions (F16) **(LRR H outside MLRA 72 & 73)**
- _____ Reduced Vertic (F18)
- _____ Red Parent Material (TF2)
- _____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- _____ Surface Water (A1)
- _____ High Water Table (A2)
- _____ Saturation (A3)
- _____ Water Marks (B1)
- _____ Sediment Deposits (B2)
- _____ Drift Deposits (B3)
- _____ Algal Mat or Crust (B4)
- _____ Iron Deposits (B5)
- _____ Inundation Visible on Aerial Imagery (B7)
- _____ Water Stained Leaves (B9)
- _____ Salt Crusts (B11)
- _____ Aquatic Invertebrates (B13)
- _____ Hydrogen Sulfide Oder (C1)
- _____ Dry-Season Water Table (C2)
- _____ Presence of Reduced Iron (C4)
- _____ Thin Muck Surface (C7)
- _____ Other (Explain in Remark)

Secondary Indicators (2 or more required)

- _____ Surface Soil Cracks (B6)
- _____ Sparsely Vegetated Concave Surfaces (B8)
- _____ Drainage Patterns (B10)
- _____ Oxidized Rhizospheres on Living Roots (C3)
- _____ Crayfish Burrows (C8)
- _____ Saturation Visible on Aerial Imagery (C9)
- _____ Frost-Heave Hummocks (C11) **(LRR F)**
- X Geomorphic Position (D2)
- _____ FAC-Neutral Test (D5)
- _____ Local Soil Survey Data (D8)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspection), if available:

Remarks:

POWERTECH (USA) INC.

WETLAND DETERMINATION DATA FORM-Great Plains Region (DRAFT)

Project/Site: Dewey Burdock | City/County: Custer County | Sampling Date: 9/18/07

Applicant/Owner: Knight Piesold, Powertech | State: South Dakota | Sampling Point: W18

Investigator(s): C. Robinson and J. Eberly | Section, Township, Range: Section 31, T6S, R1E

Landform (hillslope, terrace, etc.) Drainage bank | Local relief (concave, convex, none): Concave | Slope (%): 5

Subregion (LRP): Black Hills MLRA62 | Lat: | Long: | Datum: NAD 1983, UTM Zone 13

Soil Map Unit Name: | NWI Classification: R2EM

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____ , Soil ____ , or Hydrology ____ Significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____ , Soil ____ , or Hydrology ____ Naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No		**Is the Sampled Area Within a Wetland** Yes X No
Hydric Soil Present?	Yes	X	No		
Wetland Hydrology Present	Yes	X	No		

Remarks:
R3 P1: Upstream
R3 P2: Downstream
Wpt 026 is similar to W18, R2 P24: Upstream
Width of wetland is about 17', width of channel is about 12'

VEGETATION

Tree Stratum (Use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. *Spartina pectinata*	80	X	FACW
2. *Xanthium strumarium*	5		FAC
3. *Schoenoplectus pungens*	10		OBL
4. *Juncus balticus*	5		FACW
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover:	100		
Woody Vine Stratum			
1.			
2.			
3.			
Total Cover:			

% Bare Ground in Herb Stratum 5 % Cover of Biotic Crust

Remarks:

Dominance Test Worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:	
OBL species	x1=	
FACW species	x2=	
FAC species	x3=	
FACU species	x4=	
UPL species	x5=	
Column Totals: (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators

X Dominance Test is > 50%
Prevalence Index is ≤ 3.0[1]
Morphological Adaptations[1] (Providing supporting data in Remarks or on a separate sheet)
Problematic Hydrophytic Vegetation (Explain)

[1]Indicators of hydric soils and wetland hydrology must be present

Hydrophytic Vegetation Present? Yes X No

SOIL

Sampling Point W18

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	Gley1 4/5GY	97	2.5YR 7/8	3	C	M	CL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)	___ Sandy Gleyed Matrix (S4)	___ 1 cm Muck (A9) (**LRR C**)
___ Histic Epipedon (A2)	___ Sandy Redox (S5)	___ Coast Prairie Redox (A16) (LRR F, G, H)
___ Black Histic (A3)	___ Stripped Matrix (S6)	___ Dark Surface (S7) (**LRR G**)
___ Hydrogen Sulfide (A4)	___ Loamy Mucky Mineral (F1)	___ High Plains Depressions (F16)
___ Stratified Layers (A5) (**LRR F**)	X Loamy Gleyed Matrix (F2)	(**LRR H outside MLRA 72 & 73**)
___ 1 cm Muck (A9) (**LRR F, G, H**)	___ Depleted Matrix (F3)	___ Reduced Vertic (F18)
___ Depleted Below Dark Surface (A11)	___ Redox Dark Surface (F6)	___ Red Parent Material (TF2)
___ Thick Dark Surface (A12)	___ Depleted Dark Surface (F7)	___ Other (Explain in Remarks)
___ Sandy Mucky Mineral (S1)	___ Redox Depressions (F8)	
___ 2.5 cm Mucky Peat or Peat (S2) (**LFF G, H**)	___ High Plains Depressions (F16)	[3]Indicators of hydrophytic vegetation
___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)		and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils Present? Yes X No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

___ Surface Water (A1)	___ Salt Crusts (B11)	**Secondary Indicators (2 or more required)**
X High Water Table (A2)	___ Aquatic Invertebrates (B13)	___ Surface Soil Cracks (B6)
___ Saturation (A3)	X Hydrogen Sulfide Oder (C1)	___ Sparsely Vegetated Concave Surfaces (B8)
___ Water Marks (B1)	___ Dry-Season Water Table (C2)	___ Drainage Patterns (B10)
___ Sediment Deposits (B2)	___ Presence of Reduced Iron (C4)	___ Oxidized Rhizospheres on Living Roots (C3)
___ Drift Deposits (B3)	___ Thin Muck Surface (C7)	___ Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	___ Other (Explain in Remark)	Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)		___ Frost-Heave Hummocks (C11) (**LRR F**)
___ Inundation Visible on Aerial Imagery (B7)		X Geomorphic Position (D2)
___ Water Stained Leaves (B9)		___ FAC-Neutral Test (D5)
		___ Local Soil Survey Data (D8)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches):	___	
Water Table Present?	Yes X	No ___	Depth (inches):	8	**Wetland Hydrology Present?** Yes X No ___
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches):	___	

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspection), if available:

Remarks:

The water table was present within 8" of the surface.

POWERTECH (USA) INC.

WETLAND DETERMINATION DATA FORM-Great Plains Region (DRAFT)

Project/Site: Dewey Burdock | City/County: Custer County | Sampling Date: 9/18/07

Applicant/Owner: Knight Piesold, Powertech | State: South Dakota | Sampling Point: W19

Investigator(s): C. Robinson and J. Eberly | Section, Township, Range: Section 31, T6S, R1E

Landform (hillslope, terrace, etc.) Low area | Local relief (concave, convex, none): Concave | Slope (%):

Subregion (LRP): Black Hills MLRA62 | Lat: | Long: | Datum: NAD 1983, UTM Zone 13

Soil Map Unit Name: | NWI Classification:

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ Significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ Naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes		No	X	**Is the Sampled Area Within a Wetland** Yes ____ No X
Hydric Soil Present?	Yes	X	No		
Wetland Hydrology Present	Yes		No	X	

Remarks:
Low vegetation cover, Normal circumstances present within an active prairie dog community. Previously NWI mapped as PEMF.
R3 P3: Northwest
R3 P4: East

VEGETATION

Tree Stratum (Use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. *Chenopodium berlandieri*	99	X	FAC
2. *Bassia sieveriana*	1		FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover:	100		
Woody Vine Stratum			
1.			
2.			
3.			
Total Cover:			

% Bare Ground in Herb Stratum 65 % Cover of Biotic Crust

Remarks:

Dominance Test Worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species	99	x3=	297
FACU species	1	x4=	4
UPL species		x5=	
Column Totals:	100 (A)		301 (B)

Prevalence Index = B/A = 3.01

Hydrophytic Vegetation Indicators

____ Dominance Test is > 50%
____ Prevalence Index is ≤ 3.0[1]
____ Morphological Adaptations[1] (Providing supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation (Explain)

[1]Indicators of hydric soils and wetland hydrology must be present

Hydrophytic Vegetation Present? Yes ____ No X

SOIL Sampling Point W19

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 4/1	95	7.5YR 5/8	5	C	M	SiCL	
2-4	10YR 4/1	100					SiCL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)	___ Sandy Gleyed Matrix (S4)	___ 1 cm Muck (A9) (**LRR C**)
___ Histic Epipedon (A2)	___ Sandy Redox (S5)	___ Coast Prairie Redox (A16) (LRR F, G, H)
___ Black Histic (A3)	___ Stripped Matrix (S6)	___ Dark Surface (S7) (**LRR G**)
___ Hydrogen Sulfide (A4)	___ Loamy Mucky Mineral (F1)	___ High Plains Depressions (F16)
___ Stratified Layers (A5) (**LRR F**)	___ Loamy Gleyed Matrix (F2)	(**LRR H outside MLRA 72 & 73**)
___ 1 cm Muck (A9) (**LRR F, G, H**)	X Depleted Matrix (F3)	___ Reduced Vertic (F18)
___ Depleted Below Dark Surface (A11)	___ Redox Dark Surface (F6)	___ Red Parent Material (TF2)
___ Thick Dark Surface (A12)	___ Depleted Dark Surface (F7)	___ Other (Explain in Remarks)
___ Sandy Mucky Mineral (S1)	___ Redox Depressions (F8)	
___ 2.5 cm Mucky Peat or Peat (S2) (**LFF G, H**)	___ High Plains Depressions (F16)	[3]Indicators of hydrophytic vegetation
___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)		and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils Present? Yes X No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

___ Surface Water (A1)	___ Salt Crusts (B11)	**Secondary Indicators (2 or more required)**
___ High Water Table (A2)	___ Aquatic Invertebrates (B13)	___ Surface Soil Cracks (B6)
___ Saturation (A3)	___ Hydrogen Sulfide Oder (C1)	___ Sparsely Vegetated Concave Surfaces (B8)
___ Water Marks (B1)	___ Dry-Season Water Table (C2)	___ Drainage Patterns (B10)
___ Sediment Deposits (B2)	___ Presence of Reduced Iron (C4)	___ Oxidized Rhizospheres on Living Roots (C3)
___ Drift Deposits (B3)	___ Thin Muck Surface (C7)	___ Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	___ Other (Explain in Remark)	Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)		___ Frost-Heave Hummocks (C11) (**LRR F**)
___ Inundation Visible on Aerial Imagery (B7)		___ Geomorphic Position (D2)
___ Water Stained Leaves (B9)		___ FAC-Neutral Test (D5)
		___ Local Soil Survey Data (D8)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches):	___	
Water Table Present?	Yes ___	No X	Depth (inches):	___	
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches):	___	**Wetland Hydrology Present?** Yes ___ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspection), if available:

Remarks:

POWERTECH (USA) INC.

WETLAND DETERMINATION DATA FORM-Great Plains Region (DRAFT)

Project/Site: Dewey Burdock | City/County: Custer County | Sampling Date: 9/18/07

Applicant/Owner: Knight Piesold, Powertech | State: South Dakota | Sampling Point: W20

Investigator(s): C. Robinson and J. Eberly | Section, Township, Range: Section 9, T7S, R1E

Landform (hillslope, terrace, etc.) Drainage | Local relief (concave, convex, none): Concave | Slope (%): 0

Subregion (LRP): Black Hills MLRA62 | Lat: | Long: | Datum: NAD 1983, UTM Zone 13

Soil Map Unit Name: | NWI Classification: PEM

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ Significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ Naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No	
Hydric Soil Present?	Yes		No	X
Wetland Hydrology Present	Yes	X	No	

Is the Sampled Area Within a Wetland Yes X No

Remarks:
R2 P12: Upstream
R2 P13: Downstream
Wetland is upstream and the channel width is about 8 feet wide.

VEGETATION

Tree Stratum (Use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. *Schoenoplectus pungens*	90	X	OBL
2. *Cirsium arvense*	5		FACU
3. *Bassia sieveriana*	5		FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover:	100		
Woody Vine Stratum			
1.			
2.			
3.			
Total Cover:			

% Bare Ground in Herb Stratum % Cover of Biotic Crust

Dominance Test Worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:	
OBL species	x1=	
FACW species	x2=	
FAC species	x3=	
FACU species	x4=	
UPL species	x5=	
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators

X Dominance Test is > 50%
____ Prevalence Index is ≤ 3.0[1]
____ Morphological Adaptations[1] (Providing supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation (Explain)

[1]Indicators of hydric soils and wetland hydrology must be present

Hydrophytic Vegetation Present? Yes X No

Remarks:

SOIL Sampling Point W20

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/1	98	5YR 5/8	2	C	M	C	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5) **(LRR F)**
- ____ 1 cm Muck (A9) **(LRR F, G, H)**
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1)
- ____ 2.5 cm Mucky Peat or Peat (S2) **(LFF G, H)**
- ____ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Loamy Mucky Mineral (F1)
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ High Plains Depressions (F16)

Indicators for Problematic Hydric Soils[3]:

- ____ 1 cm Muck (A9) **(LRR C)**
- ____ Coast Prairie Redox (A16) (LRR F, G, H)
- ____ Dark Surface (S7) **(LRR G)**
- ____ High Plains Depressions (F16) **(LRR H outside MLRA 72 & 73)**
- ____ Reduced Vertic (F18)
- ____ Red Parent Material (TF2)
- ____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: ____

Depth (inches): ____

Hydric Soils Present? Yes ____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- X Surface Water (A1)
- ____ High Water Table (A2)
- ____ Saturation (A3)
- ____ Water Marks (B1)
- ____ Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Water Stained Leaves (B9)
- ____ Salt Crusts (B11)
- ____ Aquatic Invertebrates (B13)
- ____ Hydrogen Sulfide Oder (C1)
- ____ Dry-Season Water Table (C2)
- ____ Presence of Reduced Iron (C4)
- ____ Thin Muck Surface (C7)
- ____ Other (Explain in Remark)

Secondary Indicators (2 or more required)

- ____ Surface Soil Cracks (B6)
- ____ Sparsely Vegetated Concave Surfaces (B8)
- ____ Drainage Patterns (B10)
- ____ Oxidized Rhizospheres on Living Roots (C3)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Frost-Heave Hummocks (C11) **(LRR F)**
- X Geomorphic Position (D2)
- ____ FAC-Neutral Test (D5)
- ____ Local Soil Survey Data (D8)

Field Observations:

Surface Water Present?	Yes X	No ____	Depth (inches):	5	
Water Table Present?	Yes ____	No X	Depth (inches):	____	
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches):	____	**Wetland Hydrology Present?** Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspection), if available:

Remarks:

POWERTECH (USA) INC.

WETLAND DETERMINATION DATA FORM-Great Plains Region (DRAFT)

Project/Site: Dewey Burdock | City/County: Custer County | Sampling Date: 9/18/07

Applicant/Owner: Knight Piesold, Powertech | State: South Dakota | Sampling Point: W21

Investigator(s): C. Robinson and J. Eberly | Section, Township, Range: Section 9, T7S, R1E

Landform (hillslope, terrace, etc.) Drainage | Local relief (concave, convex, none): Concave | Slope (%): 2

Subregion (LRP): Black Hills MLRA62 | Lat: | Long: | Datum: NAD 1983, UTM Zone 13

Soil Map Unit Name: | NWI Classification: PEM

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ Significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ Naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No	
Hydric Soil Present?	Yes	X	No	
Wetland Hydrology Present	Yes	X	No	

Is the Sampled Area Within a Wetland Yes X No

Remarks:
R3 P10: Upstream
R3 P11: Downstream
R3 P12: Bridge
Channel crosses the boundary and extends to the road

VEGETATION

Tree Stratum (Use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			

Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			

Herb Stratum			
1. *Typha latifolia*	55	X	OBL
2. *Asclepias speciosa*	10		FAC
3. *Glycyrrhiza lepidota*	15		FACU
4. *Spartina pectinata*	5		FACW
5. *Helianthus annuus*	5		FACU
6. *Melilotus sp.*	5		FACU
7. *Schoenoplectus pungens*	5		OBL
8.			
9.			
10.			
Total Cover:	100		

Woody Vine Stratum			
1.			
2.			
3.			
Total Cover:			

% Bare Ground in Herb Stratum | % Cover of Biotic Crust

Remarks:

Dominance Test Worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:	
OBL species	x1=	
FACW species	x2=	
FAC species	x3=	
FACU species	x4=	
UPL species	x5=	
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators

X Dominance Test is > 50%
Prevalence Index is ≤ 3.0[1]
Morphological Adaptations[1] (Providing supporting data in Remarks or on a separate sheet)
Problematic Hydrophytic Vegetation (Explain)

[1]Indicators of hydric soils and wetland hydrology must be present

Hydrophytic Vegetation Present? Yes X No

SOIL Sampling Point W21

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	5YR 3/4	100					SCL	
3-5	10YR 2/2	50	5YR 4/6	50	C	M	SCL	water filled the hole

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LFF G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- X Redox Depressions (F8)
- ___ High Plains Depressions (F16)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR C)**
- ___ Coast Prairie Redox (A16) (LRR F, G, H)
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soils Present? Yes X No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- X Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water Stained Leaves (B9)
- ___ Salt Crusts (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Oder (C1)
- ___ Dry-Season Water Table (C2)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remark)

Secondary Indicators (2 or more required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surfaces (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Frost-Heave Hummocks (C11) **(LRR F)**
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Local Soil Survey Data (D8)

Field Observations:

Surface Water Present?	Yes X	No ___	Depth (inches):	0	
Water Table Present?	Yes X	No ___	Depth (inches):	___	
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches):	___	

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspection), if available:

Remarks:

POWERTECH (USA) INC.

WETLAND DETERMINATION DATA FORM-Great Plains Region (DRAFT)

Project/Site: Dewey Burdock | City/County: Custer County | Sampling Date: 9/18/07

Applicant/Owner: Knight Piesold, Powertech | State: South Dakota | Sampling Point: W22

Investigator(s): C. Robinson and J. Eberly | Section, Township, Range: Section 9, T7S, R1E

Landform (hillslope, terrace, etc.) Drainage | Local relief (concave, convex, none): Concave | Slope (%): 0

Subregion (LRP): Black Hills MLRA62 | Lat: | Long: | Datum: NAD 1983, UTM Zone 13

Soil Map Unit Name: | NWI Classification: PEM

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ Significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ Naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No		**Is the Sampled Area Within a Wetland** Yes X No
Hydric Soil Present?	Yes		No	X	
Wetland Hydrology Present	Yes	X	No		

Remarks:
R3 P13: Upstream
R3 P14: Downstream

VEGETATION

Tree Stratum (Use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. *Spartina pectinata*	81	X	FACW
2. *Cirsium arvense*	19		FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover:	100		
Woody Vine Stratum			
1.			
2.			
3.			
Total Cover:			

% Bare Ground in Herb Stratum 15 % Cover of Biotic Crust

Dominance Test Worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species	81	x2=	162
FAC species		x3=	
FACU species	19	x4=	76
UPL species		x5=	
Column Totals:	100 (A)		238 (B)

Prevalence Index = B/A = 2.38

Hydrophytic Vegetation Indicators

X Dominance Test is > 50%

____ Prevalence Index is ≤ 3.0[1]

____ Morphological Adaptations[1] (Providing supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation (Explain)

[1]Indicators of hydric soils and wetland hydrology must be present

Hydrophytic Vegetation Present? Yes X No

Remarks:

SOIL Sampling Point W22

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1	10YR 4/6	100					SC	
1-4	2.5YR 3/2	100					SC	Hit rock at 4 inches

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5) **(LRR F)**
- ____ 1 cm Muck (A9) **(LRR F, G, H)**
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1)
- ____ 2.5 cm Mucky Peat or Peat (S2) **(LFF G, H)**
- ____ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Loamy Mucky Mineral (F1)
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ High Plains Depressions (F16)

Indicators for Problematic Hydric Soils[3]:

- ____ 1 cm Muck (A9) **(LRR C)**
- ____ Coast Prairie Redox (A16) (LRR F, G, H)
- ____ Dark Surface (S7) **(LRR G)**
- ____ High Plains Depressions (F16) **(LRR H outside MLRA 72 & 73)**
- ____ Reduced Vertic (F18)
- ____ Red Parent Material (TF2)
- ____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: ____

Depth (inches): ____

Hydric Soils Present? Yes ____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ____ Surface Water (A1)
- ____ High Water Table (A2)
- ____ Saturation (A3)
- ____ Water Marks (B1)
- ____ Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Water Stained Leaves (B9)
- ____ Salt Crusts (B11)
- ____ Aquatic Invertebrates (B13)
- ____ Hydrogen Sulfide Oder (C1)
- ____ Dry-Season Water Table (C2)
- ____ Presence of Reduced Iron (C4)
- ____ Thin Muck Surface (C7)
- ____ Other (Explain in Remark)

Secondary Indicators (2 or more required)

- ____ Surface Soil Cracks (B6)
- ____ Sparsely Vegetated Concave Surfaces (B8)
- X Drainage Patterns (B10)
- ____ Oxidized Rhizospheres on Living Roots (C3)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Frost-Heave Hummocks (C11) **(LRR F)**
- X Geomorphic Position (D2)
- ____ FAC-Neutral Test (D5)
- ____ Local Soil Survey Data (D8)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches):	____	
Water Table Present?	Yes ____	No X	Depth (inches):	____	
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches):	____	**Wetland Hydrology Present?** Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspection), if available:

Remarks:

Dry throughout the area and there was encroachment of upland species.

POWERTECH (USA) INC.

WETLAND DETERMINATION DATA FORM-Great Plains Region (DRAFT)

Project/Site: Dewey Burdock | City/County: Custer County | Sampling Date: 9/18/07

Applicant/Owner: Knight Piesold, Powertech | State: South Dakota | Sampling Point: W23

Investigator(s): C. Robinson and J. Eberly | Section, Township, Range: Section 10, T7S, R1E

Landform (hillslope, terrace, etc.) Drainage | Local relief (concave, convex, none): Concave | Slope (%): 1

Subregion (LRP): Black Hills MLRA62 | Lat: | Long: | Datum: NAD 1983, UTM Zone 13

Soil Map Unit Name: | NWI Classification: PEM

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____ , Soil ____ , or Hydrology ____ Significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____ , Soil ____ , or Hydrology ____ Naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No		**Is the Sampled Area Within a Wetland** Yes X No
Hydric Soil Present?	Yes	X	No		
Wetland Hydrology Present	Yes		No	X	

Remarks:
R3 P17: Upstream
R3 P18: Downstream
Possible low spot that collects water, dying cattails present.

VEGETATION

Tree Stratum (Use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			

Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			

Herb Stratum			
1. *Spartina pectinata*	9		FACW
2. *Cirsium arvense*	20	X	FACU
3. *Bassia sieveriana*	10		FACU
4. *Typha latifolia*	60	X	OBL
5. *Chenopodium album*	1		FAC
6.			
7.			
8.			
9.			
10.			
Total Cover:	100		

Woody Vine Stratum			
1.			
2.			
3.			
Total Cover:			

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust

Dominance Test Worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	60	x1=	60
FACW species	9	x2=	18
FAC species	1	x3=	3
FACU species	30	x4=	120
UPL species		x5=	
Column Totals:	100 (A)		201 (B)

Prevalence Index = B/A = 2.01

Hydrophytic Vegetation Indicators

____ Dominance Test is > 50%
X Prevalence Index is ≤ 3.0[1]
____ Morphological Adaptations[1] (Providing supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation (Explain)

[1]Indicators of hydric soils and wetland hydrology must be present

Hydrophytic Vegetation Present? Yes X No

Remarks:

SOIL Sampling Point W23

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 3/1	100					SiC	
2-6	5YR 4/6	95	7.5YR 5/8	5	C	RC	C	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)	___ Sandy Gleyed Matrix (S4)	___ 1 cm Muck (A9) **(LRR C)**
___ Histic Epipedon (A2)	___ Sandy Redox (S5)	___ Coast Prairie Redox (A16) (LRR F, G, H)
___ Black Histic (A3)	___ Stripped Matrix (S6)	___ Dark Surface (S7) **(LRR G)**
___ Hydrogen Sulfide (A4)	___ Loamy Mucky Mineral (F1)	___ High Plains Depressions (F16)
___ Stratified Layers (A5) **(LRR F)**	___ Loamy Gleyed Matrix (F2)	**(LRR H outside MLRA 72 & 73)**
___ 1 cm Muck (A9) **(LRR F, G, H)**	___ Depleted Matrix (F3)	___ Reduced Vertic (F18)
___ Depleted Below Dark Surface (A11)	___ Redox Dark Surface (F6)	___ Red Parent Material (TF2)
___ Thick Dark Surface (A12)	___ Depleted Dark Surface (F7)	___ Other (Explain in Remarks)
___ Sandy Mucky Mineral (S1)	X Redox Depressions (F8)	
___ 2.5 cm Mucky Peat or Peat (S2) **(LFF G, H)**	___ High Plains Depressions (F16)	[3]Indicators of hydrophytic vegetation
___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**		and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils Present? Yes X No ___

Remarks:
Orange coloration due to parent material

HYDROLOGY

Wetland Hydrology Indicators:
Primary Indicators (any one indicator is sufficient)

___ Surface Water (A1)	___ Salt Crusts (B11)	**Secondary Indicators (2 or more required)**
___ High Water Table (A2)	___ Aquatic Invertebrates (B13)	___ Surface Soil Cracks (B6)
___ Saturation (A3)	___ Hydrogen Sulfide Oder (C1)	___ Sparsely Vegetated Concave Surfaces (B8)
___ Water Marks (B1)	___ Dry-Season Water Table (C2)	___ Drainage Patterns (B10)
___ Sediment Deposits (B2)	___ Presence of Reduced Iron (C4)	___ Oxidized Rhizospheres on Living Roots (C3)
___ Drift Deposits (B3)	___ Thin Muck Surface (C7)	___ Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	___ Other (Explain in Remark)	___ Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)		___ Frost-Heave Hummocks (C11) **(LRR F)**
___ Inundation Visible on Aerial Imagery (B7)		X Geomorphic Position (D2)
___ Water Stained Leaves (B9)		___ FAC-Neutral Test (D5)
		___ Local Soil Survey Data (D8)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches):	___	
Water Table Present?	Yes ___	No X	Depth (inches):	___	
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches):	___	**Wetland Hydrology Present?** Yes ___ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspection), if available:

Remarks:

POWERTECH (USA) INC.

WETLAND DETERMINATION DATA FORM-Great Plains Region (DRAFT)

Project/Site: Dewey Burdock | City/County: Custer County | Sampling Date: 9/19/07

Applicant/Owner: Knight Piesold, Powertech | State: South Dakota | Sampling Point: W25

Investigator(s): C. Robinson and J. Eberly | Section, Township, Range: Section 34, T6S, R1E

Landform (hillslope, terrace, etc.) Drainage | Local relief (concave, convex, none): Concave | Slope (%): 0

Subregion (LRP): Black Hills MLRA62 | Lat: | Long: | Datum: NAD 1983, UTM Zone 13

Soil Map Unit Name: | NWI Classification:

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ Significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ Naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	____	No	X	**Is the Sampled Area Within a Wetland** Yes ____ No X
Hydric Soil Present?	Yes	____	No	X	
Wetland Hydrology Present	Yes		No	X	

Remarks:
R4 P1: Upstream
R4 P2: Downstream

VEGETATION

Tree Stratum (Use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus deltoides*	100	X	FAC
2.			
3.			
4.			
Total Cover:	100		

Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			

Herb Stratum			
1. *Elymus smithii*	95	X	FACU
2. *Chenopodium album*	5		FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover:	100		

Woody Vine Stratum			
1.			
2.			
3.			
Total Cover:			

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust

Dominance Test Worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species	105	x3=	315
FACU species	95	x4=	380
UPL species		x5=	
Column Totals:	200 (A)		695 (B)
Prevalence Index = B/A =			3.48

Hydrophytic Vegetation Indicators

____ Dominance Test is > 50%
____ Prevalence Index is ≤ 3.0[1]
____ Morphological Adaptations[1] (Providing supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation (Explain)

[1]Indicators of hydric soils and wetland hydrology must be present

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:
Upland species in drainage and banks, there were two living *Populus deltoids* present.

SOIL Sampling Point W25

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	5YR 2.5/1	60					SiCL	
Parent material	5YR 4/4	40						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5) **(LRR F)**
- ____ 1 cm Muck (A9) **(LRR F, G, H)**
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1)
- ____ 2.5 cm Mucky Peat or Peat (S2) **(LFF G, H)**
- ____ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Loamy Mucky Mineral (F1)
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ High Plains Depressions (F16)

Indicators for Problematic Hydric Soils[3]:

- ____ 1 cm Muck (A9) **(LRR C)**
- ____ Coast Prairie Redox (A16) (LRR F, G, H)
- ____ Dark Surface (S7) **(LRR G)**
- ____ High Plains Depressions (F16) **(LRR H outside MLRA 72 & 73)**
- ____ Reduced Vertic (F18)
- X Red Parent Material (TF2)
- ____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: ____

Depth (inches): ____

Hydric Soils Present? Yes ____ No X

Remarks:
Orange coloration due to parent material

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ____ Surface Water (A1)
- ____ High Water Table (A2)
- ____ Saturation (A3)
- ____ Water Marks (B1)
- ____ Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Water Stained Leaves (B9)
- ____ Salt Crusts (B11)
- ____ Aquatic Invertebrates (B13)
- ____ Hydrogen Sulfide Oder (C1)
- ____ Dry-Season Water Table (C2)
- ____ Presence of Reduced Iron (C4)
- ____ Thin Muck Surface (C7)
- ____ Other (Explain in Remark)

Secondary Indicators (2 or more required)

- ____ Surface Soil Cracks (B6)
- ____ Sparsely Vegetated Concave Surfaces (B8)
- ____ Drainage Patterns (B10)
- ____ Oxidized Rhizospheres on Living Roots (C3)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Frost-Heave Hummocks (C11) **(LRR F)**
- X Geomorphic Position (D2)
- ____ FAC-Neutral Test (D5)
- ____ Local Soil Survey Data (D8)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ____
Water Table Present? Yes ____ No X Depth (inches): ____
Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): ____

Wetland Hydrology Present? Yes ____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspection), if available:

Remarks:

POWERTECH (USA) INC.

WETLAND DETERMINATION DATA FORM-Great Plains Region (DRAFT)

Project/Site: Dewey Burdock | City/County: Custer County | Sampling Date: 9/19/07

Applicant/Owner: Knight Piesold, Powertech | State: South Dakota | Sampling Point: W26

Investigator(s): C. Robinson and J. Eberly | Section, Township, Range: Section 34, T6S, R1E

Landform (hillslope, terrace, etc.) Drainage | Local relief (concave, convex, none): Concave | Slope (%): 0

Subregion (LRP): Black Hills MLRA62 | Lat: | Long: | Datum: NAD 1983, UTM Zone 13

Soil Map Unit Name: | NWI Classification:

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ Significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ Naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes		No	X	**Is the Sampled Area Within a Wetland** Yes ____ No X
Hydric Soil Present?	Yes	X	No		
Wetland Hydrology Present	Yes	X	No		

Remarks:
R4 P3: Upstream
R4 P4: Downstream
Upland vegetation has moved down the banks and in the area of the drainage on either side.

VEGETATION

Tree Stratum (Use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			

Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			

Herb Stratum			
1. *Elymus smithii*	30	X	FACU
2. *Elymus canadensis*	25	X	FACU
3. *Thlaspi arvense*	5		FACU
4. *Bassia sieveriana*	10		FACU
5. *Phalaris arundinacea*	15		FACW
6. *Chenopodium album*	5		FAC
7. *Xanthium strumarium*	5		FAC
8. *Helianthus annuus*	5		FACU
9.			
10.			
Total Cover:	100		

Woody Vine Stratum			
1.			
2.			
3.			
Total Cover:			

% Bare Ground in Herb Stratum 10 % Cover of Biotic Crust

Dominance Test Worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species	15	x2=	30
FAC species	10	x3=	30
FACU species	75	x4=	300
UPL species		x5=	
Column Totals:	100 (A)		360 (B)

Prevalence Index = B/A = 3.60

Hydrophytic Vegetation Indicators

____ Dominance Test is > 50%
____ Prevalence Index is ≤ 3.0[1]
____ Morphological Adaptations[1] (Providing supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation (Explain)

[1]Indicators of hydric soils and wetland hydrology must be present

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:

POWERTECH (USA) INC.

SOIL Sampling Point W26

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1	2.5YR 4/8	100					C	
1-7	7.5YR 4/2	100					C	
7-9	Gley2 2.5/10B	100					C	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)	___ Sandy Gleyed Matrix (S4)	___ 1 cm Muck (A9) (**LRR C**)
___ Histic Epipedon (A2)	___ Sandy Redox (S5)	___ Coast Prairie Redox (A16) (LRR F, G, H)
___ Black Histic (A3)	___ Stripped Matrix (S6)	___ Dark Surface (S7) (**LRR G**)
___ Hydrogen Sulfide (A4)	___ Loamy Mucky Mineral (F1)	___ High Plains Depressions (F16)
___ Stratified Layers (A5) (**LRR F**)	X Loamy Gleyed Matrix (F2)	(**LRR H outside MLRA 72 & 73**)
___ 1 cm Muck (A9) (**LRR F, G, H**)	___ Depleted Matrix (F3)	___ Reduced Vertic (F18)
___ Depleted Below Dark Surface (A11)	___ Redox Dark Surface (F6)	X Red Parent Material (TF2)
___ Thick Dark Surface (A12)	___ Depleted Dark Surface (F7)	___ Other (Explain in Remarks)
___ Sandy Mucky Mineral (S1)	___ Redox Depressions (F8)	
___ 2.5 cm Mucky Peat or Peat (S2) (**LFF G, H**)	___ High Plains Depressions (F16)	[3]Indicators of hydrophytic vegetation
___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)		and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils Present? Yes X No ___

Remarks:
Orange coloration due to parent material

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

___ Surface Water (A1)	___ Salt Crusts (B11)	**Secondary Indicators (2 or more required)**
___ High Water Table (A2)	___ Aquatic Invertebrates (B13)	X Surface Soil Cracks (B6)
___ Saturation (A3)	___ Hydrogen Sulfide Oder (C1)	___ Sparsely Vegetated Concave Surfaces (B8)
___ Water Marks (B1)	___ Dry-Season Water Table (C2)	___ Drainage Patterns (B10)
___ Sediment Deposits (B2)	___ Presence of Reduced Iron (C4)	___ Oxidized Rhizospheres on Living Roots (C3)
___ Drift Deposits (B3)	___ Thin Muck Surface (C7)	___ Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	___ Other (Explain in Remark)	Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)		___ Frost-Heave Hummocks (C11) (**LRR F**)
___ Inundation Visible on Aerial Imagery (B7)		X Geomorphic Position (D2)
___ Water Stained Leaves (B9)		___ FAC-Neutral Test (D5)
		___ Local Soil Survey Data (D8)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches):	___	
Water Table Present?	Yes ___	No X	Depth (inches):	___	
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches):	___	**Wetland Hydrology Present?** Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspection), if available:

Remarks:

POWERTECH (USA) INC.

WETLAND DETERMINATION DATA FORM-Great Plains Region (DRAFT)

Project/Site: Dewey Burdock | City/County: Custer County | Sampling Date: 9/19/07

Applicant/Owner: Knight Piesold, Powertech | State: South Dakota | Sampling Point: W27

Investigator(s): C. Robinson and J. Eberly | Section, Township, Range: Section 34, T6S, R1E

Landform (hillslope, terrace, etc.) Drainage | Local relief (concave, convex, none): Concave | Slope (%): 1

Subregion (LRP): Black Hills MLRA62 | Lat: | Long: | Datum: NAD 1983, UTM Zone 13

Soil Map Unit Name: | NWI Classification:

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ Significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ Naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes		No	X	**Is the Sampled Area Within a Wetland** Yes ____ No X
Hydric Soil Present?	Yes		No	X	
Wetland Hydrology Present	Yes	X	No		

Remarks:
R4 P1: Upstream
R4 P2: Downstream

VEGETATION

Tree Stratum (Use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. *Elymus smithii*	40	X	FACU
2. *Elymus canadensis*	30	X	FACU
3. *Chenopodium album*	10		FAC
4. *Xanthium strumarium*	10		FAC
5. *Helianthus annuuus*	10		FACU
6.			
7.			
8.			
9.			
10.			
Total Cover:	100		
Woody Vine Stratum			
1.			
2.			
3.			
Total Cover:			

% Bare Ground in Herb Stratum 98 % Cover of Biotic Crust

Dominance Test Worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species	20	x3=	60
FACU species	80	x4=	320
UPL species		x5=	
Column Totals:	100 (A)		380 (B)

Prevalence Index = B/A = 3.80

Hydrophytic Vegetation Indicators

____ Dominance Test is > 50%
____ Prevalence Index is ≤ 3.0[1]
____ Morphological Adaptations[1] (Providing supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation (Explain)

[1]Indicators of hydric soils and wetland hydrology must be present

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:
The vegetation is only on the banks and not in the drainage; the percent bare ground in channel is 98%.

SOIL Sampling Point W27

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1	2.5Y 5/3	100					C	
0.75	2.5YR 4/8	100					C	
1-8	2.5Y 5/3	100					C	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LFF G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR C)**
- ___ Coast Prairie Redox (A16) (LRR F, G, H)
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- X Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soils Present? Yes ___ No X

Remarks:
One inch to the red layer (red layer is about 2 cm thick). The black layer is organic.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water Stained Leaves (B9)
- ___ Salt Crusts (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Oder (C1)
- ___ Dry-Season Water Table (C2)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remark)

Secondary Indicators (2 or more required)

- X Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surfaces (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Frost-Heave Hummocks (C11) **(LRR F)**
- X Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Local Soil Survey Data (D8)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___		
Water Table Present?	Yes ___	No X	Depth (inches): ___		
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): ___	**Wetland Hydrology Present?**	Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspection), if available:

Remarks:
Soil is moist but not saturated.

POWERTECH (USA) INC.

WETLAND DETERMINATION DATA FORM-Great Plains Region (DRAFT)

Project/Site: Dewey Burdock | City/County: Custer County | Sampling Date: 9/19/07

Applicant/Owner: Knight Piesold, Powertech | State: South Dakota | Sampling Point: W28

Investigator(s): C. Robinson and J. Eberly | Section, Township, Range: Section 34, T6S, R1E

Landform (hillslope, terrace, etc.) Drainage | Local relief (concave, convex, none): Concave | Slope (%): 1

Subregion (LRP): Black Hills MLRA62 | Lat: | Long: | Datum: NAD 1983, UTM Zone 13

Soil Map Unit Name: | NWI Classification:

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ Significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ Naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	____	No	X
Hydric Soil Present?	Yes	____	No	X
Wetland Hydrology Present	Yes		No	X

Is the Sampled Area Within a Wetland Yes ____ No X

Remarks:
R4 P13: Upstream
R4 P14: Downstream

VEGETATION

Tree Stratum (Use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus deltoides*	100	X	FAC
2.			
3.			
4.			
Total Cover:	100		
Sapling/Shrub Stratum			
1. *Symphoricarpos albus*	100	X	FACU-
2.			
3.			
4.			
5.			
Total Cover:	100		
Herb Stratum			
1. *Elymus smithii*	35	X	FACU
2. *Bassia sieveriana*	20	X	FACU
3. *Calamovilfa longifolia*	12		NI
4. *Descurainia pinnata*	1		NI
5. *Thlaspi arvense*	3		FACU
6. *Chenopodium album*	17		FAC
7. *Asclepias speciosa*	2		FAC
8. *Elymus cinerius*	15		NI
9. *Sisymbrium altissimum*	2		UPL
10. *Camelina microcarpa*	1		NI
Total Cover:	100		
Woody Vine Stratum			
1.			
2.			
3.			
Total Cover:			

% Bare Ground in Herb Stratum 20 % Cover of Biotic Crust

Dominance Test Worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25 (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species	119	x3=	357
FACU species	158	x4=	632
UPL species	2	x5=	10
Column Totals:	279 (A)		999 (B)

Prevalence Index = B/A = 3.58

Hydrophytic Vegetation Indicators

____ Dominance Test is > 50%
____ Prevalence Index is ≤ 3.0[1]
____ Morphological Adaptations[1] (Providing supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation (Explain)

[1]Indicators of hydric soils and wetland hydrology must be present

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:

SOIL Sampling Point W28

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	5YR 4/6	100					SC	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat **or** Peat (S2) **(LFF G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR C)**
- ___ Coast Prairie Redox (A16) (LRR F, G, H)
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- X Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soils Present? Yes ___ No X

Remarks:
Orange coloration due to parent material

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water Stained Leaves (B9)
- ___ Salt Crusts (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Oder (C1)
- ___ Dry-Season Water Table (C2)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remark)

Secondary Indicators (2 or more required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surfaces (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- ___ Frost-Heave Hummocks (C11) **(LRR F)**
- X Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Local Soil Survey Data (D8)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches):	___	
Water Table Present?	Yes ___	No X	Depth (inches):	___	
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches):	___	**Wetland Hydrology Present?** Yes ___ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspection), if available:

Remarks:

POWERTECH (USA) INC.

WETLAND DETERMINATION DATA FORM-Great Plains Region (DRAFT)

Project/Site: Dewey Burdock | City/County: Custer County | Sampling Date: 9/19/07

Applicant/Owner: Knight Piesold, Powertech | State: South Dakota | Sampling Point: W29

Investigator(s): C. Robinson and J. Eberly | Section, Township, Range: Section 3, T7S, R1E

Landform (hillslope, terrace, etc.) Drainage | Local relief (concave, convex, none): Concave | Slope (%): 2

Subregion (LRP): Black Hills MLRA62 | Lat: | Long: | Datum: NAD 1983, UTM Zone 13

Soil Map Unit Name: | NWI Classification:

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ Significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ Naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes		No	X
Hydric Soil Present?	Yes		No	X
Wetland Hydrology Present	Yes		No	X

Is the Sampled Area Within a Wetland Yes ____ No X

Remarks:
R4 P17: Upstream
R4 P18: Downstream
Area is similar through the drainage; the upland species are dominant in the drainage. The Drainage is about 3' across on average.

VEGETATION

Tree Stratum (Use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus deltoides*	100	X	FAC
2.			
3.			
4.			
Total Cover:	100		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. *Elymus smithii*	10		FACU
2. *Bassia sieveriana*	5		FACU
3. *Elymus canadensis*	40	X	FACU
4. *Helianthus annuus*	5		FACU
5. *Nassella viridula*	10		NI
6. *Chenopodium album*	3		FACU
7. *Asclepias speciosa*	2		FAC
8. *Bromus inermis*	20	X	FACU
9. *Sisymbrium altissimum*	5		UPL
10.			
Total Cover:	100		
Woody Vine Stratum			
1.			
2.			
3.			
Total Cover:			

% Bare Ground in Herb Stratum 50 % Cover of Biotic Crust

Dominance Test Worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.33 (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species	102	x3=	306
FACU species	83	x4=	332
UPL species	5	x5=	25
Column Totals:	190 (A)		663 (B)

Prevalence Index = B/A = 3.49

Hydrophytic Vegetation Indicators

____ Dominance Test is > 50%
____ Prevalence Index is ≤ 3.0[1]
____ Morphological Adaptations[1] (Providing supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation (Explain)

[1]Indicators of hydric soils and wetland hydrology must be present

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:

SOIL Sampling Point W29

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	5YR 4/6	100					C	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LFF G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR C)**
- ___ Coast Prairie Redox (A16) (LRR F, G, H)
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- X Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soils Present? Yes ___ No X

Remarks:
Hard to dig soil.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water Stained Leaves (B9)
- ___ Salt Crusts (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Oder (C1)
- ___ Dry-Season Water Table (C2)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remark)

Secondary Indicators (2 or more required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surfaces (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Frost-Heave Hummocks (C11) **(LRR F)**
- X Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Local Soil Survey Data (D8)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches):	___	
Water Table Present?	Yes ___	No X	Depth (inches):	___	
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches):	___	**Wetland Hydrology Present?** Yes ___ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspection), if available:

Remarks:

POWERTECH (USA) INC.

WETLAND DETERMINATION DATA FORM-Great Plains Region (DRAFT)

Project/Site: Dewey Burdock | City/County: Custer County | Sampling Date: 9/19/07

Applicant/Owner: Knight Piesold, Powertech | State: South Dakota | Sampling Point: W30

Investigator(s): C. Robinson and J. Eberly | Section, Township, Range: Section 10, T7S, R1E

Landform (hillslope, terrace, etc.) Depression | Local relief (concave, convex, none): Concave | Slope (%): 1

Subregion (LRP): Black Hills MLRA62 | Lat: | Long: | Datum: NAD 1983, UTM Zone 13

Soil Map Unit Name: | NWI Classification:

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ Significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ Naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes		No	X	**Is the Sampled Area Within a Wetland** Yes ____ No X
Hydric Soil Present?	Yes	X	No		
Wetland Hydrology Present	Yes		No	X	

Remarks:
R4 P19: East
R4 P20: West
Waypoints 46-49 mark the boundary

VEGETATION

Tree Stratum (Use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. *Elymus smithii*	85	X	FACU
2. *Carex filifolia*	15		UPL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover:	100		
Woody Vine Stratum			
1.			
2.			
3.			
Total Cover:			

% Bare Ground in Herb Stratum 30 % Cover of Biotic Crust

Remarks:

Dominance Test Worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species	85	x4=	340
UPL species	15	x5=	75
Column Totals:	100 (A)		415 (B)

Prevalence Index = B/A = 4.15

Hydrophytic Vegetation Indicators

____ Dominance Test is > 50%
____ Prevalence Index is ≤ 3.0[1]
____ Morphological Adaptations[1] (Providing supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation (Explain)

[1]Indicators of hydric soils and wetland hydrology must be present

Hydrophytic Vegetation Present? Yes ____ No X

SOIL Sampling Point W30

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	7.5YR 4/1	70	7.5YR 4/6	30	C	M	SiC	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___	Histosol (A1)	___	Sandy Gleyed Matrix (S4)
___	Histic Epipedon (A2)	___	Sandy Redox (S5)
___	Black Histic (A3)	___	Stripped Matrix (S6)
___	Hydrogen Sulfide (A4)	___	Loamy Mucky Mineral (F1)
___	Stratified Layers (A5) **(LRR F)**	___	Loamy Gleyed Matrix (F2)
___	1 cm Muck (A9) **(LRR F, G, H)**	X	Depleted Matrix (F3)
___	Depleted Below Dark Surface (A11)	___	Redox Dark Surface (F6)
___	Thick Dark Surface (A12)	___	Depleted Dark Surface (F7)
___	Sandy Mucky Mineral (S1)	X	Redox Depressions (F8)
___	2.5 cm Mucky Peat or Peat (S2) **(LFF G, H)**	___	High Plains Depressions (F16)
___	5 cm Mucky Peat or Peat (S3) **(LRR F)**		

Indicators for Problematic Hydric Soils[3]:

___	1 cm Muck (A9) **(LRR C)**
___	Coast Prairie Redox (A16) (LRR F, G, H)
___	Dark Surface (S7) **(LRR G)**
___	High Plains Depressions (F16) **(LRR H outside MLRA 72 & 73)**
___	Reduced Vertic (F18)
___	Red Parent Material (TF2)
___	Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soils Present? Yes X No ___

Remarks:
Orange coloration due to parent material

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

___	Surface Water (A1)	___	Salt Crusts (B11)
___	High Water Table (A2)	___	Aquatic Invertebrates (B13)
___	Saturation (A3)	___	Hydrogen Sulfide Oder (C1)
___	Water Marks (B1)	___	Dry-Season Water Table (C2)
___	Sediment Deposits (B2)	___	Presence of Reduced Iron (C4)
___	Drift Deposits (B3)	___	Thin Muck Surface (C7)
___	Algal Mat or Crust (B4)	___	Other (Explain in Remark)
___	Iron Deposits (B5)		
___	Inundation Visible on Aerial Imagery (B7)		
___	Water Stained Leaves (B9)		

Secondary Indicators (2 or more required)

___	Surface Soil Cracks (B6)
___	Sparsely Vegetated Concave Surfaces (B8)
___	Drainage Patterns (B10)
___	Oxidized Rhizospheres on Living Roots (C3)
___	Crayfish Burrows (C8)
	Saturation Visible on Aerial Imagery (C9)
___	Frost-Heave Hummocks (C11) **(LRR F)**
___	Geomorphic Position (D2)
___	FAC-Neutral Test (D5)
___	Local Soil Survey Data (D8)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches):	___	
Water Table Present?	Yes ___	No X	Depth (inches):	___	
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches):	___	**Wetland Hydrology Present?** Yes ___ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspection), if available:

Remarks:

POWERTECH (USA) INC.

WETLAND DETERMINATION DATA FORM-Great Plains Region (DRAFT)

Project/Site: Dewey Burdock | City/County: Custer County | Sampling Date: 9/19/07

Applicant/Owner: Knight Piesold, Powertech | State: South Dakota | Sampling Point: W31

Investigator(s): C. Robinson and J. Eberly | Section, Township, Range: Section 10, T7S, R1E

Landform (hillslope, terrace, etc.) Depression | Local relief (concave, convex, none): Concave | Slope (%): 1

Subregion (LRP): Black Hills MLRA62 | Lat: | Long: | Datum: NAD 1983, UTM Zone 13

Soil Map Unit Name: | NWI Classification: PUB

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ Significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ Naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No		**Is the Sampled Area Within a Wetland** Yes X No
Hydric Soil Present?	Yes		No	X	
Wetland Hydrology Present	Yes	X	No		

Remarks:
R4 P21: Northeast
R4 P22: East- southeast

VEGETATION

Tree Stratum (Use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. *Distichlis stricta*	35	X	FACW
2. *Sporobolus airoides*	20	X	FAC
3. *Salsola tragus*	45	X	FACU-
4.			
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover:	100		
Woody Vine Stratum			
1.			
2.			
3.			
Total Cover:			

% Bare Ground in Herb Stratum 70 % Cover of Biotic Crust

Dominance Test Worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.67 (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species	35	x2=	70
FAC species	20	x3=	60
FACU species	45	x4=	180
UPL species		x5=	
Column Totals:	100 (A)		310 (B)

Prevalence Index = B/A = 3.10

Hydrophytic Vegetation Indicators

X Dominance Test is > 50%
____ Prevalence Index is ≤ 3.0[1]
____ Morphological Adaptations[1] (Providing supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation (Explain)

[1]Indicators of hydric soils and wetland hydrology must be present

Hydrophytic Vegetation Present? Yes X No

Remarks:

POWERTECH (USA) INC.

SOIL Sampling Point W31

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-0.5	White salt crust							
0.5-14	10YR 4/3	100					C	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5) **(LRR F)**
- ____ 1 cm Muck (A9) **(LRR F, G, H)**
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1)
- ____ 2.5 cm Mucky Peat or Peat (S2) **(LFF G, H)**
- ____ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Loamy Mucky Mineral (F1)
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ High Plains Depressions (F16)

Indicators for Problematic Hydric Soils[3]:

- ____ 1 cm Muck (A9) **(LRR C)**
- ____ Coast Prairie Redox (A16) (LRR F, G, H)
- ____ Dark Surface (S7) **(LRR G)**
- ____ High Plains Depressions (F16) **(LRR H outside MLRA 72 & 73)**
- ____ Reduced Vertic (F18)
- ____ Red Parent Material (TF2)
- ____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils Present? Yes ____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ____ Surface Water (A1)
- ____ High Water Table (A2)
- ____ Saturation (A3)
- ____ Water Marks (B1)
- ____ Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Water Stained Leaves (B9)
- X Salt Crusts (B11)
- ____ Aquatic Invertebrates (B13)
- ____ Hydrogen Sulfide Oder (C1)
- ____ Dry-Season Water Table (C2)
- ____ Presence of Reduced Iron (C4)
- ____ Thin Muck Surface (C7)
- ____ Other (Explain in Remark)

Secondary Indicators (2 or more required)

- ____ Surface Soil Cracks (B6)
- ____ Sparsely Vegetated Concave Surfaces (B8)
- ____ Drainage Patterns (B10)
- ____ Oxidized Rhizospheres on Living Roots (C3)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Frost-Heave Hummocks (C11) **(LRR F)**
- ____ Geomorphic Position (D2)
- ____ FAC-Neutral Test (D5)
- ____ Local Soil Survey Data (D8)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches):	____	
Water Table Present?	Yes ____	No X	Depth (inches):	____	
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches):	____	**Wetland Hydrology Present?** Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspection), if available:

Remarks:

POWERTECH (USA) INC.

WETLAND DETERMINATION DATA FORM-Great Plains Region (DRAFT)

Project/Site: Dewey Burdock | City/County: Custer County | Sampling Date: 9/19/07

Applicant/Owner: Knight Piesold, Powertech | State: South Dakota | Sampling Point: W32

Investigator(s): C. Robinson and J. Eberly | Section, Township, Range: Section 10, T7S R1E

Landform (hillslope, terrace, etc.) Depression | Local relief (concave, convex, none): Concave | Slope (%): 0

Subregion (LRP): Black Hills MLRA62 | Lat: | Long: | Datum: NAD 1983, UTM Zone 13

Soil Map Unit Name: | NWI Classification: PUS

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____ , Soil ____ , or Hydrology ____ Significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____ , Soil ____ , or Hydrology ____ Naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No		**Is the Sampled Area Within a Wetland** Yes X No
Hydric Soil Present?	Yes	X	No		
Wetland Hydrology Present	Yes		No	X	

Remarks:
R4 P24: Of the previously mapped PEM wetland
R4 P25: from the berm

VEGETATION

Tree Stratum (Use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. *Echinochloa muricata*	100	X	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover:	100		
Woody Vine Stratum			
1.			
2.			
3.			
Total Cover:			

% Bare Ground in Herb Stratum | % Cover of Biotic Crust

Dominance Test Worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:	
OBL species	x1=	
FACW species	x2=	
FAC species	x3=	
FACU species	x4=	
UPL species	x5=	
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators

X Dominance Test is > 50%
Prevalence Index is ≤ 3.0[1]
Morphological Adaptations[1] (Providing supporting data in Remarks or on a separate sheet)
Problematic Hydrophytic Vegetation (Explain)

[1]Indicators of hydric soils and wetland hydrology must be present

Hydrophytic Vegetation Present? Yes X No

Remarks:

POWERTECH (USA) INC.

SOIL Sampling Point W32

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	5YR 4/1	50	7.5YR 4/6	50	C	M	C	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)	___ Sandy Gleyed Matrix (S4)	___ 1 cm Muck (A9) **(LRR C)**
___ Histic Epipedon (A2)	___ Sandy Redox (S5)	___ Coast Prairie Redox (A16) (LRR F, G, H)
___ Black Histic (A3)	___ Stripped Matrix (S6)	___ Dark Surface (S7) **(LRR G)**
___ Hydrogen Sulfide (A4)	___ Loamy Mucky Mineral (F1)	___ High Plains Depressions (F16)
___ Stratified Layers (A5) **(LRR F)**	___ Loamy Gleyed Matrix (F2)	**(LRR H outside MLRA 72 & 73)**
___ 1 cm Muck (A9) **(LRR F, G, H)**	X Depleted Matrix (F3)	___ Reduced Vertic (F18)
___ Depleted Below Dark Surface (A11)	___ Redox Dark Surface (F6)	___ Red Parent Material (TF2)
___ Thick Dark Surface (A12)	___ Depleted Dark Surface (F7)	___ Other (Explain in Remarks)
___ Sandy Mucky Mineral (S1)	X Redox Depressions (F8)	
___ 2.5 cm Mucky Peat or Peat (S2) **(LFF G, H)**	___ High Plains Depressions (F16)	[3]Indicators of hydrophytic vegetation
___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**		and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils Present? Yes X No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

___ Surface Water (A1)	___ Salt Crusts (B11)	**Secondary Indicators (2 or more required)**
___ High Water Table (A2)	___ Aquatic Invertebrates (B13)	X Surface Soil Cracks (B6)
___ Saturation (A3)	___ Hydrogen Sulfide Oder (C1)	___ Sparsely Vegetated Concave Surfaces (B8)
___ Water Marks (B1)	___ Dry-Season Water Table (C2)	___ Drainage Patterns (B10)
___ Sediment Deposits (B2)	___ Presence of Reduced Iron (C4)	___ Oxidized Rhizospheres on Living Roots (C3)
___ Drift Deposits (B3)	___ Thin Muck Surface (C7)	___ Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	___ Other (Explain in Remark)	Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)		___ Frost-Heave Hummocks (C11) **(LRR F)**
___ Inundation Visible on Aerial Imagery (B7)		___ Geomorphic Position (D2)
___ Water Stained Leaves (B9)		___ FAC-Neutral Test (D5)
		___ Local Soil Survey Data (D8)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches):	___	
Water Table Present?	Yes ___	No X	Depth (inches):	___	
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches):	___	**Wetland Hydrology Present?** Yes ___ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspection), if available:

Remarks:

POWERTECH (USA) INC.

WETLAND DETERMINATION DATA FORM-Great Plains Region (DRAFT)

Project/Site: Dewey Burdock | City/County: Custer County | Sampling Date: 9/19/07

Applicant/Owner: Knight Piesold, Powertech | State: South Dakota | Sampling Point: W33

Investigator(s): C. Robinson and J. Eberly | Section, Township, Range: Section 14, T7S, R1E

Landform (hillslope, terrace, etc.) Pond | Local relief (concave, convex, none): Concave | Slope (%): 0

Subregion (LRP): Black Hills MLRA62 | Lat: | Long: | Datum: NAD 1983, UTM Zone 13

Soil Map Unit Name: | NWI Classification: PEM

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ Significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ Naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No	
Hydric Soil Present?	Yes	X	No	
Wetland Hydrology Present	Yes	X	No	

Is the Sampled Area Within a Wetland Yes X No

Remarks:
R4 P1: Upstream
R4 P2: Downstream

VEGETATION

Tree Stratum (Use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. *Juncus balticus*	20	X	FACW
2. *Distichlis stricta*	50	X	FACW
3. *Schoenoplectus tabernaemontani*	30	X	OBL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover:	100		
Woody Vine Stratum			
1.			
2.			
3.			
Total Cover:			

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust

Dominance Test Worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators

X Dominance Test is > 50%
____ Prevalence Index is ≤ 3.0[1]
____ Morphological Adaptations[1] (Providing supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation (Explain)

[1]Indicators of hydric soils and wetland hydrology must be present

Hydrophytic Vegetation Present? Yes X No

Remarks:
Schoenoplectus tabernaemontani dominant on the fringe of the pond.

SOIL Sampling Point W33

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/6	90	Gley1 2.5/N	10	D	M	C	
4-8	Gley1 3/N	100					C	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)	___ Sandy Gleyed Matrix (S4)	___ 1 cm Muck (A9) **(LRR C)**
___ Histic Epipedon (A2)	___ Sandy Redox (S5)	___ Coast Prairie Redox (A16) (LRR F, G, H)
___ Black Histic (A3)	___ Stripped Matrix (S6)	___ Dark Surface (S7) **(LRR G)**
___ Hydrogen Sulfide (A4)	___ Loamy Mucky Mineral (F1)	___ High Plains Depressions (F16)
___ Stratified Layers (A5) **(LRR F)**	X Loamy Gleyed Matrix (F2)	**(LRR H outside MLRA 72 & 73)**
___ 1 cm Muck (A9) **(LRR F, G, H)**	___ Depleted Matrix (F3)	___ Reduced Vertic (F18)
___ Depleted Below Dark Surface (A11)	___ Redox Dark Surface (F6)	___ Red Parent Material (TF2)
___ Thick Dark Surface (A12)	___ Depleted Dark Surface (F7)	___ Other (Explain in Remarks)
___ Sandy Mucky Mineral (S1)	___ Redox Depressions (F8)	
___ 2.5 cm Mucky Peat or Peat (S2) **(LFF G, H)**	___ High Plains Depressions (F16)	[3]Indicators of hydrophytic vegetation
___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**		and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils Present? Yes X No ___

Remarks:
Orange coloration due to parent material

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

X Surface Water (A1)	___ Salt Crusts (B11)
X High Water Table (A2)	___ Aquatic Invertebrates (B13)
X Saturation (A3)	___ Hydrogen Sulfide Oder (C1)
___ Water Marks (B1)	___ Dry-Season Water Table (C2)
___ Sediment Deposits (B2)	___ Presence of Reduced Iron (C4)
___ Drift Deposits (B3)	___ Thin Muck Surface (C7)
___ Algal Mat or Crust (B4)	___ Other (Explain in Remark)
___ Iron Deposits (B5)	
___ Inundation Visible on Aerial Imagery (B7)	
___ Water Stained Leaves (B9)	

Secondary Indicators (2 or more required)

___ Surface Soil Cracks (B6)
___ Sparsely Vegetated Concave Surfaces (B8)
___ Drainage Patterns (B10)
___ Oxidized Rhizospheres on Living Roots (C3)
___ Crayfish Burrows (C8)
Saturation Visible on Aerial Imagery (C9)
___ Frost-Heave Hummocks (C11) **(LRR F)**
___ Geomorphic Position (D2)
___ FAC-Neutral Test (D5)
___ Local Soil Survey Data (D8)

Field Observations:

Surface Water Present?	Yes X	No ___	Depth (inches):	___	
Water Table Present?	Yes X	No ___	Depth (inches):	2	
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches):	4	**Wetland Hydrology Present?** Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspection), if available:

Remarks:

POWERTECH (USA) INC.

WETLAND DETERMINATION DATA FORM-Great Plains Region (DRAFT)

Project/Site: Dewey Burdock | City/County: Custer County | Sampling Date: 9/19/07

Applicant/Owner: Knight Piesold, Powertech | State: South Dakota | Sampling Point: W34

Investigator(s): C. Robinson and J. Eberly | Section, Township, Range: Section 14, T7S, R1E

Landform (hillslope, terrace, etc.) Drainage | Local relief (concave, convex, none): Concave | Slope (%): 0

Subregion (LRP): Black Hills MLRA62 | Lat: | Long: | Datum: NAD 1983, UTM Zone 13

Soil Map Unit Name: | NWI Classification:

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ Significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ Naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes		No	X	**Is the Sampled Area Within a Wetland** Yes ____ No X
Hydric Soil Present?	Yes	X	No		
Wetland Hydrology Present	Yes		No	X	

Remarks:
R5 P9: Upstream
R5 P10: Downstream
Waypoint 58 indicates the end of surface water (R5 P8)

VEGETATION

Tree Stratum (Use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. *Hordeum jubatum*	15	X	FACW
2. *Xanthium strumarium*	10		FAC
3. *Chenopodium album*	10		FACU
4. *Grindelia squarrosa*	15	X	UPL
5. *Cirsium arvense*	10		FACU
6. *Polygonum aviculare*	35	X	FACU
7. *Elymus smithii*	5		FACU
8.			
9.			
10.			
Total Cover:	100		
Woody Vine Stratum			
1.			
2.			
3.			
Total Cover:			

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust

Dominance Test Worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.33 (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species	15	x2=	30
FAC species	10	x3=	30
FACU species	60	x4=	240
UPL species	15	x5=	75
Column Totals:	100	(A)	375 (B)

Prevalence Index = B/A = 3.75

Hydrophytic Vegetation Indicators

____ Dominance Test is > 50%
____ Prevalence Index is ≤ 3.0[1]
____ Morphological Adaptations[1] (Providing supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation (Explain)

[1]Indicators of hydric soils and wetland hydrology must be present

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:

SOIL Sampling Point W34

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	Gley1 2.5/N	95	2.5YR 4/8	5	C	M, RC	CL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)	___ Sandy Gleyed Matrix (S4)	___ 1 cm Muck (A9) (**LRR C**)
___ Histic Epipedon (A2)	___ Sandy Redox (S5)	___ Coast Prairie Redox (A16) (LRR F, G, H)
___ Black Histic (A3)	___ Stripped Matrix (S6)	___ Dark Surface (S7) (**LRR G**)
___ Hydrogen Sulfide (A4)	___ Loamy Mucky Mineral (F1)	___ High Plains Depressions (F16)
___ Stratified Layers (A5) (**LRR F**)	X Loamy Gleyed Matrix (F2)	(**LRR H outside MLRA 72 & 73**)
___ 1 cm Muck (A9) (**LRR F, G, H**)	___ Depleted Matrix (F3)	___ Reduced Vertic (F18)
___ Depleted Below Dark Surface (A11)	___ Redox Dark Surface (F6)	___ Red Parent Material (TF2)
___ Thick Dark Surface (A12)	___ Depleted Dark Surface (F7)	___ Other (Explain in Remarks)
___ Sandy Mucky Mineral (S1)	___ Redox Depressions (F8)	
___ 2.5 cm Mucky Peat or Peat (S2) (**LFF G, H**)	___ High Plains Depressions (F16)	[3]Indicators of hydrophytic vegetation
___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)		and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils Present? Yes X No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

___ Surface Water (A1)	___ Salt Crusts (B11)	___ Surface Soil Cracks (B6)
___ High Water Table (A2)	___ Aquatic Invertebrates (B13)	___ Sparsely Vegetated Concave Surfaces (B8)
___ Saturation (A3)	___ Hydrogen Sulfide Oder (C1)	___ Drainage Patterns (B10)
___ Water Marks (B1)	___ Dry-Season Water Table (C2)	___ Oxidized Rhizospheres on Living Roots (C3)
___ Sediment Deposits (B2)	___ Presence of Reduced Iron (C4)	___ Crayfish Burrows (C8)
___ Drift Deposits (B3)	___ Thin Muck Surface (C7)	___ Saturation Visible on Aerial Imagery (C9)
___ Algal Mat or Crust (B4)	___ Other (Explain in Remark)	___ Frost-Heave Hummocks (C11) (**LRR F**)
___ Iron Deposits (B5)		X Geomorphic Position (D2)
___ Inundation Visible on Aerial Imagery (B7)		___ FAC-Neutral Test (D5)
___ Water Stained Leaves (B9)		___ Local Soil Survey Data (D8)

Secondary Indicators (2 or more required)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___		
Water Table Present?	Yes ___	No X	Depth (inches): ___		
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): ___	**Wetland Hydrology Present?**	Yes ___ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspection), if available:

Remarks:

POWERTECH (USA) INC.

WETLAND DETERMINATION DATA FORM-Great Plains Region (DRAFT)

Project/Site: Dewey Burdock | City/County: Custer County | Sampling Date: 9/19/07

Applicant/Owner: Knight Piesold, Powertech | State: South Dakota | Sampling Point: W35

Investigator(s): C. Robinson and J. Eberly | Section, Township, Range: Section 14, T7S, R1E

Landform (hillslope, terrace, etc.) Depression | Local relief (concave, convex, none): Concave | Slope (%): 1

Subregion (LRP): Black Hills MLRA62 | Lat: | Long: | Datum: NAD 1983, UTM Zone 13

Soil Map Unit Name: | NWI Classification: PUB

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ Significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ Naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No	
Hydric Soil Present?	Yes		No	X
Wetland Hydrology Present	Yes	X	No	

Is the Sampled Area Within a Wetland Yes X No

Remarks:
R5 P11: Facing east
R5 P12: Facing south
Possible stock dam

VEGETATION

Tree Stratum (Use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. *Distichlis stricta*	80	X	FACW
2. *Melilotus sp.*	20		FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover:	100		
Woody Vine Stratum			
1.			
2.			
3.			
Total Cover:			

% Bare Ground in Herb Stratum 80 % Cover of Biotic Crust

Dominance Test Worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species	80	x2=	160
FAC species		x3=	
FACU species	20	x4=	80
UPL species		x5=	
Column Totals:	100 (A)		240 (B)

Prevalence Index = B/A = 2.40

Hydrophytic Vegetation Indicators

____ Dominance Test is > 50%
X Prevalence Index is ≤ 3.0[1]
____ Morphological Adaptations[1] (Providing supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation (Explain)

[1]Indicators of hydric soils and wetland hydrology must be present

Hydrophytic Vegetation Present? Yes X No

Remarks:

POWERTECH (USA) INC.

SOIL Sampling Point W35

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	7.5YR 2.5/1	80	2.5YR 4/8	20	C	M	C	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5) **(LRR F)**
- ____ 1 cm Muck (A9) **(LRR F, G, H)**
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1)
- ____ 2.5 cm Mucky Peat or Peat (S2) **(LFF G, H)**
- ____ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Loamy Mucky Mineral (F1)
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ High Plains Depressions (F16)

Indicators for Problematic Hydric Soils[3]:

- ____ 1 cm Muck (A9) **(LRR C)**
- ____ Coast Prairie Redox (A16) (LRR F, G, H)
- ____ Dark Surface (S7) **(LRR G)**
- ____ High Plains Depressions (F16) **(LRR H outside MLRA 72 & 73)**
- ____ Reduced Vertic (F18)
- ____ Red Parent Material (TF2)
- ____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils Present? Yes ____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ____ Surface Water (A1)
- ____ High Water Table (A2)
- ____ Saturation (A3)
- ____ Water Marks (B1)
- ____ Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Water Stained Leaves (B9)
- ____ Salt Crusts (B11)
- ____ Aquatic Invertebrates (B13)
- ____ Hydrogen Sulfide Oder (C1)
- ____ Dry-Season Water Table (C2)
- ____ Presence of Reduced Iron (C4)
- ____ Thin Muck Surface (C7)
- ____ Other (Explain in Remark)

Secondary Indicators (2 or more required)

- X Surface Soil Cracks (B6)
- X Sparsely Vegetated Concave Surfaces (B8)
- ____ Drainage Patterns (B10)
- ____ Oxidized Rhizospheres on Living Roots (C3)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Frost-Heave Hummocks (C11) **(LRR F)**
- ____ Geomorphic Position (D2)
- ____ FAC-Neutral Test (D5)
- ____ Local Soil Survey Data (D8)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____		
Water Table Present?	Yes ____	No X	Depth (inches): ____		
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____	**Wetland Hydrology Present?**	Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspection), if available:

Remarks:
Soil is moist but not saturated.

POWERTECH (USA) INC.

WETLAND DETERMINATION DATA FORM-Great Plains Region (DRAFT)

Project/Site: Dewey Burdock | City/County: Custer County | Sampling Date: 9/19/07

Applicant/Owner: Knight Piesold, Powertech | State: South Dakota | Sampling Point: W36

Investigator(s): C. Robinson and J. Eberly | Section, Township, Range: Section 10, T7S, R1E

Landform (hillslope, terrace, etc.) Outfall | Local relief (concave, convex, none): Concave | Slope (%): 0

Subregion (LRP): Black Hills MLRA62 | Lat: | Long: | Datum: NAD 1983, UTM Zone 13

Soil Map Unit Name: | NWI Classification: PEM

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ Significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ Naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No	
Hydric Soil Present?	Yes	X	No	
Wetland Hydrology Present	Yes	X	No	

Is the Sampled Area Within a Wetland Yes X No

Remarks:
R5 P20: Downstream
R5 P21: Upstream to stock tank
Stock tank overflow
-waypoint 60- end of N
- waypoint 68, R5 P18: Upstream, R5 P19: Downstream
- waypoint 67 end of W, further SW there is *Hordeum jubatum was* dominant in channel and water disappears.

VEGETATION

Tree Stratum (Use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. *Hordeum jubatum*	20	X	FACW
2. *Juncus balticus*	65	X	FACW
3. *Melilotus alba*	10		FACU-
4. *Rumex occidentalis*	5		OBL
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover:	100		
Woody Vine Stratum			
1.			
2.			
3.			
Total Cover:			

% Bare Ground in Herb Stratum 2 % Cover of Biotic Crust

Dominance Test Worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:	
OBL species	x1=	
FACW species	x2=	
FAC species	x3=	
FACU species	x4=	
UPL species	x5=	
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators

X Dominance Test is > 50%
____ Prevalence Index is ≤ 3.0[1]
____ Morphological Adaptations[1] (Providing supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation (Explain)

[1]Indicators of hydric soils and wetland hydrology must be present

Hydrophytic Vegetation Present? Yes X No

Remarks:
Overflow area from stockpond.

SOIL Sampling Point W36

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 4/1	70	10YR 5/8	30	C	M	C	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)	___ Sandy Gleyed Matrix (S4)	___ 1 cm Muck (A9) (**LRR C**)
___ Histic Epipedon (A2)	___ Sandy Redox (S5)	___ Coast Prairie Redox (A16) (LRR F, G, H)
___ Black Histic (A3)	___ Stripped Matrix (S6)	___ Dark Surface (S7) (**LRR G**)
___ Hydrogen Sulfide (A4)	___ Loamy Mucky Mineral (F1)	___ High Plains Depressions (F16)
___ Stratified Layers (A5) (**LRR F**)	___ Loamy Gleyed Matrix (F2)	(**LRR H outside MLRA 72 & 73**)
___ 1 cm Muck (A9) (**LRR F, G, H**)	X Depleted Matrix (F3)	___ Reduced Vertic (F18)
___ Depleted Below Dark Surface (A11)	___ Redox Dark Surface (F6)	___ Red Parent Material (TF2)
___ Thick Dark Surface (A12)	___ Depleted Dark Surface (F7)	___ Other (Explain in Remarks)
___ Sandy Mucky Mineral (S1)	___ Redox Depressions (F8)	
___ 2.5 cm Mucky Peat or Peat (S2) (**LFF G, H**)	___ High Plains Depressions (F16)	[3]Indicators of hydrophytic vegetation
___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)		and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils Present? Yes X No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

X Surface Water (A1)	___ Salt Crusts (B11)	**Secondary Indicators (2 or more required)**
___ High Water Table (A2)	___ Aquatic Invertebrates (B13)	___ Surface Soil Cracks (B6)
___ Saturation (A3)	___ Hydrogen Sulfide Oder (C1)	___ Sparsely Vegetated Concave Surfaces (B8)
___ Water Marks (B1)	___ Dry-Season Water Table (C2)	___ Drainage Patterns (B10)
___ Sediment Deposits (B2)	___ Presence of Reduced Iron (C4)	___ Oxidized Rhizospheres on Living Roots (C3)
___ Drift Deposits (B3)	___ Thin Muck Surface (C7)	___ Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	___ Other (Explain in Remark)	Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)		___ Frost-Heave Hummocks (C11) (**LRR F**)
___ Inundation Visible on Aerial Imagery (B7)		___ Geomorphic Position (D2)
___ Water Stained Leaves (B9)		___ FAC-Neutral Test (D5)
		___ Local Soil Survey Data (D8)

Field Observations:

Surface Water Present?	Yes X	No ___	Depth (inches):	4	
Water Table Present?	Yes ___	No X	Depth (inches):	___	
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches):	___	**Wetland Hydrology Present?** Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspection), if available:

Remarks:
Soil is moist, but not saturated.

POWERTECH (USA) INC.

WETLAND DETERMINATION DATA FORM-Great Plains Region (DRAFT)

Project/Site: Dewey Burdock | City/County: Custer County | Sampling Date: 9/20/07

Applicant/Owner: Knight Piesold, Powertech | State: South Dakota | Sampling Point: W37

Investigator(s): C. Robinson and J. Eberly | Section, Township, Range: Section 34, T6S R1E

Landform (hillslope, terrace, etc.) Outfall | Local relief (concave, convex, none): Concave | Slope (%): 0

Subregion (LRP): Black Hills MLRA62 | Lat: | Long: | Datum: NAD 1983, UTM Zone 13

Soil Map Unit Name: | NWI Classification: Open water

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ Significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ Naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes		No	X	**Is the Sampled Area Within a Wetland** Yes ____ No X
Hydric Soil Present?	Yes		No	X	
Wetland Hydrology Present	Yes	X	No		

Remarks:
R6 P6 - P10 Panoramic east to west
Approximately 30 feet across
Previously NWI mapped as PUBGx

VEGETATION

Tree Stratum (Use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. *Typha latifolia*	25	X	OBL
2. *Cirsium arvense*	75	X	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover:	100		
Woody Vine Stratum			
1.			
2.			
3.			
Total Cover:			

% Bare Ground in Herb Stratum | % Cover of Biotic Crust

Dominance Test Worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	25	x1=	25
FACW species		x2=	
FAC species		x3=	
FACU species	75	x4=	300
UPL species		x5=	
Column Totals:	100 (A)		325 (B)

Prevalence Index = B/A = 3.25

Hydrophytic Vegetation Indicators

____ Dominance Test is > 50%
____ Prevalence Index is ≤ 3.0[1]
____ Morphological Adaptations[1] (Providing supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation (Explain)

[1]Indicators of hydric soils and wetland hydrology must be present

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:
Cattails dominate on water edge. *Cirsium arvense* dominate from water edge to 3 feet out. Rabbitbrush on upland bank.

POWERTECH (USA) INC.

SOIL Sampling Point W37

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	5Y 5/3	100					SCL	Fibrous root channel

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5) **(LRR F)**
- ____ 1 cm Muck (A9) **(LRR F, G, H)**
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1)
- ____ 2.5 cm Mucky Peat or Peat (S2) **(LFF G, H)**
- ____ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Loamy Mucky Mineral (F1)
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ High Plains Depressions (F16)

Indicators for Problematic Hydric Soils[3]:

- ____ 1 cm Muck (A9) **(LRR C)**
- ____ Coast Prairie Redox (A16) (LRR F, G, H)
- ____ Dark Surface (S7) **(LRR G)**
- ____ High Plains Depressions (F16) **(LRR H outside MLRA 72 & 73)**
- ____ Reduced Vertic (F18)
- ____ Red Parent Material (TF2)
- ____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils Present? Yes ____ No X

Remarks:
Soils likely hydric where cattails are- across unavailable due to steep drop in to pit
Soils are moist not saturated.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- X Surface Water (A1)
- ____ High Water Table (A2)
- ____ Saturation (A3)
- ____ Water Marks (B1)
- ____ Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Water Stained Leaves (B9)
- ____ Salt Crusts (B11)
- ____ Aquatic Invertebrates (B13)
- ____ Hydrogen Sulfide Oder (C1)
- ____ Dry-Season Water Table (C2)
- ____ Presence of Reduced Iron (C4)
- ____ Thin Muck Surface (C7)
- ____ Other (Explain in Remark)

Secondary Indicators (2 or more required)

- ____ Surface Soil Cracks (B6)
- ____ Sparsely Vegetated Concave Surfaces (B8)
- ____ Drainage Patterns (B10)
- ____ Oxidized Rhizospheres on Living Roots (C3)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Frost-Heave Hummocks (C11) **(LRR F)**
- ____ Geomorphic Position (D2)
- ____ FAC-Neutral Test (D5)
- ____ Local Soil Survey Data (D8)

Field Observations:

Surface Water Present?	Yes	X	No	____	Depth (inches): ____
Water Table Present?	Yes	____	No	X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes	____	No	X	Depth (inches): ____

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspection), if available:

Remarks:
Soil is moist, but not saturated.
Duck swimming in pond

POWERTECH (USA) INC.

WETLAND DETERMINATION DATA FORM-Great Plains Region (DRAFT)

Project/Site: Dewey Burdock | City/County: Custer County | Sampling Date: 9/20/07

Applicant/Owner: Knight Piesold, Powertech | State: South Dakota | Sampling Point: W38

Investigator(s): C. Robinson and J. Eberly | Section, Township, Range: Section 2, T7S, R1E

Landform (hillslope, terrace, etc.) Depression | Local relief (concave, convex, none): Concave | Slope (%): 0

Subregion (LRP): Black Hills MLRA62 | Lat: | Long: | Datum: NAD 1983, UTM Zone 13

Soil Map Unit Name: | NWI Classification: PUS

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____ , Soil ____ , or Hydrology ____ Significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____ , Soil ____ , or Hydrology ____ Naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No	
Hydric Soil Present?	Yes	X	No	
Wetland Hydrology Present	Yes	X	No	

Is the Sampled Area Within a Wetland Yes X No

Remarks:
R6 P13: East
R6 P14: North
300-500 feet across and 80 or 81 feet long

VEGETATION

Tree Stratum (Use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populous deltoides*	100	X	FAC
2.			
3.			
4.			
Total Cover:	100		

Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			

Herb Stratum			
1. *Juncus balticus*	50	X	FACW
2. *Distichlis stricta*	50	X	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover:	100		

Woody Vine Stratum			
1.			
2.			
3.			
Total Cover:			

% Bare Ground in Herb Stratum | % Cover of Biotic Crust

Dominance Test Worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:	
OBL species	x1=	
FACW species	x2=	
FAC species	x3=	
FACU species	x4=	
UPL species	x5=	
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators

X Dominance Test is > 50%
____ Prevalence Index is ≤ 3.0[1]
____ Morphological Adaptations[1] (Providing supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation (Explain)

[1]Indicators of hydric soils and wetland hydrology must be present

Hydrophytic Vegetation Present? Yes X No

Remarks:

SOIL Sampling Point W38

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	7.5YR 3/2	60	7.5YR 5/8	40	C	M	C	Lots of cow prints in area

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)	___ Sandy Gleyed Matrix (S4)	**Indicators for Problematic Hydric Soils[3]:**
___ Histic Epipedon (A2)	___ Sandy Redox (S5)	___ 1 cm Muck (A9) (**LRR C**)
___ Black Histic (A3)	___ Stripped Matrix (S6)	___ Coast Prairie Redox (A16) (LRR F, G, H)
___ Hydrogen Sulfide (A4)	___ Loamy Mucky Mineral (F1)	___ Dark Surface (S7) (**LRR G**)
___ Stratified Layers (A5) (**LRR F**)	___ Loamy Gleyed Matrix (F2)	___ High Plains Depressions (F16) (**LRR H outside MLRA 72 & 73**)
___ 1 cm Muck (A9) (**LRR F, G, H**)	___ Depleted Matrix (F3)	___ Reduced Vertic (F18)
___ Depleted Below Dark Surface (A11)	___ Redox Dark Surface (F6)	___ Red Parent Material (TF2)
___ Thick Dark Surface (A12)	___ Depleted Dark Surface (F7)	___ Other (Explain in Remarks)
___ Sandy Mucky Mineral (S1)	X Redox Depressions (F8)	
___ 2.5 cm Mucky Peat or Peat (S2) (**LFF G, H**)	___ High Plains Depressions (F16)	[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.
___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)		

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils Present? Yes X No ___

Remarks:
Soils likely hydric where cattails are- across unavailable due to steep drop in to pit
Soils are moist not saturated.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

___ Surface Water (A1)	___ Salt Crusts (B11)	**Secondary Indicators (2 or more required)**
___ High Water Table (A2)	___ Aquatic Invertebrates (B13)	X Surface Soil Cracks (B6)
___ Saturation (A3)	___ Hydrogen Sulfide Oder (C1)	X Sparsely Vegetated Concave Surfaces (B8)
___ Water Marks (B1)	___ Dry-Season Water Table (C2)	___ Drainage Patterns (B10)
___ Sediment Deposits (B2)	___ Presence of Reduced Iron (C4)	___ Oxidized Rhizospheres on Living Roots (C3)
___ Drift Deposits (B3)	___ Thin Muck Surface (C7)	___ Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	___ Other (Explain in Remark)	Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)		___ Frost-Heave Hummocks (C11) (**LRR F**)
___ Inundation Visible on Aerial Imagery (B7)		X Geomorphic Position (D2)
___ Water Stained Leaves (B9)		___ FAC-Neutral Test (D5)
		___ Local Soil Survey Data (D8)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches):	___	
Water Table Present?	Yes ___	No X	Depth (inches):	___	
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches):	___	**Wetland Hydrology Present?** Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspection), if available:

Remarks:

POWERTECH (USA) INC.

WETLAND DETERMINATION DATA FORM-Great Plains Region (DRAFT)

Project/Site: Dewey Burdock | City/County: Custer County | Sampling Date: 9/20/07

Applicant/Owner: Knight Piesold, Powertech | State: South Dakota | Sampling Point: W39

Investigator(s): C. Robinson and J. Eberly | Section, Township, Range:

Landform (hillslope, terrace, etc.) Depression w/ manmade berm | Local relief (concave, convex, none): Concave | Slope (%): 0

Subregion (LRP): Black Hills MLRA62 | Lat: | Long: | Datum: NAD 1983, UTM Zone 13

Soil Map Unit Name: | NWI Classification: PUS

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ Significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ Naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No		**Is the Sampled Area Within a Wetland** Yes X No
Hydric Soil Present?	Yes	X	No		
Wetland Hydrology Present	Yes	X	No		

Remarks:
R6 P16: of depression
R6 P17: of drainage to East
Waypoint 83, *Hordeum jubatum* depression with like soils as W39. R6 P15
Down the drainage there is HORJUB on banks and in bottom with same soil and hydrology

VEGETATION

Tree Stratum (Use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. *Hordeum jubatum*	95	X	FACW
2. *Melilotus officinalis*	5		FACU-
3. *Descurainia pinnata*	5		NI
4.			
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover:	100		
Woody Vine Stratum			
1.			
2.			
3.			
Total Cover:			

% Bare Ground in Herb Stratum | % Cover of Biotic Crust

Remarks:

Dominance Test Worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators

X Dominance Test is > 50%
___ Prevalence Index is ≤ 3.0[1]
___ Morphological Adaptations[1] (Providing supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation (Explain)

[1]Indicators of hydric soils and wetland hydrology must be present

Hydrophytic Vegetation Present? Yes X No

SOIL Sampling Point W39

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	5YR 4/1	55	2.5YR 4/6	45	C	M, RC	C	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

	Histosol (A1)		Sandy Gleyed Matrix (S4)		1 cm Muck (A9) **(LRR C)**
	Histic Epipedon (A2)		Sandy Redox (S5)		Coast Prairie Redox (A16) (LRR F, G, H)
	Black Histic (A3)		Stripped Matrix (S6)		Dark Surface (S7) **(LRR G)**
	Hydrogen Sulfide (A4)		Loamy Mucky Mineral (F1)		High Plains Depressions (F16)
	Stratified Layers (A5) **(LRR F)**		Loamy Gleyed Matrix (F2)		**(LRR H outside MLRA 72 & 73)**
	1 cm Muck (A9) **(LRR F, G, H)**	X	Depleted Matrix (F3)		Reduced Vertic (F18)
	Depleted Below Dark Surface (A11)		Redox Dark Surface (F6)		Red Parent Material (TF2)
	Thick Dark Surface (A12)		Depleted Dark Surface (F7)		Other (Explain in Remarks)
	Sandy Mucky Mineral (S1)	X	Redox Depressions (F8)		
	2.5 cm Mucky Peat or Peat (S2) **(LFF G, H)**		High Plains Depressions (F16)		[3]Indicators of hydrophytic vegetation
	5 cm Mucky Peat or Peat (S3) **(LRR F)**				and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils Present? Yes X No _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

X	Surface Water (A1)		Salt Crusts (B11)		Surface Soil Cracks (B6)
	High Water Table (A2)		Aquatic Invertebrates (B13)	X	Sparsely Vegetated Concave Surfaces (B8)
	Saturation (A3)		Hydrogen Sulfide Oder (C1)		Drainage Patterns (B10)
	Water Marks (B1)		Dry-Season Water Table (C2)		Oxidized Rhizospheres on Living Roots (C3)
	Sediment Deposits (B2)		Presence of Reduced Iron (C4)		Crayfish Burrows (C8)
	Drift Deposits (B3)		Thin Muck Surface (C7)		Saturation Visible on Aerial Imagery (C9)
	Algal Mat or Crust (B4)		Other (Explain in Remark)		Frost-Heave Hummocks (C11) **(LRR F)**
	Iron Deposits (B5)			X	Geomorphic Position (D2)
	Inundation Visible on Aerial Imagery (B7)				FAC-Neutral Test (D5)
	Water Stained Leaves (B9)				Local Soil Survey Data (D8)

Secondary Indicators (2 or more required)

Field Observations:

Surface Water Present?	Yes	_____	No	X	Depth (inches):	_____
Water Table Present?	Yes	_____	No	X	Depth (inches):	_____
Saturation Present? (includes capillary fringe)	Yes	_____	No	X	Depth (inches):	_____

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspection), if available:

Remarks:

POWERTECH (USA) INC.

WETLAND DETERMINATION DATA FORM-Great Plains Region (DRAFT)

Project/Site: Dewey Burdock | City/County: Custer County | Sampling Date: 9/20/07

Applicant/Owner: Knight Piesold, Powertech | State: South Dakota | Sampling Point: W40

Investigator(s): C. Robinson and J. Eberly | Section, Township, Range: Section 1, T7S, R1E

Landform (hillslope, terrace, etc.) Pond | Local relief (concave, convex, none): Concave | Slope (%): 1

Subregion (LRP): Black Hills MLRA62 | Lat: | Long: | Datum: NAD 1983, UTM Zone 13

Soil Map Unit Name: | NWI Classification: PEM

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ Significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ Naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No	
Hydric Soil Present?	Yes	X	No	
Wetland Hydrology Present	Yes	X	No	

Is the Sampled Area Within a Wetland Yes X No

Remarks:
R6 P18: Pond

VEGETATION

Tree Stratum (Use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. *Spartina pectinata*	100	X	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover:	100		
Woody Vine Stratum			
1.			
2.			
3.			
Total Cover:			

% Bare Ground in Herb Stratum | % Cover of Biotic Crust

Dominance Test Worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:	
OBL species	x1=	
FACW species	x2=	
FAC species	x3=	
FACU species	x4=	
UPL species	x5=	
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators

X Dominance Test is > 50%

____ Prevalence Index is ≤ 3.0[1]

____ Morphological Adaptations[1] (Providing supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation (Explain)

[1]Indicators of hydric soils and wetland hydrology must be present

Hydrophytic Vegetation Present? Yes X No

Remarks:

SOIL Sampling Point W40

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-11	2.5Y 5/2	65	Gley1 5/N	15	D	RC	SiC	
			10YR 5/8	20	C	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___	Histosol (A1)	___	Sandy Gleyed Matrix (S4)
___	Histic Epipedon (A2)	___	Sandy Redox (S5)
___	Black Histic (A3)	___	Stripped Matrix (S6)
___	Hydrogen Sulfide (A4)	___	Loamy Mucky Mineral (F1)
___	Stratified Layers (A5) **(LRR F)**	___	Loamy Gleyed Matrix (F2)
___	1 cm Muck (A9) **(LRR F, G, H)**	X	Depleted Matrix (F3)
___	Depleted Below Dark Surface (A11)	___	Redox Dark Surface (F6)
___	Thick Dark Surface (A12)	___	Depleted Dark Surface (F7)
___	Sandy Mucky Mineral (S1)	X	Redox Depressions (F8)
___	2.5 cm Mucky Peat or Peat (S2) **(LFF G, H)**	___	High Plains Depressions (F16)
___	5 cm Mucky Peat or Peat (S3) **(LRR F)**		

Indicators for Problematic Hydric Soils[3]:

___	1 cm Muck (A9) **(LRR C)**
___	Coast Prairie Redox (A16) (LRR F, G, H)
___	Dark Surface (S7) **(LRR G)**
___	High Plains Depressions (F16) **(LRR H outside MLRA 72 & 73)**
___	Reduced Vertic (F18)
___	Red Parent Material (TF2)
___	Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils Present? Yes X No ___

Remarks:
Soil is moist but not saturated.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

X	Surface Water (A1)	___	Salt Crusts (B11)
___	High Water Table (A2)	___	Aquatic Invertebrates (B13)
___	Saturation (A3)	___	Hydrogen Sulfide Oder (C1)
___	Water Marks (B1)	___	Dry-Season Water Table (C2)
___	Sediment Deposits (B2)	___	Presence of Reduced Iron (C4)
___	Drift Deposits (B3)	___	Thin Muck Surface (C7)
___	Algal Mat or Crust (B4)	___	Other (Explain in Remark)
___	Iron Deposits (B5)		
___	Inundation Visible on Aerial Imagery (B7)		
___	Water Stained Leaves (B9)		

Secondary Indicators (2 or more required)

___	Surface Soil Cracks (B6)
___	Sparsely Vegetated Concave Surfaces (B8)
___	Drainage Patterns (B10)
___	Oxidized Rhizospheres on Living Roots (C3)
___	Crayfish Burrows (C8)
	Saturation Visible on Aerial Imagery (C9)
___	Frost-Heave Hummocks (C11) **(LRR F)**
___	Geomorphic Position (D2)
___	FAC-Neutral Test (D5)
___	Local Soil Survey Data (D8)

Field Observations:

Surface Water Present?	Yes X	No ___	Depth (inches):	3	
Water Table Present?	Yes ___	No X	Depth (inches):	.	
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches):	___	**Wetland Hydrology Present?** Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspection), if available:

Remarks:

POWERTECH (USA) INC.

WETLAND DETERMINATION DATA FORM-Great Plains Region (DRAFT)

Project/Site: Dewey Burdock | City/County: Custer County | Sampling Date: 9/20/07

Applicant/Owner: Knight Piesold, Powertech | State: South Dakota | Sampling Point: W41

Investigator(s): C. Robinson and J. Eberly | Section, Township, Range: Section 1, T7S, R1E

Landform (hillslope, terrace, etc.) Mine pit | Local relief (concave, convex, none): Concave | Slope (%): 1

Subregion (LRP): Black Hills MLRA62 | Lat: | Long: | Datum: NAD 1983, UTM Zone 13

Soil Map Unit Name: | NWI Classification: PUB

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ Significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ Naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No	
Hydric Soil Present?	Yes	X	No	
Wetland Hydrology Present	Yes		No	X

Is the Sampled Area Within a Wetland Yes X No

Remarks:
R6 P19: Wetland
R6 P20: General area
Wetland has about a 20' circumference. This area may be a problematic wetland as some of the vegetation was dead.

VEGETATION

Tree Stratum (Use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. *Typha latifolia*	20	X	OBL
2. *Grindelia squarrosa*	15		UPL
3. *Symphyotrichum ericoides*	15		FACU
4. *Distichlis stricta*	50	X	FACW
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover:	100		
Woody Vine Stratum			
1.			
2.			
3.			
Total Cover:			

% Bare Ground in Herb Stratum % Cover of Biotic Crust

Dominance Test Worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:	
OBL species	x1=	
FACW species	x2=	
FAC species	x3=	
FACU species	x4=	
UPL species	x5=	
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators

X Dominance Test is > 50%
Prevalence Index is ≤ 3.0[1]
Morphological Adaptations[1] (Providing supporting data in Remarks or on a separate sheet)
Problematic Hydrophytic Vegetation (Explain)

[1]Indicators of hydric soils and wetland hydrology must be present

Hydrophytic Vegetation Present? Yes X No

Remarks:
Grindelia squarrosa, Symphyotrichum ericoides, and rabbit brush are encroaching into the depression.

SOIL Sampling Point W41

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	Gley1 5/10Y	95	10YR 6/8	5	C	M	C	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LFF G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- X Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR C)**
- ___ Coast Prairie Redox (A16) (LRR F, G, H)
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soils Present? Yes X No ___

Remarks:
Soil is moist but not saturated.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water Stained Leaves (B9)
- ___ Salt Crusts (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Oder (C1)
- ___ Dry-Season Water Table (C2)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remark)

Secondary Indicators (2 or more required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surfaces (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Frost-Heave Hummocks (C11) **(LRR F)**
- X Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Local Soil Survey Data (D8)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches):	___	
Water Table Present?	Yes ___	No X	Depth (inches):	___	
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches):	___	**Wetland Hydrology Present?** Yes ___ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspection), if available:

Remarks:

Other pits within the area are filled with water.

POWERTECH (USA) INC.

WETLAND DETERMINATION DATA FORM-Great Plains Region (DRAFT)

Project/Site: Dewey Burdock | City/County: Custer County | Sampling Date: 9/20/07

Applicant/Owner: Knight Piesold, Powertech | State: South Dakota | Sampling Point: W42

Investigator(s): C. Robinson and J. Eberly | Section, Township, Range: Section 1, T7S, R1E

Landform (hillslope, terrace, etc.) Mine Pit | Local relief (concave, convex, none): Concave | Slope (%): 1

Subregion (LRP): Black Hills MLRA62 | Lat: | Long: | Datum: NAD 1983, UTM Zone 13

Soil Map Unit Name: | NWI Classification: PUB

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ Significantly disturbed? Are "Normal Circumstances" present? Yes X No ___

Are Vegetation ___, Soil ___, or Hydrology ___ Naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No		**Is the Sampled Area Within a Wetland** Yes X No
Hydric Soil Present?	Yes		No	X	
Wetland Hydrology Present	Yes	X	No		

Remarks:
R6 P22- 24: Panoramic west to east.

VEGETATION

Tree Stratum (Use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. *Spartina pectinata*	40	X	FACW
2. *Distichlis stricta*	60	X	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover:	100		
Woody Vine Stratum			
1.			
2.			
3.			
Total Cover:			

% Bare Ground in Herb Stratum | % Cover of Biotic Crust

Dominance Test Worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:	
OBL species	x1=	
FACW species	x2=	
FAC species	x3=	
FACU species	x4=	
UPL species	x5=	
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators

X Dominance Test is > 50%

___ Prevalence Index is ≤ 3.0[1]

___ Morphological Adaptations[1] (Providing supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation (Explain)

[1]Indicators of hydric soils and wetland hydrology must be present

Hydrophytic Vegetation Present? Yes X No

Remarks:
Little bluestem dominates the upper banks.

POWERTECH (USA) INC.

SOIL Sampling Point W42

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 5/1	45	Gley1 4/N	5	D		SC	
			10YR 5/6	50	C			

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5) **(LRR F)**
- ____ 1 cm Muck (A9) **(LRR F, G, H)**
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1)
- ____ 2.5 cm Mucky Peat or Peat (S2) **(LFF G, H)**
- ____ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Loamy Mucky Mineral (F1)
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ High Plains Depressions (F16)

Indicators for Problematic Hydric Soils[3]:

- ____ 1 cm Muck (A9) **(LRR C)**
- ____ Coast Prairie Redox (A16) (LRR F, G, H)
- ____ Dark Surface (S7) **(LRR G)**
- ____ High Plains Depressions (F16) **(LRR H outside MLRA 72 & 73)**
- ____ Reduced Vertic (F18)
- ____ Red Parent Material (TF2)
- ____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils Present? Yes ____ No X

Remarks:
Soil is moist but not saturated.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- X Surface Water (A1)
- ____ High Water Table (A2)
- ____ Saturation (A3)
- ____ Water Marks (B1)
- ____ Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Water Stained Leaves (B9)
- ____ Salt Crusts (B11)
- ____ Aquatic Invertebrates (B13)
- ____ Hydrogen Sulfide Oder (C1)
- ____ Dry-Season Water Table (C2)
- ____ Presence of Reduced Iron (C4)
- ____ Thin Muck Surface (C7)
- ____ Other (Explain in Remark)

Secondary Indicators (2 or more required)

- ____ Surface Soil Cracks (B6)
- ____ Sparsely Vegetated Concave Surfaces (B8)
- ____ Drainage Patterns (B10)
- ____ Oxidized Rhizospheres on Living Roots (C3)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Frost-Heave Hummocks (C11) **(LRR F)**
- ____ Geomorphic Position (D2)
- ____ FAC-Neutral Test (D5)
- ____ Local Soil Survey Data (D8)

Field Observations:

Surface Water Present?	Yes	X	No	____	Depth (inches):	6
Water Table Present?	Yes	____	No	X	Depth (inches):	____
Saturation Present? (includes capillary fringe)	Yes	____	No	X	Depth (inches):	____

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspection), if available:

Remarks:

POWERTECH (USA) INC.

WETLAND DETERMINATION DATA FORM-Great Plains Region (DRAFT)

Project/Site: Dewey Burdock | City/County: Custer County | Sampling Date: 9/20/07

Applicant/Owner: Knight Piesold, Powertech | State: South Dakota | Sampling Point: W43

Investigator(s): C. Robinson and J. Eberly | Section, Township, Range: Section 36, T6S, R1E (Outside of Project Boundary)

Landform (hillslope, terrace, etc.) Depression, ponded area due to berm | Local relief (concave, convex, none): Concave | Slope (%): 0

Subregion (LRP): Black Hills MLRA62 | Lat: | Long: | Datum: NAD 1983, UTM Zone 13

Soil Map Unit Name: | NWI Classification: PEM

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ Significantly disturbed? Are "Normal Circumstances" present? Yes X No ___

Are Vegetation ___, Soil ___, or Hydrology ___ Naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No	
Hydric Soil Present?	Yes		No	X
Wetland Hydrology Present	Yes	X	No	

Is the Sampled Area Within a Wetland Yes X No

Remarks:
R7 P15: West R7 P17: East of pond
R7 P16: Middle
Cattle grazed here. On the other side of the berm there are *Pinus ponderosa*.

VEGETATION

Tree Stratum (Use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. *Juncus balticus*	60	X	FACW
2. *Typha latifolia*	40	X	OBL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover:	100		
Woody Vine Stratum			
1.			
2.			
3.			
Total Cover:			

% Bare Ground in Herb Stratum 90 % Cover of Biotic Crust

Dominance Test Worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:	
OBL species	x1=	
FACW species	x2=	
FAC species	x3=	
FACU species	x4=	
UPL species	x5=	
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators

X Dominance Test is > 50%
___ Prevalence Index is ≤ 3.0[1]
___ Morphological Adaptations[1] (Providing supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation (Explain)

[1]Indicators of hydric soils and wetland hydrology must be present

Hydrophytic Vegetation Present? Yes X No

Remarks:
Moss is present. *Distichlis stricta* present in the middle of the pond.

POWERTECH (USA) INC.

SOIL Sampling Point W43

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 5/3	75	Gley1 3/N	20	D	M	C	
			5YR 5/8	5	C	M	C	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- _____ Histosol (A1)
- _____ Histic Epipedon (A2)
- _____ Black Histic (A3)
- _____ Hydrogen Sulfide (A4)
- _____ Stratified Layers (A5) **(LRR F)**
- _____ 1 cm Muck (A9) **(LRR F, G, H)**
- _____ Depleted Below Dark Surface (A11)
- _____ Thick Dark Surface (A12)
- _____ Sandy Mucky Mineral (S1)
- _____ 2.5 cm Mucky Peat or Peat (S2) **(LFF G, H)**
- _____ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- _____ Sandy Gleyed Matrix (S4)
- _____ Sandy Redox (S5)
- _____ Stripped Matrix (S6)
- _____ Loamy Mucky Mineral (F1)
- _____ Loamy Gleyed Matrix (F2)
- _____ Depleted Matrix (F3)
- _____ Redox Dark Surface (F6)
- _____ Depleted Dark Surface (F7)
- _____ Redox Depressions (F8)
- _____ High Plains Depressions (F16)

Indicators for Problematic Hydric Soils[3]:

- _____ 1 cm Muck (A9) **(LRR C)**
- _____ Coast Prairie Redox (A16) (LRR F, G, H)
- _____ Dark Surface (S7) **(LRR G)**
- _____ High Plains Depressions (F16) **(LRR H outside MLRA 72 & 73)**
- _____ Reduced Vertic (F18)
- _____ Red Parent Material (TF2)
- _____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils Present? Yes _____ No X

Remarks:
Soil is moist but not saturated.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- _____ Water Marks (B1)
- _____ Sediment Deposits (B2)
- _____ Drift Deposits (B3)
- _____ Algal Mat or Crust (B4)
- _____ Iron Deposits (B5)
- _____ Inundation Visible on Aerial Imagery (B7)
- _____ Water Stained Leaves (B9)
- _____ Salt Crusts (B11)
- _____ Aquatic Invertebrates (B13)
- _____ Hydrogen Sulfide Oder (C1)
- _____ Dry-Season Water Table (C2)
- _____ Presence of Reduced Iron (C4)
- _____ Thin Muck Surface (C7)
- _____ Other (Explain in Remark)

Secondary Indicators (2 or more required)

- _____ Surface Soil Cracks (B6)
- _____ Sparsely Vegetated Concave Surfaces (B8)
- _____ Drainage Patterns (B10)
- _____ Oxidized Rhizospheres on Living Roots (C3)
- _____ Crayfish Burrows (C8)
- _____ Saturation Visible on Aerial Imagery (C9)
- _____ Frost-Heave Hummocks (C11) **(LRR F)**
- _____ Geomorphic Position (D2)
- _____ FAC-Neutral Test (D5)
- _____ Local Soil Survey Data (D8)

Field Observations:

Surface Water Present?	Yes	X	No	_____	Depth (inches): 4
Water Table Present?	Yes	X	No	_____	Depth (inches): 3
Saturation Present? (includes capillary fringe)	Yes	X	No	_____	Depth (inches): 3

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspection), if available:

Remarks:

POWERTECH (USA) INC.

WETLAND DETERMINATION DATA FORM-Great Plains Region (DRAFT)

Project/Site: Dewey Burdock | City/County: Custer County | Sampling Date: 9/20/07

Applicant/Owner: Knight Piesold, Powertech | State: South Dakota | Sampling Point: W44

Investigator(s): C. Robinson and J. Eberly | Section, Township, Range: Section 2, T7S, R1E

Landform (hillslope, terrace, etc.) Depression | Local relief (concave, convex, none): Concave | Slope (%): 1

Subregion (LRP): Black Hills MLRA62 | Lat: | Long: | Datum: NAD 1983, UTM Zone 13

Soil Map Unit Name: | NWI Classification: PEM

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ Significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ Naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No	
Hydric Soil Present?	Yes	X	No	
Wetland Hydrology Present	Yes	X	No	

Is the Sampled Area Within a Wetland Yes X No

Remarks:
R7 P24: Northwest
R8 P1: North
R8 P2: East

VEGETATION

Tree Stratum (Use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. *Juncus balticus*	85	X	FACW
2. *Distichlis stricta*	15		FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover:	100		
Woody Vine Stratum			
1.			
2.			
3.			
Total Cover:			

% Bare Ground in Herb Stratum 40 % Cover of Biotic Crust

Dominance Test Worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:	
OBL species	x1=	
FACW species	x2=	
FAC species	x3=	
FACU species	x4=	
UPL species	x5=	
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators

X Dominance Test is > 50%
Prevalence Index is ≤ 3.0[1]
Morphological Adaptations[1] (Providing supporting data in Remarks or on a separate sheet)
Problematic Hydrophytic Vegetation (Explain)

[1]Indicators of hydric soils and wetland hydrology must be present

Hydrophytic Vegetation Present? Yes X No

Remarks:

SOIL Sampling Point W44

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	2.5Y 5/2	68	7.5YR 5/8	30	C	M	SiC	
			Gley1 3/N	2	D	M	SiC	
6-8	10YR 3/1	98	7.5YR 5/8	2	C	M	SiC	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)	___ Sandy Gleyed Matrix (S4)	___ 1 cm Muck (A9) **(LRR C)**
___ Histic Epipedon (A2)	___ Sandy Redox (S5)	___ Coast Prairie Redox (A16) (LRR F, G, H)
___ Black Histic (A3)	___ Stripped Matrix (S6)	___ Dark Surface (S7) **(LRR G)**
___ Hydrogen Sulfide (A4)	___ Loamy Mucky Mineral (F1)	___ High Plains Depressions (F16)
___ Stratified Layers (A5) **(LRR F)**	___ Loamy Gleyed Matrix (F2)	**(LRR H outside MLRA 72 & 73)**
___ 1 cm Muck (A9) **(LRR F, G, H)**	___ Depleted Matrix (F3)	___ Reduced Vertic (F18)
___ Depleted Below Dark Surface (A11)	___ Redox Dark Surface (F6)	___ Red Parent Material (TF2)
___ Thick Dark Surface (A12)	___ Depleted Dark Surface (F7)	___ Other (Explain in Remarks)
___ Sandy Mucky Mineral (S1)	X Redox Depressions (F8)	
___ 2.5 cm Mucky Peat or Peat (S2) **(LFF G, H)**	___ High Plains Depressions (F16)	[3]Indicators of hydrophytic vegetation
___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**		and wetland hydrology must be present.

Indicators for Problematic Hydric Soils[3]:

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils Present? Yes X No ___

Remarks:
Soil is moist, concentrations sparse in the 6-8 inches layer.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

X Surface Water (A1)	___ Salt Crusts (B11)	**Secondary Indicators (2 or more required)**
___ High Water Table (A2)	___ Aquatic Invertebrates (B13)	___ Surface Soil Cracks (B6)
___ Saturation (A3)	___ Hydrogen Sulfide Oder (C1)	___ Sparsely Vegetated Concave Surfaces (B8)
___ Water Marks (B1)	___ Dry-Season Water Table (C2)	___ Drainage Patterns (B10)
___ Sediment Deposits (B2)	___ Presence of Reduced Iron (C4)	___ Oxidized Rhizospheres on Living Roots (C3)
___ Drift Deposits (B3)	___ Thin Muck Surface (C7)	___ Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	___ Other (Explain in Remark)	Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)		___ Frost-Heave Hummocks (C11) **(LRR F)**
___ Inundation Visible on Aerial Imagery (B7)		___ Geomorphic Position (D2)
___ Water Stained Leaves (B9)		___ FAC-Neutral Test (D5)
		___ Local Soil Survey Data (D8)

Field Observations:

Surface Water Present?	Yes X	No ___	Depth (inches):	3	
Water Table Present?	Yes ___	No X	Depth (inches):	___	
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches):	___	**Wetland Hydrology Present?** Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspection), if available:

Remarks:

POWERTECH (USA) INC.

WETLAND DETERMINATION DATA FORM-Great Plains Region (DRAFT)

Project/Site: Dewey Burdock | City/County: Custer County | Sampling Date: 9/20/07

Applicant/Owner: Knight Piesold, Powertech | State: South Dakota | Sampling Point: W45

Investigator(s): C. Robinson and J. Eberly | Section, Township, Range: Section 1, T7S, R1E

Landform (hillslope, terrace, etc.) Depression | Local relief (concave, convex, none): Concave | Slope (%): 1

Subregion (LRP): Black Hills MLRA62 | Lat: | Long: | Datum: NAD 1983, UTM Zone 13

Soil Map Unit Name: | NWI Classification: PEM

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ Significantly disturbed? Are "Normal Circumstances" present? Yes X No ___

Are Vegetation ___, Soil ___, or Hydrology ___ Naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No	
Hydric Soil Present?	Yes	X	No	
Wetland Hydrology Present	Yes	X	No	

Is the Sampled Area Within a Wetland Yes X No

Remarks:
R8 P4: Upstream
R8 P5: Downstream
Stockwater pond (20' wide by 50' long)

VEGETATION

Tree Stratum (Use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. *Mimulus guttatus*	70	X	OBL
2. *Distichlis stricta*	30	X	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover:	100		
Woody Vine Stratum			
1.			
2.			
3.			
Total Cover:			

% Bare Ground in Herb Stratum | % Cover of Biotic Crust

Dominance Test Worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:	
OBL species	x1=	
FACW species	x2=	
FAC species	x3=	
FACU species	x4=	
UPL species	x5=	
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators

X Dominance Test is > 50%
___ Prevalence Index is ≤ 3.0[1]
___ Morphological Adaptations[1] (Providing supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation (Explain)

[1]Indicators of hydric soils and wetland hydrology must be present

Hydrophytic Vegetation Present? Yes X No

Remarks:

SOIL

Sampling Point W45

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	Gley1 5/10Y	60	7.5Y 5/6	35	C	M, RC	C	
			Gley1 4/N	5	D	M		
8-10	2.5Y 5/4	90	5YR 5/6	10	C	M	SC	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

	Histosol (A1)		Sandy Gleyed Matrix (S4)
	Histic Epipedon (A2)		Sandy Redox (S5)
	Black Histic (A3)		Stripped Matrix (S6)
	Hydrogen Sulfide (A4)		Loamy Mucky Mineral (F1)
	Stratified Layers (A5) **(LRR F)**	X	Loamy Gleyed Matrix (F2)
	1 cm Muck (A9) **(LRR F, G, H)**		Depleted Matrix (F3)
	Depleted Below Dark Surface (A11)		Redox Dark Surface (F6)
	Thick Dark Surface (A12)		Depleted Dark Surface (F7)
	Sandy Mucky Mineral (S1)	X	Redox Depressions (F8)
	2.5 cm Mucky Peat or Peat (S2) **(LFF G, H)**		High Plains Depressions (F16)
	5 cm Mucky Peat or Peat (S3) **(LRR F)**		

Indicators for Problematic Hydric Soils[3]:

- 1 cm Muck (A9) **(LRR C)**
- Coast Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) **(LRR G)**
- High Plains Depressions (F16) **(LRR H outside MLRA 72 & 73)**
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soils Present? Yes X No

Remarks:
Soil is moist but not saturated.
Black parent material in 8-10 inch layer.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

X	Surface Water (A1)		Salt Crusts (B11)
	High Water Table (A2)		Aquatic Invertebrates (B13)
	Saturation (A3)		Hydrogen Sulfide Oder (C1)
	Water Marks (B1)		Dry-Season Water Table (C2)
	Sediment Deposits (B2)		Presence of Reduced Iron (C4)
	Drift Deposits (B3)		Thin Muck Surface (C7)
	Algal Mat or Crust (B4)		Other (Explain in Remark)
	Iron Deposits (B5)		
	Inundation Visible on Aerial Imagery (B7)		
	Water Stained Leaves (B9)		

Secondary Indicators (2 or more required)

- Surface Soil Cracks (B6)
- Sparsely Vegetated Concave Surfaces (B8)
- Drainage Patterns (B10)
- Oxidized Rhizospheres on Living Roots (C3)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Frost-Heave Hummocks (C11) **(LRR F)**
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)
- Local Soil Survey Data (D8)

Field Observations:

Surface Water Present?	Yes X	No	Depth (inches):	3-5	
Water Table Present?	Yes	No X	Depth (inches):		
Saturation Present? (includes capillary fringe)	Yes	No X	Depth (inches):		

Wetland Hydrology Present? Yes X No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspection), if available:

Remarks:

APPENDIX 2.8-H

LAB RESULTS – ENERGY LABORATORIES, INC.

ENERGY LABORATORIES, INC. • 2393 Salt Creek Highway (82601) • P.O. Box 3258 • Casper, WY 82602
Toll Free 888.235.0515 • 307.235.0515 • Fax 307.234.1639 • casper@energylab.com • www.energylab.com

ANALYTICAL SUMMARY REPORT

June 19, 2008

Fish identifications corrected as marked.
A. Wones - ICF Jones & Stokes

Jones and Stokes
1901 Energy Ct Ste 115
Gillette, WY 82718

Workorder No.: C08040910

Project Name: Dewey-Burdock 010996.07

Energy Laboratories, Inc. received the following 15 samples from Jones and Stokes on 4/18/2008 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test	
C08040910-001	BVC01-Green Sunfish	04/16/08 00:00	04/18/08	Fish	Uranium, Total Digestion For RadioChemistry Lead 210 Polonium 210 Radium 226 Thorium, Isotopic Services Provided by Lab	
C08040910-002	BVC01-Plains Killfish	04/16/08 00:00	04/18/08	Fish	Same As Above	
C08040910-003	BVC01-Longnose Dace	04/16/08 00:00	04/18/08	Fish	Same As Above	
C08040910-004	BVC01-~~Emerald Shiner~~	04/16/08 00:00	04/18/08	Fish	Same As Above	Fathead Minnow
C08040910-005	BVC04-Plains Killfish	04/16/08 00:00	04/18/08	Fish	Same As Above	
C08040910-006	BVC04-~~Quill Back~~	04/16/08 00:00	04/18/08	Fish	Same As Above	River Carpsucker
C08040910-007	BVC04-Green Sunfish	04/16/08 00:00	04/18/08	Fish	Same As Above	
C08040910-008	BVC04-~~Emerald Shiner~~	04/16/08 00:00	04/18/08	Fish	Same As Above	Fathead Minnow
C08040910-009	BVC04-Channel Catfish	04/16/08 00:00	04/18/08	Fish	Same As Above	
C08040910-010	CHR05-~~Quill Back~~	04/15/08 00:00	04/18/08	Fish	Same As Above	River Carpsucker
C08040910-011	CHR05-Green Sunfish	04/15/08 00:00	04/18/08	Fish	Same As Above	
C08040910-012	CHR05-~~Mottled Sucker~~	04/15/08 00:00	04/18/08	Fish	Same As Ab	Shorthead Redhorse Sucker
C08040910-013	CHR05-~~Fine Scale Dace~~	04/15/08 00:00	04/18/08	Fish	Same As Above	Creek Chub
C08040910-014	CHR05-Plains Killfish	04/15/08 00:00	04/18/08	Fish	Same As Above	
C08040910-015	CHR05-~~Shiner~~	04/15/08 00:00	04/18/08	Fish	Same As Above	Sand Shiner

As appropriate, any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

If you have any questions regarding these tests results, please call.

Report Approved By: STEVE CARLSTON

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LABORATORY ANALYTICAL REPORT

Client: Jones and Stokes
Project: Dewey-Burdock 010996.07
Lab ID: C08040910-001
Client Sample ID: BVC01-Green Sunfish

Report Date: 06/19/08
Collection Date: 04/16/08
DateReceived: 04/18/08
Matrix: Fish

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS - TOTAL							
Uranium	ND	mg/kg		0.02		SW6020	05/11/08 01:09 / ts
Uranium, Activity	ND	uCi/kg	D	2.0E-05		SW6020	05/11/08 01:09 / ts
RADIONUCLIDES - TOTAL							
Polonium 210	0.0E+00	uCi/kg	U	5.0E-05		RMO-3008	06/02/08 11:15 / plj
Polonium 210 precision (±)	6.0E-05	uCi/kg				RMO-3008	06/02/08 11:15 / plj
Lead 210	0.0E+00	uCi/kg	U	5.0E-05		E909.0M	05/21/08 09:00 / dm
Lead 210 precision (±)	2.0E-04	uCi/kg				E909.0M	05/21/08 09:00 / dm
Thorium 230	0.0E+00	uCi/kg	U	1.0E-05		E907.0	05/09/08 14:00 / dmf
Thorium 230 precision (±)	2.0E-05	uCi/kg				E907.0	05/09/08 14:00 / dmf
Radium 226	3.0E-04	uCi/kg				E903.0	05/15/08 15:31 / trs
Radium 226 precision (±)	9.0E-05	uCi/kg				E903.0	05/15/08 15:31 / trs
Radium 226 MDC	1.0E-04	uCi/kg				E903.0	05/15/08 15:31 / trs

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
U - Not detected at minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix interference.

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LABORATORY ANALYTICAL REPORT

Client: Jones and Stokes
Project: Dewey-Burdock 010996.07
Lab ID: C08040910-002
Client Sample ID: BVC01-Plains Killfish

Report Date: 06/19/08
Collection Date: 04/16/08
DateReceived: 04/18/08
Matrix: Fish

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS - TOTAL							
Uranium	ND	mg/kg	D	0.3		SW6020	05/11/08 01:18 / ts
Uranium, Activity	ND	uCi/kg	D	2.0E-04		SW6020	05/11/08 01:18 / ts
RADIONUCLIDES - TOTAL							
Polonium 210	0.0E+00	uCi/kg	UD	5.0E-04		RMO-3008	06/02/08 11:15 / plj
Polonium 210 precision (±)	8.0E-04	uCi/kg				RMO-3008	06/02/08 11:15 / plj
Lead 210	2.0E-02	uCi/kg	D	5.0E-04		E909.0M	06/09/08 08:30 / dm
Lead 210 precision (±)	2.0E-02	uCi/kg				E909.0M	06/09/08 08:30 / dm
Thorium 230	2.0E-04	uCi/kg	D	1.0E-04		E907.0	05/09/08 14:00 / dmf
Thorium 230 precision (±)	3.0E-04	uCi/kg				E907.0	05/09/08 14:00 / dmf
Radium 226	-4.0E-04	uCi/kg	U			E903.0	05/16/08 15:11 / trs
Radium 226 precision (±)	4.0E-04	uCi/kg				E903.0	05/16/08 15:11 / trs
Radium 226 MDC	9.0E-04	uCi/kg				E903.0	05/16/08 15:11 / trs

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
U - Not detected at minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix interference.

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LABORATORY ANALYTICAL REPORT

Client: Jones and Stokes
Project: Dewey-Burdock 010996.07
Lab ID: C08040910-003
Client Sample ID: BVC01-Longnose Dace

Report Date: 06/19/08
Collection Date: 04/16/08
DateReceived: 04/18/08
Matrix: Fish

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS - TOTAL							
Uranium	ND	mg/kg	D	0.9		SW6020	05/11/08 01:22 / ts
Uranium, Activity	ND	uCi/kg	D	6.0E-04		SW6020	05/11/08 01:22 / ts
RADIONUCLIDES - TOTAL							
Polonium 210	2.0E-03	uCi/kg	D	1.0E-03		RMO-3008	06/02/08 11:15 / plj
Polonium 210 precision (±)	3.0E-03	uCi/kg				RMO-3008	06/02/08 11:15 / plj
Lead 210	0.0E+00	uCi/kg	UD	1.0E-03		E909.0M	05/21/08 09:00 / dm
Lead 210 precision (±)	7.0E-03	uCi/kg				E909.0M	05/21/08 09:00 / dm
Thorium 230	1.0E-03	uCi/kg	D	3.0E-04		E907.0	05/09/08 14:00 / dmf
Thorium 230 precision (±)	1.0E-03	uCi/kg				E907.0	05/09/08 14:00 / dmf
Radium 226	-2.0E-03	uCi/kg	U			E903.0	05/16/08 15:11 / trs
Radium 226 precision (±)	1.0E-03	uCi/kg				E903.0	05/16/08 15:11 / trs
Radium 226 MDC	3.0E-03	uCi/kg				E903.0	05/16/08 15:11 / trs

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
U - Not detected at minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix interference.

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LABORATORY ANALYTICAL REPORT

Client: Jones and Stokes
Project: Dewey-Burdock 010996.07
Lab ID: C08040910-004
Client Sample ID: BVC01-~~Emerald Shiner~~ Fathead Minnow

Report Date: 06/19/08
Collection Date: 04/16/08
DateReceived: 04/18/08
Matrix: Fish

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS - TOTAL							
Uranium	ND	mg/kg	D	0.1		SW6020	05/11/08 01:42 / ts
Uranium, Activity	ND	uCi/kg	D	1.0E-04		SW6020	05/11/08 01:42 / ts
RADIONUCLIDES - TOTAL							
Polonium 210	4.0E-04	uCi/kg	D	2.0E-04		RMO-3008	06/02/08 11:15 / plj
Polonium 210 precision (±)	5.0E-04	uCi/kg				RMO-3008	06/02/08 11:15 / plj
Lead 210	0.0E+00	uCi/kg	UD	2.0E-04		E909.0M	05/21/08 09:00 / dm
Lead 210 precision (±)	1.0E-03	uCi/kg				E909.0M	05/21/08 09:00 / dm
Thorium 230	0.0E+00	uCi/kg	UD	5.0E-05		E907.0	05/09/08 14:00 / dmf
Thorium 230 precision (±)	7.0E-05	uCi/kg				E907.0	05/09/08 14:00 / dmf
Radium 226	-1.0E-04	uCi/kg	U			E903.0	05/16/08 15:11 / trs
Radium 226 precision (±)	2.0E-04	uCi/kg				E903.0	05/16/08 15:11 / trs
Radium 226 MDC	5.0E-04	uCi/kg				E903.0	05/16/08 15:11 / trs

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
U - Not detected at minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix interference.

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LABORATORY ANALYTICAL REPORT

Client: Jones and Stokes
Project: Dewey-Burdock 010996.07
Lab ID: C08040910-005
Client Sample ID: BVC04-Plains Killfish

Report Date: 06/19/08
Collection Date: 04/16/08
DateReceived: 04/18/08
Matrix: Fish

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS - TOTAL							
Uranium	ND	mg/kg	D	0.8		SW6020	05/11/08 01:46 / ts
Uranium, Activity	ND	uCi/kg	D	5.0E-04		SW6020	05/11/08 01:46 / ts
RADIONUCLIDES - TOTAL							
Polonium 210	0.0E+00	uCi/kg	U	1.0E-03		RMO-3008	06/02/08 11:15 / plj
Polonium 210 precision (±)	1.0E-03	uCi/kg				RMO-3008	06/02/08 11:15 / plj
Lead 210	0.0E+00	uCi/kg	UD	1.0E-03		E909.0M	05/21/08 09:00 / dm
Lead 210 precision (±)	8.0E-03	uCi/kg				E909.0M	05/21/08 09:00 / dm
Thorium 230	0.0E+00	uCi/kg	UD	3.0E-04		E907.0	05/09/08 14:00 / dmf
Thorium 230 precision (±)	4.0E-04	uCi/kg				E907.0	05/09/08 14:00 / dmf
Radium 226	-1.0E-03	uCi/kg	U			E903.0	05/15/08 15:31 / trs
Radium 226 precision (±)	1.0E-03	uCi/kg				E903.0	05/15/08 15:31 / trs
Radium 226 MDC	2.0E-03	uCi/kg				E903.0	05/15/08 15:31 / trs

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
U - Not detected at minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix interference.

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LABORATORY ANALYTICAL REPORT

Client: Jones and Stokes
Project: Dewey-Burdock 010996.07
Lab ID: C08040910-006
Client Sample ID: BVC04-~~Quill Back~~ River Carpsucker

Report Date: 06/19/08
Collection Date: 04/16/08
DateReceived: 04/18/08
Matrix: Fish

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS - TOTAL							
Uranium	ND	mg/kg	D	0.03		SW6020	05/11/08 01:51 / ts
Uranium, Activity	ND	uCi/kg	D	2.0E-05		SW6020	05/11/08 01:51 / ts
RADIONUCLIDES - TOTAL							
Polonium 210	4.0E-04	uCi/kg		5.0E-05		RMO-3008	06/02/08 11:15 / plj
Polonium 210 precision (±)	2.0E-04	uCi/kg				RMO-3008	06/02/08 11:15 / plj
Lead 210	0.0E+00	uCi/kg	U	5.0E-05		E909.0M	05/21/08 09:00 / dm
Lead 210 precision (±)	3.0E-04	uCi/kg				E909.0M	05/21/08 09:00 / dm
Thorium 230	2.0E-05	uCi/kg		1.0E-05		E907.0	05/09/08 14:00 / dmf
Thorium 230 precision (±)	3.0E-05	uCi/kg				E907.0	05/09/08 14:00 / dmf
Radium 226	-2.0E-05	uCi/kg	U			E903.0	05/15/08 15:31 / trs
Radium 226 precision (±)	6.0E-05	uCi/kg				E903.0	05/15/08 15:31 / trs
Radium 226 MDC	1.0E-04	uCi/kg				E903.0	05/15/08 15:31 / trs

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
U - Not detected at minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix interference.

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LABORATORY ANALYTICAL REPORT

Client: Jones and Stokes
Project: Dewey-Burdock 010996.07
Lab ID: C08040910-007
Client Sample ID: BVC04-Green Sunfish

Report Date: 06/19/08
Collection Date: 04/16/08
DateReceived: 04/18/08
Matrix: Fish

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS - TOTAL							
Uranium	ND	mg/kg	D	0.3		SW6020	05/11/08 01:55 / ts
Uranium, Activity	ND	uCi/kg	D	2.0E-04		SW6020	05/11/08 01:55 / ts
RADIONUCLIDES - TOTAL							
Polonium 210	6.0E-04	uCi/kg	D	4.0E-04		RMO-3008	06/02/08 11:15 / plj
Polonium 210 precision (±)	7.0E-04	uCi/kg				RMO-3008	06/02/08 11:15 / plj
Lead 210	0.0E+00	uCi/kg	UD	4.0E-04		E909.0M	05/21/08 09:00 / dm
Lead 210 precision (±)	3.0E-03	uCi/kg				E909.0M	05/21/08 09:00 / dm
Thorium 230	8.0E-04	uCi/kg	D	9.0E-05		E907.0	05/09/08 14:00 / dmf
Thorium 230 precision (±)	6.0E-04	uCi/kg				E907.0	05/09/08 14:00 / dmf
Radium 226	-3.0E-04	uCi/kg	U			E903.0	05/15/08 15:31 / trs
Radium 226 precision (±)	4.0E-04	uCi/kg				E903.0	05/15/08 15:31 / trs
Radium 226 MDC	9.0E-04	uCi/kg				E903.0	05/15/08 15:31 / trs

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
U - Not detected at minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix interference.

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LABORATORY ANALYTICAL REPORT

Client: Jones and Stokes
Project: Dewey-Burdock 010996.07
Lab ID: C08040910-008
Client Sample ID: BVC04 ~~Emerald Shiner~~ Fathead Minnow

Report Date: 06/19/08
Collection Date: 04/16/08
DateReceived: 04/18/08
Matrix: Fish

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS - TOTAL							
Uranium	ND	mg/kg		0.02		SW6020	05/11/08 01:59 / ts
Uranium, Activity	ND	uCi/kg		1.0E-05		SW6020	05/11/08 01:59 / ts
RADIONUCLIDES - TOTAL							
Polonium 210	0.0E+00	uCi/kg	U	5.0E-05		RMO-3008	06/02/08 11:15 / plj
Polonium 210 precision (±)	2.0E-05	uCi/kg				RMO-3008	06/02/08 11:15 / plj
Lead 210	0.0E+00	uCi/kg	U	5.0E-05		E909.0M	05/21/08 09:00 / dm
Lead 210 precision (±)	9.0E-05	uCi/kg				E909.0M	05/21/08 09:00 / dm
Thorium 230	1.0E-05	uCi/kg		1.0E-05		E907.0	05/09/08 14:00 / dmf
Thorium 230 precision (±)	1.0E-05	uCi/kg				E907.0	05/09/08 14:00 / dmf
Radium 226	1.0E-04	uCi/kg				E903.0	05/15/08 15:31 / trs
Radium 226 precision (±)	3.0E-05	uCi/kg				E903.0	05/15/08 15:31 / trs
Radium 226 MDC	3.0E-05	uCi/kg				E903.0	05/15/08 15:31 / trs

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Jones and Stokes
Project: Dewey-Burdock 010996.07
Lab ID: C08040910-009
Client Sample ID: BVC04-Channel Catfish

Report Date: 06/19/08
Collection Date: 04/16/08
DateReceived: 04/18/08
Matrix: Fish

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS - TOTAL							
Uranium	0.05	mg/kg	D	0.05		SW6020	05/11/08 02:03 / ts
Uranium, Activity	3.0E-05	uCi/kg	D	3.0E-05		SW6020	05/11/08 02:03 / ts
RADIONUCLIDES - TOTAL							
Polonium 210	9.0E-04	uCi/kg	D	8.0E-05		RMO-3008	06/02/08 11:15 / plj
Polonium 210 precision (±)	3.0E-04	uCi/kg				RMO-3008	06/02/08 11:15 / plj
Lead 210	0.0E+00	uCi/kg	UD	8.0E-05		E909.0M	05/21/08 09:00 / dm
Lead 210 precision (±)	5.0E-04	uCi/kg				E909.0M	05/21/08 09:00 / dm
Thorium 230	2.0E-05	uCi/kg	D	2.0E-05		E907.0	05/09/08 14:00 / dmf
Thorium 230 precision (±)	3.0E-05	uCi/kg				E907.0	05/09/08 14:00 / dmf
Radium 226	-8.0E-05	uCi/kg	U			E903.0	05/15/08 15:31 / trs
Radium 226 precision (±)	6.0E-05	uCi/kg				E903.0	05/15/08 15:31 / trs
Radium 226 MDC	1.0E-04	uCi/kg				E903.0	05/15/08 15:31 / trs

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
U - Not detected at minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix interference.

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LABORATORY ANALYTICAL REPORT

Client: Jones and Stokes
Project: Dewey-Burdock 010996.07
Lab ID: C08040910-010
Client Sample ID: CHR05~~-Quill Back~~ River Carpsucker

Report Date: 06/19/08
Collection Date: 04/15/08
DateReceived: 04/18/08
Matrix: Fish

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS - TOTAL							
Uranium	ND	mg/kg	D	0.04		SW6020	05/11/08 02:07 / ts
Uranium, Activity	ND	uCi/kg	D	3.0E-05		SW6020	05/11/08 02:07 / ts
RADIONUCLIDES - TOTAL							
Polonium 210	8.0E-04	uCi/kg	D	7.0E-05		RMO-3008	06/02/08 11:15 / plj
Polonium 210 precision (±)	3.0E-04	uCi/kg				RMO-3008	06/02/08 11:15 / plj
Lead 210	0.0E+00	uCi/kg	UD	7.0E-05		E909.0M	05/21/08 09:00 / dm
Lead 210 precision (±)	4.0E-04	uCi/kg				E909.0M	05/21/08 09:00 / dm
Thorium 230	0.0E+00	uCi/kg	U	1.0E-05		E907.0	05/09/08 14:00 / dmf
Thorium 230 precision (±)	5.0E-05	uCi/kg				E907.0	05/09/08 14:00 / dmf
Radium 226	-9.0E-05	uCi/kg	U			E903.0	05/15/08 17:06 / trs
Radium 226 precision (±)	5.0E-05	uCi/kg				E903.0	05/15/08 17:06 / trs
Radium 226 MDC	1.0E-04	uCi/kg				E903.0	05/15/08 17:06 / trs

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
U - Not detected at minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix interference.

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LABORATORY ANALYTICAL REPORT

Client: Jones and Stokes
Project: Dewey-Burdock 010996.07
Lab ID: C08040910-011
Client Sample ID: CHR05-Green Sunfish

Report Date: 06/19/08
Collection Date: 04/15/08
DateReceived: 04/18/08
Matrix: Fish

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS - TOTAL							
Uranium	ND	mg/kg	D	0.04		SW6020	05/11/08 02:11 / ts
Uranium, Activity	ND	uCi/kg	D	3.0E-05		SW6020	05/11/08 02:11 / ts
RADIONUCLIDES - TOTAL							
Polonium 210	8.0E-05	uCi/kg	UD	7.0E-05		RMO-3008	06/02/08 11:15 / plj
Polonium 210 precision (±)	1.0E-04	uCi/kg				RMO-3008	06/02/08 11:15 / plj
Lead 210	0.0E+00	uCi/kg	UD	7.0E-05		E909.0M	05/21/08 09:00 / dm
Lead 210 precision (±)	4.0E-04	uCi/kg				E909.0M	05/21/08 09:00 / dm
Thorium 230	1.0E-05	uCi/kg	U	1.0E-05		E907.0	05/09/08 14:00 / dmf
Thorium 230 precision (±)	5.0E-05	uCi/kg				E907.0	05/09/08 14:00 / dmf
Radium 226	-6.0E-05	uCi/kg	U			E903.0	05/15/08 17:06 / trs
Radium 226 precision (±)	7.0E-05	uCi/kg				E903.0	05/15/08 17:06 / trs
Radium 226 MDC	1.0E-04	uCi/kg				E903.0	05/15/08 17:06 / trs

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
U - Not detected at minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix interference.

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LABORATORY ANALYTICAL REPORT

Client: Jones and Stokes
Project: Dewey-Burdock 010996.07
Lab ID: C08040910-012
Client Sample ID: CHR05-~~Mottled Sucker~~ Shorthead Redhorse Sucker

Report Date: 06/19/08
Collection Date: 04/15/08
DateReceived: 04/18/08
Matrix: Fish

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS - TOTAL							
Uranium	ND	mg/kg		0.02		SW6020	05/11/08 02:15 / ts
Uranium, Activity	ND	uCi/kg		1.0E-05		SW6020	05/11/08 02:15 / ts
RADIONUCLIDES - TOTAL							
Polonium 210	2.0E-04	uCi/kg		5.0E-05		RMO-3008	06/02/08 11:15 / plj
Polonium 210 precision (±)	1.0E-04	uCi/kg				RMO-3008	06/02/08 11:15 / plj
Lead 210	0.0E+00	uCi/kg	U	5.0E-05		E909.0M	05/21/08 09:00 / dm
Lead 210 precision (±)	1.0E-04	uCi/kg				E909.0M	05/21/08 09:00 / dm
Thorium 230	2.0E-05	uCi/kg		1.0E-05		E907.0	05/09/08 14:00 / dmf
Thorium 230 precision (±)	2.0E-05	uCi/kg				E907.0	05/09/08 14:00 / dmf
Radium 226	-1.0E-05	uCi/kg	U			E903.0	05/16/08 15:11 / trs
Radium 226 precision (±)	2.0E-05	uCi/kg				E903.0	05/16/08 15:11 / trs
Radium 226 MDC	3.0E-05	uCi/kg				E903.0	05/16/08 15:11 / trs

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Jones and Stokes
Project: Dewey-Burdock 010996.07
Lab ID: C08040910-013
Client Sample ID: CHR05-~~Fine Scale Dace~~ Creek Chub

Report Date: 06/19/08
Collection Date: 04/15/08
DateReceived: 04/18/08
Matrix: Fish

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS - TOTAL							
Uranium	ND	mg/kg	D	0.2		SW6020	05/11/08 02:36 / ts
Uranium, Activity	ND	uCi/kg	D	1.0E-04		SW6020	05/11/08 02:36 / ts
RADIONUCLIDES - TOTAL							
Polonium 210	0.0E+00	uCi/kg	UD	3.0E-04		RMO-3008	06/02/08 11:15 / plj
Polonium 210 precision (±)	3.0E-04	uCi/kg				RMO-3008	06/02/08 11:15 / plj
Lead 210	0.0E+00	uCi/kg	UD	3.0E-04		E909.0M	05/21/08 09:00 / dm
Lead 210 precision (±)	2.0E-03	uCi/kg				E909.0M	05/21/08 09:00 / dm
Thorium 230	0.0E+00	uCi/kg	UD	7.0E-05		E907.0	05/09/08 14:00 / dmf
Thorium 230 precision (±)	2.0E-04	uCi/kg				E907.0	05/09/08 14:00 / dmf
Radium 226	-2.0E-04	uCi/kg	U			E903.0	05/16/08 15:11 / trs
Radium 226 precision (±)	3.0E-04	uCi/kg				E903.0	05/16/08 15:11 / trs
Radium 226 MDC	6.0E-04	uCi/kg				E903.0	05/16/08 15:11 / trs

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
U - Not detected at minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix interference.

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LABORATORY ANALYTICAL REPORT

Client:	Jones and Stokes	**Report Date:**	06/19/08
Project:	Dewey-Burdock 010996.07	**Collection Date:**	04/15/08
Lab ID:	C08040910-014	**DateReceived:**	04/18/08
Client Sample ID:	CHR05-Plains Killfish	**Matrix:**	Fish

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS - TOTAL							
Uranium	ND	mg/kg	D	0.4		SW6020	05/11/08 02:40 / ts
Uranium, Activity	ND	uCi/kg	D	3.0E-04		SW6020	05/11/08 02:40 / ts
RADIONUCLIDES - TOTAL							
Polonium 210	0.0E+00	uCi/kg	UD	6.0E-04		RMO-3008	06/02/08 11:15 / plj
Polonium 210 precision (±)	1.0E-03	uCi/kg				RMO-3008	06/02/08 11:15 / plj
Lead 210	0.0E+00	uCi/kg	UD	6.0E-04		E909.0M	05/21/08 09:00 / dm
Lead 210 precision (±)	3.0E-03	uCi/kg				E909.0M	05/21/08 09:00 / dm
Thorium 230	1.0E-03	uCi/kg	D	1.0E-04		E907.0	05/09/08 14:00 / dmf
Thorium 230 precision (±)	8.0E-04	uCi/kg				E907.0	05/09/08 14:00 / dmf
Radium 226	-5.0E-04	uCi/kg	U			E903.0	05/16/08 15:11 / trs
Radium 226 precision (±)	5.0E-04	uCi/kg				E903.0	05/16/08 15:11 / trs
Radium 226 MDC	1.0E-03	uCi/kg				E903.0	05/16/08 15:11 / trs

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
U - Not detected at minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix interference.

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LABORATORY ANALYTICAL REPORT

Client: Jones and Stokes
Project: Dewey-Burdock 010996.07
Lab ID: C08040910-015
Client Sample ID: CHR05-~~Shiner~~ Sand Shiner

Report Date: 06/19/08
Collection Date: 04/15/08
DateReceived: 04/18/08
Matrix: Fish

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS - TOTAL							
Uranium	ND	mg/kg	D	0.4		SW6020	05/11/08 02:44 / ts
Uranium, Activity	ND	uCi/kg	D	3.0E-04		SW6020	05/11/08 02:44 / ts
RADIONUCLIDES - TOTAL							
Polonium 210	0.0E+00	uCi/kg	UD	6.0E-04		RMO-3008	06/02/08 11:15 / plj
Polonium 210 precision (±)	5.0E-04	uCi/kg				RMO-3008	06/02/08 11:15 / plj
Lead 210	0.0E+00	uCi/kg	UD	6.0E-04		E909.0M	05/21/08 09:00 / dm
Lead 210 precision (±)	3.0E-03	uCi/kg				E909.0M	05/21/08 09:00 / dm
Thorium 230	1.0E-03	uCi/kg	D	1.0E-04		E907.0	05/09/08 14:00 / dmf
Thorium 230 precision (±)	7.0E-04	uCi/kg				E907.0	05/09/08 14:00 / dmf
Radium 226	-3.0E-04	uCi/kg	U			E903.0	05/15/08 17:06 / trs
Radium 226 precision (±)	6.0E-04	uCi/kg				E903.0	05/15/08 17:06 / trs
Radium 226 MDC	1.0E-03	uCi/kg				E903.0	05/15/08 17:06 / trs

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
U - Not detected at minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix interference.

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QA/QC Summary Report

Client: Jones and Stokes
Project: Dewey-Burdock 010996.07

Report Date: 06/19/08
Work Order: C08040910

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0									Batch: 18521
Sample ID: C08041154-001AMS	Sample Matrix Spike				Run: BERTHOLD 770_080508E				05/15/08 17:06
Radium 226	0.14	pCi/L		84	70	130			
Sample ID: C08041154-001AMSD	Sample Matrix Spike Duplicate				Run: BERTHOLD 770_080508E				05/15/08 17:06
Radium 226	0.14	pCi/L		87	70	130	0.4	23.7	
Sample ID: MB-18521	Method Blank				Run: BERTHOLD 770_080508E				05/16/08 15:11
Radium 226	-0.7	pCi/L							U
Sample ID: LCS-18521	Laboratory Control Sample				Run: BERTHOLD 770_080508E				05/16/08 08:10
Radium 226	15	pCi/L		97	70	130			
Method: E907.0									Batch: 18521
Sample ID: C08041154-001AMS	Sample Matrix Spike				Run: EGG-ORTEC_080509A				05/09/08 14:00
Thorium 230	0.23	pCi/g-dry	0.10	113	70	130			
Sample ID: C08041154-001AMSD	Sample Matrix Spike Duplicate				Run: EGG-ORTEC_080509A				05/09/08 14:00
Thorium 230	0.15	pCi/g-dry	0.10	81	70	130	41	30	R
- The RPD for the MSD is high. The individual spike recoveries are within range, the MB is acceptable, and the LCS is within range, therefore the batch is approved.									
Sample ID: LCS-18521	Laboratory Control Sample				Run: EGG-ORTEC_080509A				05/09/08 14:00
Thorium 230	0.0431	pCi/g-dry	0.10	93	70	130			
Sample ID: MB-18521	Method Blank				Run: EGG-ORTEC_080509A				05/09/08 14:00
Thorium 230	-0.0006	pCi/g-dry							
Method: E909.0M									Batch: 18521
Sample ID: C08041154-001AMS	Sample Matrix Spike				Run: PACKARD 3100TR_080521A				05/21/08 09:00
Lead 210	3.5	pCi/g-dry	0.10	130	70	130			
- Spike response is outside of the acceptance range for this analysis. Since the LCS and the MSD are acceptable the batch is approved.									
Sample ID: C08041154-001AMSD	Sample Matrix Spike Duplicate				Run: PACKARD 3100TR_080521A				05/21/08 09:00
Lead 210	2.5	pCi/g-dry	0.10	91	70	130	36	30	R
Sample ID: MB-R101975	Method Blank				Run: PACKARD 3100TR_080521A				05/21/08 09:00
Lead 210	ND	pCi/g-dry							
Sample ID: LCS-R101975	Laboratory Control Sample				Run: PACKARD 3100TR_080521A				05/21/08 09:00
Lead 210	0.0528	pCi/g-dry	0.10	76	70	130			

Qualifiers:

RL - Analyte reporting limit.
R - RPD exceeds advisory limit.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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QA/QC Summary Report

Client: Jones and Stokes
Project: Dewey-Burdock 010996.07

Report Date: 06/19/08
Work Order: C08040910

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E909.0M									Batch: R102568
Sample ID: C08050798-003AMS	Sample Matrix Spike				Run: PACKARD 3100TR_080609A				06/09/08 08:30
Lead 210	648	pCi/Filter		48	70	130			S
- Spike response is outside of the acceptance range for this analysis. Since the LCS and the MSD are acceptable the batch is approved.									
Sample ID: C08050798-003AMSD	Sample Matrix Spike Duplicate				Run: PACKARD 3100TR_080609A				06/09/08 08:30
Lead 210	1350	pCi/Filter		108	70	130	70	30	R
Sample ID: MB-R102568	Method Blank				Run: PACKARD 3100TR_080609A				06/09/08 08:30
Lead 210	10	pCi/L							
Sample ID: LCS-R102568	Laboratory Control Sample				Run: PACKARD 3100TR_080609A				06/09/08 08:30
Lead 210	110	pCi/L		84	70	130			
Method: RMO-3008									Batch: 18521
Sample ID: C08040910-015AMS	Sample Matrix Spike				Run: EGG-ORTEC_080602A				06/02/08 11:15
Polonium 210	105	pCi/g-dry	0.10	96	70	130			
Sample ID: C08040910-015AMSD	Sample Matrix Spike Duplicate				Run: EGG-ORTEC_080602A				06/02/08 11:15
Polonium 210	117	pCi/g-dry	0.10	107	70	130	11	30	
Sample ID: LCS-18521	Laboratory Control Sample				Run: EGG-ORTEC_080602A				06/02/08 11:15
Polonium 210	79.2	pCi/g-dry	0.10	91	70	130			
Sample ID: MB-18521	Method Blank				Run: EGG-ORTEC_080602A				06/02/08 11:15
Polonium 210	-0.3	pCi/g-dry							
Method: SW6020									Batch: 18521
Sample ID: MB-18521	Method Blank				Run: ICPMS2-C_080510B				05/11/08 01:01
Uranium	8E-05	mg/kg-dry	6E-05						
Sample ID: LCS1-18521	Laboratory Control Sample				Run: ICPMS2-C_080510B				05/11/08 01:05
Uranium	0.515	mg/kg-dry	0.015	103	75	125			
Sample ID: C08040910-015AMS	Sample Matrix Spike				Run: ICPMS2-C_080510B				05/11/08 02:48
Uranium	316	mg/kg-dry	0.38	100	75	125			
Sample ID: C08040910-015AMSD	Sample Matrix Spike Duplicate				Run: ICPMS2-C_080510B				05/11/08 02:52
Uranium	316	mg/kg-dry	0.38	101	75	125	0.2	20	

Qualifiers:

RL - Analyte reporting limit.
R - RPD exceeds advisory limit.
ND - Not detected at the reporting limit.
S - Spike recovery outside of advisory limits.

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Date: 19-Jun-08

CLIENT: Jones and Stokes
Project: Dewey-Burdock 010996.07
Sample Delivery Group: C08040910

CASE NARRATIVE

THIS IS THE FINAL PAGE OF THE LABORATORY ANALYTICAL REPORT

ORIGINAL SAMPLE SUBMITTAL(S)
All original sample submittals have been returned with the data package.

SAMPLE TEMPERATURE COMPLIANCE: 4°C (±2°C)
Temperature of samples received may not be considered properly preserved by accepted standards. Samples that are hand delivered immediately after collection shall be considered acceptable if there is evidence that the chilling process has begun.

GROSS ALPHA ANALYSIS
Method 900.0 for gross alpha and gross beta is intended as a drinking water method for low TDS waters. Data provided by this method for non potable waters should be viewed as inconsistent.

RADON IN AIR ANALYSIS
The desired exposure time is 48 hours (2 days). The time delay in returning the canister to the laboratory for processing should be as short as possible to avoid excessive decay. Maximum recommended delay between end of exposure to beginning of counting should not exceed 8 days.

SOIL/SOLID SAMPLES
All samples reported on an as received basis unless otherwise indicated.

ATRAZINE, SIMAZINE AND PCB ANALYSIS USING EPA 505
Data for Atrazine and Simazine are reported from EPA 525.2, not from EPA 505. Data reported by ELI using EPA method 505 reflects the results for seven individual Aroclors. When the results for all seven are ND (not detected), the sample meets EPA compliance criteria for PCB monitoring.

SUBCONTRACTING ANALYSIS
Subcontracting of sample analyses to an outside laboratory may be required. If so, ENERGY LABORATORIES will utilize its branch laboratories or qualified contract laboratories for this service. Any such laboratories will be indicated within the Laboratory Analytical Report.

BRANCH LABORATORY LOCATIONS
eli-b - Energy Laboratories, Inc. - Billings, MT
eli-g - Energy Laboratories, Inc. - Gillette, WY
eli-h - Energy Laboratories, Inc. - Helena, MT
eli-r - Energy Laboratories, Inc. - Rapid City, SD
eli-t - Energy Laboratories, Inc. - College Station, TX

CERTFICATIONS:
USEPA: WY00002; FL-DOH NELAC: E87641; Arizona: AZ0699; California: 02118CA
Oregon: WY200001; Utah: 3072350515; Virginia: 00057; Washington: C1903

ISO 17025 DISCLAIMER:
The results of this Analytical Report relate only to the items submitted for analysis.

ENERGY LABORATORIES, INC. - CASPER,WY certifies that certain method selections contained in this report meet requirements as set forth by the above accrediting authorities. Some results requested by the client may not be covered under these certifications. All analysis data to be submitted for regulatory enforcement should be certified in the sample state of origin. Please verify ELI's certification coverage by visiting www.energylab.com

ELI appreciates the opportunity to provide you with this analytical service. For additional information and services visit our web page www.energylab.com.

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ANALYTICAL SUMMARY REPORT

August 22, 2008

Sample ID species corrected. A. Wones ICF Jones & Stokes

Jones and Stokes
1901 Energy Ct Ste 115
Gillette, WY 82718

Workorder No.: C08070647

Project Name: Dewey Burdock 00996.07

Energy Laboratories, Inc. received the following 17 samples from Jones and Stokes on 7/15/2008 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test	
C08070647-001	BVC01-ICF JSA-FHM	07/10/08 00:00	07/15/08	Fish	Uranium, Total Digestion For RadioChemistry Lead 210 Polonium 210 Radium 226 Thorium, Isotopic	
C08070647-002	BVC01-Plains Top Minow	07/10/08 00:00	07/15/08	Fish	Same As Above	
C08070647-003	BVC01-Plains Kill Fish	07/10/08 00:00	07/15/08	Fish	Same As Above	
C08070647-004	BVC01-~~Common Shiner~~	07/10/08 00:00	07/15/08	Fish	Same As Above	Sand Shiner
C08070647-005	BVC01-ICF JSA- CAP Carp	07/10/08 00:00	07/15/08	Fish	Same As Above	
C08070647-006	BVC04-~~Common Shiner~~	07/10/08 00:00	07/15/08	Fish	Same As Above	Sand Shiner
C08070647-007	BVC04-Short Head Red Horse Sucker	07/10/08 00:00	07/15/08	Fish	Same As Above	
C08070647-008	BVC04-Fathead Minow	07/10/08 00:00	07/15/08	Fish	Same As Above	
C08070647-009	BVC04-PLK	07/10/08 00:00	07/15/08	Fish	Same As Above	
C08070647-010	BVC04-Carp (Cap)	07/10/08 00:00	07/15/08	Fish	Same As Above	
C08070647-011	CHR04-~~WSM~~	07/09/08 00:00	07/15/08	Fish	Same As Above	Sand Shiner
C08070647-012	CHR04-FHM	07/09/08 00:00	07/15/08	Fish	Same As Above	
C08070647-013	CHR04-PLK	07/09/08 00:00	07/15/08	Fish	Same As Above	
C08070647-014	CHR04-SRS	07/09/08 00:00	07/15/08	Fish	Same As Above	
C08070647-015	CHR04-Carp	07/09/08 00:00	07/15/08	Fish	Same As Above	
C08070647-016	CHR04-CHC	07/09/08 00:00	07/15/08	Fish	Same As Above	
C08070647-017	CHR04-RCS	07/09/08 00:00	07/15/08	Fish	Composite of two or more samples Uranium, Total Digestion For RadioChemistry Lead 210 Polonium 210 Radium 226 Thorium, Isotopic	

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As appropriate, any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

If you have any questions regarding these tests results, please call.

Report Approved By: STEVE CARLSTON

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LABORATORY ANALYTICAL REPORT

Client: Jones and Stokes
Project: Dewey Burdock 00996.07
Lab ID: C08070647-001
Client Sample ID: BVC01-ICF JSA-FHM

Report Date: 08/22/08
Collection Date: 07/10/08
DateReceived: 07/15/08
Matrix: Fish

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS - TOTAL							
Uranium	0.026	mg/kg-dry		0.0050		SW6020	07/27/08 05:51 / sml
Uranium, Activity	1.8E-05	uCi/kg		3.4E-06		SW6020	07/27/08 05:51 / sml
RADIONUCLIDES - TOTAL							
Polonium 210	4.0E-04	uCi/kg		9.3E-05		RMO-3008	07/31/08 14:15 / plj
Polonium 210 precision (±)	2.3E-04	uCi/kg				RMO-3008	07/31/08 14:15 / plj
Lead 210	1.4E-03	uCi/kg	U			E909.0M	07/28/08 11:15 / dm
Lead 210 precision (±)	3.6E-03	uCi/kg				E909.0M	07/28/08 11:15 / dm
Lead 210 MDC	6.0E-03	uCi/kg				E909.0M	07/28/08 11:15 / dm
Radium 226	-2.2E-04	uCi/kg	U			E903.0	08/07/08 10:33 / dm
Radium 226 precision (±)	1.2E-04	uCi/kg				E903.0	08/07/08 10:33 / dm
Radium 226 MDC	2.9E-04	uCi/kg				E903.0	08/07/08 10:33 / dm
Thorium 230	-1.2E-05	uCi/kg	U	1.9E-05		E907.0	08/08/08 00:16 / dmf
Thorium 230 precision (±)	6.2E-05	uCi/kg				E907.0	08/08/08 00:16 / dmf

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Jones and Stokes
Project: Dewey Burdock 00996.07
Lab ID: C08070647-002
Client Sample ID: BVC01-Plains Top Minow

Report Date: 08/22/08
Collection Date: 07/10/08
DateReceived: 07/15/08
Matrix: Fish

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS - TOTAL							
Uranium	0.021	mg/kg-dry		0.0050		SW6020	07/27/08 06:12 / sml
Uranium, Activity	1.4E-05	uCi/kg		3.4E-06		SW6020	07/27/08 06:12 / sml
RADIONUCLIDES - TOTAL							
Polonium 210	3.5E-04	uCi/kg		1.1E-04		RMO-3008	07/31/08 14:15 / plj
Polonium 210 precision (±)	2.8E-04	uCi/kg				RMO-3008	07/31/08 14:15 / plj
Lead 210	-2.0E-03	uCi/kg	U			E909.0M	07/28/08 11:15 / dm
Lead 210 precision (±)	4.2E-03	uCi/kg				E909.0M	07/28/08 11:15 / dm
Lead 210 MDC	7.1E-03	uCi/kg				E909.0M	07/28/08 11:15 / dm
Radium 226	-2.0E-04	uCi/kg	U			E903.0	08/07/08 10:33 / dm
Radium 226 precision (±)	1.1E-04	uCi/kg				E903.0	08/07/08 10:33 / dm
Radium 226 MDC	2.7E-04	uCi/kg				E903.0	08/07/08 10:33 / dm
Thorium 230	1.0E-04	uCi/kg		2.2E-05		E907.0	08/08/08 00:16 / dmf
Thorium 230 precision (±)	1.0E-04	uCi/kg				E907.0	08/08/08 00:16 / dmf

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client:	Jones and Stokes	**Report Date:**	08/22/08
Project:	Dewey Burdock 00996.07	**Collection Date:**	07/10/08
Lab ID:	C08070647-003	**DateReceived:**	07/15/08
Client Sample ID:	BVC01-Plains Kill Fish	**Matrix:**	Fish

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS - TOTAL							
Uranium	0.035	mg/kg-dry		0.0050		SW6020	07/27/08 06:16 / sml
Uranium, Activity	2.4E-05	uCi/kg		3.4E-06		SW6020	07/27/08 06:16 / sml
RADIONUCLIDES - TOTAL							
Polonium 210	4.7E-04	uCi/kg		1.1E-04		RMO-3008	07/31/08 14:15 / plj
Polonium 210 precision (±)	3.1E-04	uCi/kg				RMO-3008	07/31/08 14:15 / plj
Lead 210	1.2E-03	uCi/kg	U			E909.0M	07/28/08 11:15 / dm
Lead 210 precision (±)	4.2E-03	uCi/kg				E909.0M	07/28/08 11:15 / dm
Lead 210 MDC	7.1E-03	uCi/kg				E909.0M	07/28/08 11:15 / dm
Radium 226	-2.0E-04	uCi/kg	U			E903.0	08/07/08 10:33 / dm
Radium 226 precision (±)	1.1E-04	uCi/kg				E903.0	08/07/08 10:33 / dm
Radium 226 MDC	2.8E-04	uCi/kg				E903.0	08/07/08 10:33 / dm
Thorium 230	5.7E-06	uCi/kg	U	2.2E-05		E907.0	08/08/08 00:16 / dmf
Thorium 230 precision (±)	1.0E-04	uCi/kg				E907.0	08/08/08 00:16 / dmf

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Jones and Stokes
Project: Dewey Burdock 00996.07
Lab ID: C08070647-004
Client Sample ID: BVC01 ~~Common Shiner~~ SAS sand shiner

Report Date: 08/22/08
Collection Date: 07/10/08
DateReceived: 07/15/08
Matrix: Fish

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS - TOTAL							
Uranium	0.031	mg/kg-dry		0.0050		SW6020	07/27/08 06:20 / sml
Uranium, Activity	2.1E-05	uCi/kg		3.4E-06		SW6020	07/27/08 06:20 / sml
RADIONUCLIDES - TOTAL							
Polonium 210	2.3E-04	uCi/kg		1.6E-04		RMO-3008	07/31/08 14:15 / plj
Polonium 210 precision (±)	2.6E-04	uCi/kg				RMO-3008	07/31/08 14:15 / plj
Lead 210	3.8E-03	uCi/kg	U			E909.0M	07/28/08 11:15 / dm
Lead 210 precision (±)	6.1E-03	uCi/kg				E909.0M	07/28/08 11:15 / dm
Lead 210 MDC	1.0E-02	uCi/kg				E909.0M	07/28/08 11:15 / dm
Radium 226	-3.0E-04	uCi/kg	U			E903.0	08/07/08 10:33 / dm
Radium 226 precision (±)	1.6E-04	uCi/kg				E903.0	08/07/08 10:33 / dm
Radium 226 MDC	4.0E-04	uCi/kg				E903.0	08/07/08 10:33 / dm
Thorium 230	9.8E-05	uCi/kg		3.2E-05		E907.0	08/08/08 00:16 / dmf
Thorium 230 precision (±)	1.6E-04	uCi/kg				E907.0	08/08/08 00:16 / dmf

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Jones and Stokes
Project: Dewey Burdock 00996.07
Lab ID: C08070647-005
Client Sample ID: BVC01-ICF JSA- CAP Carp

Report Date: 08/22/08
Collection Date: 07/10/08
DateReceived: 07/15/08
Matrix: Fish

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS - TOTAL							
Uranium	0.0098	mg/kg-dry		0.0050		SW6020	07/27/08 06:24 / sml
Uranium, Activity	6.7E-06	uCi/kg		3.4E-06		SW6020	07/27/08 06:24 / sml
RADIONUCLIDES - TOTAL							
Polonium 210	7.8E-04	uCi/kg		5.0E-05		RMO-3008	07/31/08 14:15 / plj
Polonium 210 precision (±)	1.9E-04	uCi/kg				RMO-3008	07/31/08 14:15 / plj
Lead 210	7.6E-05	uCi/kg	U			E909.0M	07/28/08 11:15 / dm
Lead 210 precision (±)	5.0E-04	uCi/kg				E909.0M	07/28/08 11:15 / dm
Lead 210 MDC	8.4E-04	uCi/kg				E909.0M	07/28/08 11:15 / dm
Radium 226	-2.3E-05	uCi/kg	U			E903.0	08/07/08 10:33 / dm
Radium 226 precision (±)	1.6E-05	uCi/kg				E903.0	08/07/08 10:33 / dm
Radium 226 MDC	3.6E-05	uCi/kg				E903.0	08/07/08 10:33 / dm
Thorium 230	-7.4E-07	uCi/kg	U	2.6E-06		E907.0	08/08/08 00:16 / dmf
Thorium 230 precision (±)	9.2E-06	uCi/kg				E907.0	08/08/08 00:16 / dmf

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Jones and Stokes
Project: Dewey Burdock 00996.07
Lab ID: C08070647-006
Client Sample ID: BVC04-~~Common Shiner~~ Sand Shiner

Report Date: 08/22/08
Collection Date: 07/10/08
DateReceived: 07/15/08
Matrix: Fish

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS - TOTAL							
Uranium	0.024	mg/kg-dry		0.0050		SW6020	07/27/08 06:28 / sml
Uranium, Activity	1.6E-05	uCi/kg		3.4E-06		SW6020	07/27/08 06:28 / sml
RADIONUCLIDES - TOTAL							
Polonium 210	5.4E-04	uCi/kg		1.1E-04		RMO-3008	07/31/08 14:15 / plj
Polonium 210 precision (±)	5.4E-04	uCi/kg				RMO-3008	07/31/08 14:15 / plj
Lead 210	6.4E-04	uCi/kg	U			E909.0M	07/28/08 11:15 / dm
Lead 210 precision (±)	4.4E-03	uCi/kg				E909.0M	07/28/08 11:15 / dm
Lead 210 MDC	7.3E-03	uCi/kg				E909.0M	07/28/08 11:15 / dm
Radium 226	-7.7E-05	uCi/kg	U			E903.0	08/07/08 10:33 / dm
Radium 226 precision (±)	1.3E-04	uCi/kg				E903.0	08/07/08 10:33 / dm
Radium 226 MDC	2.5E-04	uCi/kg				E903.0	08/07/08 10:33 / dm
Thorium 230	2.7E-05	uCi/kg		2.3E-05		E907.0	08/08/08 00:16 / dmf
Thorium 230 precision (±)	1.0E-04	uCi/kg				E907.0	08/08/08 00:16 / dmf

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Jones and Stokes
Project: Dewey Burdock 00996.07
Lab ID: C08070647-007
Client Sample ID: BVC04-Short Head Red Horse Sucker

Report Date: 08/22/08
Collection Date: 07/10/08
DateReceived: 07/15/08
Matrix: Fish

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS - TOTAL							
Uranium	0.0072	mg/kg-dry		0.0050		SW6020	07/27/08 06:32 / sml
Uranium, Activity	4.9E-06	uCi/kg		3.4E-06		SW6020	07/27/08 06:32 / sml
RADIONUCLIDES - TOTAL							
Polonium 210	1.7E-04	uCi/kg		5.0E-05		RMO-3008	07/31/08 14:15 / plj
Polonium 210 precision (±)	1.0E-04	uCi/kg				RMO-3008	07/31/08 14:15 / plj
Lead 210	1.2E-04	uCi/kg	U			E909.0M	07/28/08 11:15 / dm
Lead 210 precision (±)	1.2E-03	uCi/kg				E909.0M	07/28/08 11:15 / dm
Lead 210 MDC	2.0E-03	uCi/kg				E909.0M	07/28/08 11:15 / dm
Radium 226	-3.7E-05	uCi/kg	U			E903.0	08/07/08 10:33 / dm
Radium 226 precision (±)	3.2E-05	uCi/kg				E903.0	08/07/08 10:33 / dm
Radium 226 MDC	6.9E-05	uCi/kg				E903.0	08/07/08 10:33 / dm
Thorium 230	1.9E-06	uCi/kg	U	6.3E-06		E907.0	08/08/08 00:16 / dmf
Thorium 230 precision (±)	2.3E-05	uCi/kg				E907.0	08/08/08 00:16 / dmf

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Jones and Stokes
Project: Dewey Burdock 00996.07
Lab ID: C08070647-008
Client Sample ID: BVC04-Fathead Minow

Report Date: 08/22/08
Collection Date: 07/10/08
DateReceived: 07/15/08
Matrix: Fish

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS - TOTAL							
Uranium	0.031	mg/kg-dry		0.0050		SW6020	07/27/08 06:36 / sml
Uranium, Activity	2.1E-05	uCi/kg		3.4E-06		SW6020	07/27/08 06:36 / sml
RADIONUCLIDES - TOTAL							
Polonium 210	1.8E-04	uCi/kg		1.2E-04		RMO-3008	07/31/08 14:15 / plj
Polonium 210 precision (±)	3.1E-04	uCi/kg				RMO-3008	07/31/08 14:15 / plj
Lead 210	7.9E-04	uCi/kg	U			E909.0M	07/28/08 11:15 / dm
Lead 210 precision (±)	4.7E-03	uCi/kg				E909.0M	07/28/08 11:15 / dm
Lead 210 MDC	7.9E-03	uCi/kg				E909.0M	07/28/08 11:15 / dm
Radium 226	-1.2E-04	uCi/kg	U			E903.0	08/07/08 10:33 / dm
Radium 226 precision (±)	1.6E-04	uCi/kg				E903.0	08/07/08 10:33 / dm
Radium 226 MDC	3.2E-04	uCi/kg				E903.0	08/07/08 10:33 / dm
Thorium 230	-1.2E-05	uCi/kg	U	2.5E-05		E907.0	08/08/08 00:16 / dmf
Thorium 230 precision (±)	6.9E-05	uCi/kg				E907.0	08/08/08 00:16 / dmf

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Jones and Stokes
Project: Dewey Burdock 00996.07
Lab ID: C08070647-009
Client Sample ID: BVC04-PLK

Report Date: 08/22/08
Collection Date: 07/10/08
DateReceived: 07/15/08
Matrix: Fish

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS - TOTAL							
Uranium	0.019	mg/kg-dry		0.0050		SW6020	07/27/08 06:40 / sml
Uranium, Activity	1.3E-05	uCi/kg		3.4E-06		SW6020	07/27/08 06:40 / sml
RADIONUCLIDES - TOTAL							
Polonium 210	8.5E-05	uCi/kg	U	1.2E-04		RMO-3008	07/31/08 14:15 / plj
Polonium 210 precision (±)	1.3E-04	uCi/kg				RMO-3008	07/31/08 14:15 / plj
Lead 210	3.2E-03	uCi/kg	U			E909.0M	07/28/08 11:15 / dm
Lead 210 precision (±)	4.7E-03	uCi/kg				E909.0M	07/28/08 11:15 / dm
Lead 210 MDC	7.8E-03	uCi/kg				E909.0M	07/28/08 11:15 / dm
Radium 226	-2.1E-04	uCi/kg	U			E903.0	08/07/08 10:34 / dm
Radium 226 precision (±)	1.1E-04	uCi/kg				E903.0	08/07/08 10:34 / dm
Radium 226 MDC	2.8E-04	uCi/kg				E903.0	08/07/08 10:34 / dm
Thorium 230	9.4E-05	uCi/kg		2.4E-05		E907.0	08/08/08 00:16 / dmf
Thorium 230 precision (±)	9.1E-05	uCi/kg				E907.0	08/08/08 00:16 / dmf

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Jones and Stokes
Project: Dewey Burdock 00996.07
Lab ID: C08070647-010
Client Sample ID: BVC04-Carp (Cap)

Report Date: 08/22/08
Collection Date: 07/10/08
DateReceived: 07/15/08
Matrix: Fish

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS - TOTAL							
Uranium	0.014	mg/kg-dry		0.0050		SW6020	07/27/08 06:44 / sml
Uranium, Activity	9.4E-06	uCi/kg		3.4E-06		SW6020	07/27/08 06:44 / sml
RADIONUCLIDES - TOTAL							
Polonium 210	1.5E-04	uCi/kg		4.0E-06		RMO-3008	07/31/08 14:15 / plj
Polonium 210 precision (±)	7.1E-05	uCi/kg				RMO-3008	07/31/08 14:15 / plj
Lead 210	9.2E-05	uCi/kg	U			E909.0M	07/28/08 11:15 / dm
Lead 210 precision (±)	1.5E-04	uCi/kg				E909.0M	07/28/08 11:15 / dm
Lead 210 MDC	2.6E-04	uCi/kg				E909.0M	07/28/08 11:15 / dm
Radium 226	-4.8E-06	uCi/kg	U			E903.0	08/07/08 10:34 / dm
Radium 226 precision (±)	4.2E-06	uCi/kg				E903.0	08/07/08 10:34 / dm
Radium 226 MDC	9.1E-06	uCi/kg				E903.0	08/07/08 10:34 / dm
Thorium 230	2.3E-06	uCi/kg		8.0E-07		E907.0	08/08/08 00:16 / dmf
Thorium 230 precision (±)	3.7E-06	uCi/kg				E907.0	08/08/08 00:16 / dmf

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Jones and Stokes
Project: Dewey Burdock 00996.07
Lab ID: C08070647-011
Client Sample ID: CHR04-WSM

Report Date: 08/22/08
Collection Date: 07/09/08
DateReceived: 07/15/08
Matrix: Fish

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS - TOTAL							
Uranium	0.040	mg/kg-dry		0.0050		SW6020	07/27/08 07:00 / sml
Uranium, Activity	2.7E-05	uCi/kg		3.4E-06		SW6020	07/27/08 07:00 / sml
RADIONUCLIDES - TOTAL							
Polonium 210	4.9E-04	uCi/kg		1.4E-04		RMO-3008	07/31/08 14:15 / plj
Polonium 210 precision (±)	3.2E-04	uCi/kg				RMO-3008	07/31/08 14:15 / plj
Lead 210	4.5E-03	uCi/kg	U			E909.0M	07/28/08 11:15 / dm
Lead 210 precision (±)	5.3E-03	uCi/kg				E909.0M	07/28/08 11:15 / dm
Lead 210 MDC	8.8E-03	uCi/kg				E909.0M	07/28/08 11:15 / dm
Radium 226	-2.8E-04	uCi/kg	U			E903.0	08/07/08 10:34 / dm
Radium 226 precision (±)	1.5E-04	uCi/kg				E903.0	08/07/08 10:34 / dm
Radium 226 MDC	3.8E-04	uCi/kg				E903.0	08/07/08 10:34 / dm
Thorium 230	1.4E-04	uCi/kg		2.7E-05		E907.0	08/08/08 00:16 / dmf
Thorium 230 precision (±)	1.1E-04	uCi/kg				E907.0	08/08/08 00:16 / dmf

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Jones and Stokes
Project: Dewey Burdock 00996.07
Lab ID: C08070647-012
Client Sample ID: CHR04-FHM

Report Date: 08/22/08
Collection Date: 07/09/08
DateReceived: 07/15/08
Matrix: Fish

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS - TOTAL							
Uranium	0.024	mg/kg-dry		0.0050		SW6020	07/27/08 07:04 / sml
Uranium, Activity	1.6E-05	uCi/kg		3.4E-06		SW6020	07/27/08 07:04 / sml
RADIONUCLIDES - TOTAL							
Polonium 210	4.2E-04	uCi/kg		1.1E-04		RMO-3008	07/31/08 14:15 / plj
Polonium 210 precision (±)	2.8E-04	uCi/kg				RMO-3008	07/31/08 14:15 / plj
Lead 210	1.5E-03	uCi/kg	U			E909.0M	07/28/08 11:15 / dm
Lead 210 precision (±)	4.3E-03	uCi/kg				E909.0M	07/28/08 11:15 / dm
Lead 210 MDC	7.2E-03	uCi/kg				E909.0M	07/28/08 11:15 / dm
Radium 226	-2.1E-04	uCi/kg	U			E903.0	08/07/08 10:34 / dm
Radium 226 precision (±)	1.3E-04	uCi/kg				E903.0	08/07/08 10:34 / dm
Radium 226 MDC	3.0E-04	uCi/kg				E903.0	08/07/08 10:34 / dm
Thorium 230	1.3E-05	uCi/kg	U	2.2E-05		E907.0	08/08/08 00:16 / dmf
Thorium 230 precision (±)	4.5E-05	uCi/kg				E907.0	08/08/08 00:16 / dmf

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client:	Jones and Stokes	**Report Date:**	08/22/08
Project:	Dewey Burdock 00996.07	**Collection Date:**	07/09/08
Lab ID:	C08070647-013	**DateReceived:**	07/15/08
Client Sample ID:	CHR04-PLK	**Matrix:**	Fish

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS - TOTAL							
Uranium	0.017	mg/kg-dry		0.0050		SW6020	07/27/08 07:09 / sml
Uranium, Activity	1.2E-05	uCi/kg		3.4E-06		SW6020	07/27/08 07:09 / sml
RADIONUCLIDES - TOTAL							
Polonium 210	4.7E-04	uCi/kg		1.7E-04		RMO-3008	07/31/08 14:15 / plj
Polonium 210 precision (±)	3.5E-04	uCi/kg				RMO-3008	07/31/08 14:15 / plj
Lead 210	-1.8E-03	uCi/kg	U			E909.0M	07/28/08 11:15 / dm
Lead 210 precision (±)	6.5E-03	uCi/kg				E909.0M	07/28/08 11:15 / dm
Lead 210 MDC	1.1E-02	uCi/kg				E909.0M	07/28/08 11:15 / dm
Radium 226	-2.2E-04	uCi/kg	U			E903.0	08/07/08 10:34 / dm
Radium 226 precision (±)	1.9E-04	uCi/kg				E903.0	08/07/08 10:34 / dm
Radium 226 MDC	4.1E-04	uCi/kg				E903.0	08/07/08 10:34 / dm
Thorium 230	1.6E-05	uCi/kg	U	3.4E-05		E907.0	08/08/08 00:16 / dmf
Thorium 230 precision (±)	8.9E-05	uCi/kg				E907.0	08/08/08 00:16 / dmf

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Jones and Stokes
Project: Dewey Burdock 00996.07
Lab ID: C08070647-014
Client Sample ID: CHR04-SRS

Report Date: 08/22/08
Collection Date: 07/09/08
DateReceived: 07/15/08
Matrix: Fish

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS - TOTAL							
Uranium	0.0066	mg/kg-dry		0.0050		SW6020	07/27/08 07:13 / sml
Uranium, Activity	4.4E-06	uCi/kg		3.4E-06		SW6020	07/27/08 07:13 / sml
RADIONUCLIDES - TOTAL							
Polonium 210	5.0E-04	uCi/kg		1.3E-05		RMO-3008	07/31/08 14:15 / plj
Polonium 210 precision (±)	1.3E-04	uCi/kg				RMO-3008	07/31/08 14:15 / plj
Lead 210	2.3E-04	uCi/kg	U			E909.0M	07/28/08 11:15 / dm
Lead 210 precision (±)	4.9E-04	uCi/kg				E909.0M	07/28/08 11:15 / dm
Lead 210 MDC	8.1E-04	uCi/kg				E909.0M	07/28/08 11:15 / dm
Radium 226	-8.7E-06	uCi/kg	U			E903.0	08/07/08 10:34 / dm
Radium 226 precision (±)	1.8E-05	uCi/kg				E903.0	08/07/08 10:34 / dm
Radium 226 MDC	3.4E-05	uCi/kg				E903.0	08/07/08 10:34 / dm
Thorium 230	3.2E-06	uCi/kg		2.5E-06		E907.0	08/08/08 00:16 / dmf
Thorium 230 precision (±)	5.3E-06	uCi/kg				E907.0	08/08/08 00:16 / dmf

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Jones and Stokes
Project: Dewey Burdock 00996.07
Lab ID: C08070647-015
Client Sample ID: CHR04-Carp

Report Date: 08/22/08
Collection Date: 07/09/08
DateReceived: 07/15/08
Matrix: Fish

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS - TOTAL							
Uranium	0.010	mg/kg-dry		0.0050		SW6020	07/27/08 07:17 / sml
Uranium, Activity	6.9E-06	uCi/kg		3.4E-06		SW6020	07/27/08 07:17 / sml
RADIONUCLIDES - TOTAL							
Polonium 210	7.4E-04	uCi/kg		3.1E-05		RMO-3008	07/31/08 14:15 / plj
Polonium 210 precision (±)	2.2E-04	uCi/kg				RMO-3008	07/31/08 14:15 / plj
Lead 210	1.5E-04	uCi/kg	U			E909.0M	07/28/08 11:15 / dm
Lead 210 precision (±)	1.2E-03	uCi/kg				E909.0M	07/28/08 11:15 / dm
Lead 210 MDC	2.0E-03	uCi/kg				E909.0M	07/28/08 11:15 / dm
Radium 226	-6.4E-05	uCi/kg	U			E903.0	08/07/08 10:34 / dm
Radium 226 precision (±)	4.4E-05	uCi/kg				E903.0	08/07/08 10:34 / dm
Radium 226 MDC	1.0E-04	uCi/kg				E903.0	08/07/08 10:34 / dm
Thorium 230	1.7E-05	uCi/kg		6.1E-06		E907.0	08/08/08 11:00 / dmf
Thorium 230 precision (±)	2.7E-05	uCi/kg				E907.0	08/08/08 11:00 / dmf

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Jones and Stokes
Project: Dewey Burdock 00996.07
Lab ID: C08070647-016
Client Sample ID: CHR04-CHC

Report Date: 08/22/08
Collection Date: 07/09/08
DateReceived: 07/15/08
Matrix: Fish

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS - TOTAL							
Uranium	0.017	mg/kg-dry		0.0050		SW6020	07/27/08 07:21 / sml
Uranium, Activity	1.2E-05	uCi/kg		3.4E-06		SW6020	07/27/08 07:21 / sml
RADIONUCLIDES - TOTAL							
Polonium 210	1.6E-04	uCi/kg		3.5E-06		RMO-3008	07/31/08 14:15 / plj
Polonium 210 precision (±)	5.2E-05	uCi/kg				RMO-3008	07/31/08 14:15 / plj
Lead 210	3.2E-05	uCi/kg	U			E909.0M	07/28/08 11:15 / dm
Lead 210 precision (±)	1.4E-04	uCi/kg				E909.0M	07/28/08 11:15 / dm
Lead 210 MDC	2.3E-04	uCi/kg				E909.0M	07/28/08 11:15 / dm
Radium 226	-1.6E-06	uCi/kg	U			E903.0	08/07/08 10:34 / dm
Radium 226 precision (±)	4.4E-06	uCi/kg				E903.0	08/07/08 10:34 / dm
Radium 226 MDC	8.4E-06	uCi/kg				E903.0	08/07/08 10:34 / dm
Thorium 230	9.0E-06	uCi/kg		7.0E-07		E907.0	08/08/08 11:00 / dmf
Thorium 230 precision (±)	2.6E-05	uCi/kg				E907.0	08/08/08 11:00 / dmf

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Jones and Stokes
Project: Dewey Burdock 00996.07
Lab ID: C08070647-017
Client Sample ID: CHR04-RCS

Report Date: 08/22/08
Collection Date: 07/09/08
DateReceived: 07/15/08
Matrix: Fish

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS - TOTAL							
Uranium	0.031	mg/kg-dry		0.0050		SW6020	07/27/08 07:25 / sml
Uranium, Activity	2.1E-05	uCi/kg		3.4E-06		SW6020	07/27/08 07:25 / sml
RADIONUCLIDES - TOTAL							
Polonium 210	6.6E-07	uCi/kg	U	2.7E-06		RMO-3008	07/31/08 14:15 / plj
Polonium 210 precision (±)	3.2E-06	uCi/kg				RMO-3008	07/31/08 14:15 / plj
Lead 210	1.1E-05	uCi/kg	U			E909.0M	07/28/08 11:15 / dm
Lead 210 precision (±)	1.0E-04	uCi/kg				E909.0M	07/28/08 11:15 / dm
Lead 210 MDC	1.7E-04	uCi/kg				E909.0M	07/28/08 11:15 / dm
Radium 226	8.0E-06	uCi/kg				E903.0	08/07/08 10:34 / dm
Radium 226 precision (±)	5.4E-06	uCi/kg				E903.0	08/07/08 10:34 / dm
Radium 226 MDC	7.3E-06	uCi/kg				E903.0	08/07/08 10:34 / dm
Thorium 230	-1.3E-05	uCi/kg	U	5.3E-07		E907.0	08/08/08 11:00 / dmf
Thorium 230 precision (±)	2.3E-05	uCi/kg				E907.0	08/08/08 11:00 / dmf
FIELD PARAMETERS							
Total Mass	4160	g				FIELD	07/22/08 17:12 / ***

*** Performed by Sampler

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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QA/QC Summary Report

Client: Jones and Stokes
Project: Dewey Burdock 00996.07

Report Date: 08/22/08
Work Order: C08070647

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0									Batch: 19208
Sample ID: C08070647-008AMS	Sample Matrix Spike				Run: BERTHOLD 770_080731C				08/07/08 10:33
Radium 226	23	pCi/g-dry		117	70	130			
Sample ID: C08070647-008AMSD	Sample Matrix Spike Duplicate				Run: BERTHOLD 770_080731C				08/07/08 10:34
Radium 226	20	pCi/g-dry		103	70	130	13	25.9	
Sample ID: MB-19208	Method Blank				Run: BERTHOLD 770_080731C				08/07/08 16:17
Radium 226	-0.002	pCi/g-dry							U
Sample ID: LCS-19208	Laboratory Control Sample				Run: BERTHOLD 770_080731C				08/07/08 16:17
Radium 226	0.077	pCi/g-dry		102	70	130			
Method: E907.0									Batch: 19208
Sample ID: C08070647-013AMS	Sample Matrix Spike				Run: EGG-ORTEC_080731C				08/11/08 09:23
Thorium 230	15.1	pCi/g-dry	0.10	90	70	130			
Sample ID: C08070647-013AMSD	Sample Matrix Spike Duplicate				Run: EGG-ORTEC_080731C				08/11/08 09:41
Thorium 230	18.0	pCi/g-dry	0.10	108	70	130	17	30	
Sample ID: LCS-19208	Laboratory Control Sample				Run: EGG-ORTEC_080731C				08/08/08 11:00
Thorium 230	0.0398	pCi/g-dry	0.10	90	70	130			
Sample ID: MB-19208	Method Blank				Run: EGG-ORTEC_080731C				08/08/08 11:00
Thorium 230	-0.0003	pCi/g-dry							U
Method: E909.0M									Batch: 19208
Sample ID: C08070647-006AMS	Sample Matrix Spike				Run: PACKARD 3100TR_080728D				07/28/08 11:15
Lead 210	150	pCi/g-dry		111	70	130			
Sample ID: C08070647-006AMSD	Sample Matrix Spike Duplicate				Run: PACKARD 3100TR_080728D				07/28/08 11:15
Lead 210	197	pCi/g-dry		146	70	130	27	30	S
- Spike response is outside of the acceptance range for this analysis. Since the LCS and the RPD for the MS MSD pair are acceptable, the response is considered to be matrix related. The batch is approved.									
Sample ID: MB-R106080	Method Blank				Run: PACKARD 3100TR_080728D				07/28/08 11:15
Lead 210	0.0001	pCi/g-dry							U
Sample ID: LCS-R106080	Laboratory Control Sample				Run: PACKARD 3100TR_080728D				07/28/08 11:15
Lead 210	0.103	pCi/g-dry		88	70	130			

Qualifiers:

RL - Analyte reporting limit.
S - Spike recovery outside of advisory limits.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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QA/QC Summary Report

Client: Jones and Stokes
Project: Dewey Burdock 00996.07

Report Date: 08/22/08
Work Order: C08070647

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: RMO-3008									Batch: 19208
Sample ID: C08070647-017AMS	Sample Matrix Spike				Run: EGG-ORTEC_080731B				07/31/08 14:15
Polonium 210	0.371	pCi/g-dry	0.10	161	70	130			S
- Spike response is outside of the acceptance range for this analysis. Since the MB, LCS and the MSD are acceptable the batch is approved.									
Sample ID: C08070647-017AMSD	Sample Matrix Spike Duplicate				Run: EGG-ORTEC_080731B				07/31/08 14:15
Polonium 210	0.229	pCi/g-dry	0.10	100	70	130	47	30	R
Sample ID: LCS-R105592	Laboratory Control Sample				Run: EGG-ORTEC_080731B				07/31/08 14:15
Polonium 210	0.0918	pCi/g-dry	0.10	106	70	130			
Sample ID: MB-R105592	Method Blank				Run: EGG-ORTEC_080731B				07/31/08 14:15
Polonium 210	7E-05	pCi/g-dry							U
Method: SW6020									Batch: 19208
Sample ID: MB-19208	Method Blank				Run: ICPMS4-C_080726A				07/27/08 05:43
Uranium	9E-06	mg/kg-dry	2E-06						
Sample ID: LCS1-19208	Laboratory Control Sample				Run: ICPMS4-C_080726A				07/27/08 05:47
Uranium	0.0485	mg/kg-dry	0.015	97	75	125			
Sample ID: C08070647-017AMS	Sample Matrix Spike				Run: ICPMS4-C_080726A				07/27/08 07:29
Uranium	1.41	mg/kg-dry	0.015	121	75	125			
Sample ID: C08070647-017AMSD	Sample Matrix Spike Duplicate				Run: ICPMS4-C_080726A				07/27/08 07:33
Uranium	1.41	mg/kg-dry	0.015	120	75	125	0.6	20	

Qualifiers:

RL - Analyte reporting limit.
ND - Not detected at the reporting limit.
R - RPD exceeds advisory limit.
S - Spike recovery outside of advisory limits.
U - Not detected at minimum detectable concentration

APPENDIX 2.8-I

COMPILED HABITAT DATA FORMS

SAMPLE COLLECTION FORM - STREAMS

Site ID	BVC01	Date	4/15/2008

Water Chemistry		
Sample ID	Transect	Comments
		NA - Sampled by Respec

Reach-wide Benthos Sample		
Sample ID	No. of Jars	Comment
BVC01HF	1	High flow sampling. Composit sample from 11 transects. Midge hatch in progress.

Transect		A		B		C		D		E		F		G		H		I		J		K	
Substrate	Channel	Sub	Chan	Sub	Chan	Sub	Chan	Sub	Chan	Sub	Chan	Sub	Chan	Sub	Chan	Sub	Chan	Sub	Chan	Sub	Chan	Sub	Chan
Fine/Sand	Pool		P	F	P							F	P	F	P							F	P
Gravel	Glide								G		G										G		
Coarse	Riffle	C				C	R	C		C						C	R	C	R	C			
other	Run																						

Transect		A	B	C	D	E	F	G	H	I	J	K
Sample Location	Left											
	Right											
	Center											

Substrate Size Classes
Fine/Sand - ladybug or smaller (<2mm)
Gravel - ladybug to tennis ball (2 to 64mm)
Coarse - tennis ball to car sized (64 to 4000mm)
Other - bedrock, hardpan, wood etc

SAMPLE COLLECTION FORM - STREAMS

Site ID	BVC04	Date	4/14/2008

Water Chemistry		
Sample ID	Transect	Comments
		NA - Sampled by Respec

Reach-wide Benthos Sample		
Sample ID	No. of Jars	Comment
BVC04HF	2	Spring sampling. Composit sample from 11 transects. Midge hatch in progress.

Transect		A		B		C		D		E		F		G		H		I		J		K	
Substrate	Channel	Sub	Chan	Sub	Chan	Sub	Chan	Sub	Chan	Sub	Chan	Sub	Chan	Sub	Chan	Sub	Chan	Sub	Chan	Sub	Chan	Sub	Chan
Fine/Sand	Pool							F	P	F	P	F	P	F	P			F	P	F	P	F	P
Gravel	Glide	G		G		G																	
Coarse	Riffle		R		R		R									C	R						
other	Run																						

Transect		A	B	C	D	E	F	G	H	I	J	K
Sample Location	Left											
	Right											
	Center											

Substrate Size Classes
Fine/Sand - ladybug or smaller (<2mm)
Gravel - ladybug to tennis ball (2 to 64mm)
Coarse - tennis ball to car sized (64 to 4000mm)
Other - bedrock, hardpan, wood etc

On Site Description Data

Section A

Project Site ID: BVC01		T 7S, R 1E, SW 1/4 of Sec 9		Date: 14 APR 2008
Stream Name: Beaver Creek				Time: 14:51
Transect 1(Downstream)			**Transect 11(Upstream)**	
GPS Coordinates (utm):	Northing: 43°26' 57.11"	Easting: 104°00' 56.12"	Northing: 43°26' 57.00"	Easting: 104°00' 48.26"
Investigators: C. Foreman, G. McKee (Sections A, B, C), A. Wones, K. Shook, E. Krantz (Sections D, E, F, G, H, I, J)				

Section B

Preliminary Mean Stream Width (PMSW)

	Width Number											
	1	2	3	4	5	6	7	8	9	10	Sum	Avg. PMSW
Width (0.1m)	6.7	6.9	7.7	8.8	5.9	11.3	8.2	5.0	5.9	7.1	73.5	7.35

Transect Spacing *: 22 m

*If PMSW <10m space transects every 3 PMSW. If >10m, transects are spaced every 2 PMSW.

Total Reach Length: 220 m

Reach Length = 11 Transects, 10 distances apart X 3 PMSW = 30 PMSW or 20 PMSW if width >10m.

Section C

Water Quality

Reading	Time (2400)	Water Temperature (°C)	Air Temperature (oC)	Turbidity (NTU)	Secchi (cm)	Dissolved Oxygen (mg/L	Specific Conductance (µS/cm)	Conductivity (µS/cm)
Morning								
Afternoon	14:55	16.0	16.9	14.3	-	12.21	7,186	

Visual Observations

1) Odor (~~Yes~~ / No)	**2) Septic (~~Yes~~ / No)**	**3) Deadfish (~~Yes~~ / No)**	**4) Surface Film (~~Yes~~ / No)**	
5) Color: Clear		**6) Ice Cover (~~Yes~~ / No)**		

Weather Conditions:	Current	Past 24 hrs
Clear/sunny	✓	✓
Partly cloudy	☐	☐
Intermittent showers	☐	☐
Steady rain	☐	☐
Heavy rain	☐	☐

Field Comments: Heavy silt deposition in pools. WQ by Respec. pH = 8.27

Section D

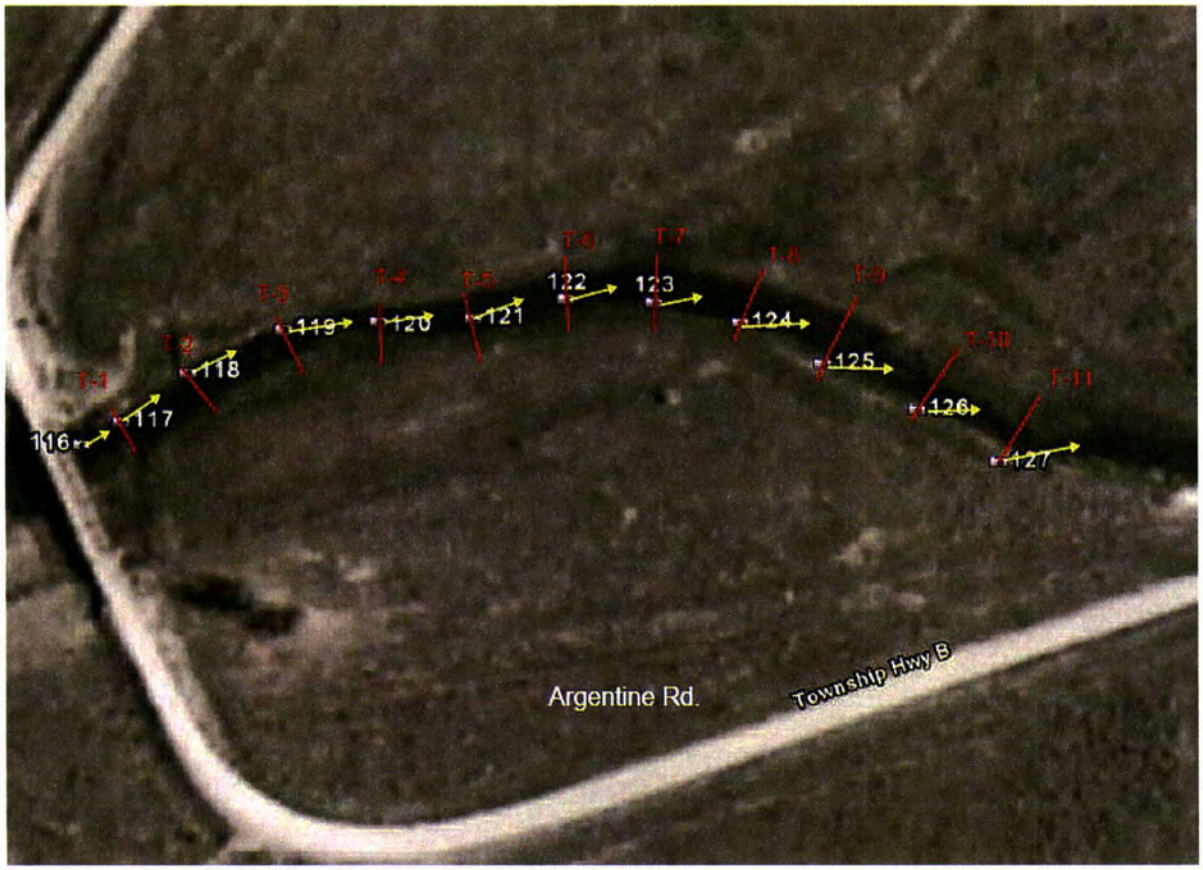
Habitats Available number of each (also place on map Section E)	Pool 3 Run/Glide 2 Riffle 3 Other (describe) see Table 1 Lengths of Riffle(s): 10.7, 10.7, 6.7, _____, _____. Nearest Transect # : 3, 9, 11, _____, _____. Total Length (riffles) = 28.0 Pool Forming Elements See Table 1= _____LS, F

Map, Slope Measurements, and Photo-documentation Data

Project Site ID: BVC01	Stream Name: Beaver Creek	Date: 16 APR 2008

Section E cont.

Draw a map of the site with location of most upstream and most downstream transects. Include locations of photographic points, direction of photograph, and frame number.



Approximately 240 m.

Bed Substrate Composition

Project Site ID:BVC01	Stream Name: Beaver Creek	Date: 17 APR 2008

Section F

Organic Substrates

	Description	Tally	Number
Detritus	sticks, wood, coarse plant material (CPOM)		2
Muck-Mud	black, very fine organic (FPOM)		

Inorganic Substrates

	Diameter	Tally	Number
Clay	<0.004 (slick)		1
Silt	0.004-0.062		15
Sand	0.062-2 (gritty)		
Very Fine Gravel	>2-4		
Fine Gravel	>4-8		
Medium Gravel	>8-16		1
Coarse Gravel	>16-32		7
Very Coarse Gravel	>32-64		17
Cobble	>64-128		9
Large Cobble	>128-256		3
Boulder	>256-512		
Large Boulder	>512		
		Total Number:	55

Section G

Large Woody Debris Data

1

Project Site ID: BVC01 Stream Name: Beaver Creek m/d/yr: 04/17/2008 Page 1 of 1

Transect Spacing	Log Jam Number	LWD Number	Zone	Meander Location	Habitat Association	Angle	Length	Diameter
1-2	0	0						
2-3	0	0						
3-4	0	0						
4-5	0	0						
5-6	0	0						
6-7	0	0						
7-8	0	0						
8-9	0	0						
9-10	0	0						
10-11	0	0						

Stream Shade and Canopy Cover Monitoring

Project Site ID:BVC01	Stream Name: Beaver Creek	Date: 17 APR 2008

Section H

Site Name:BVC04							Date: 4/17/2008
Reach Length:				Transect Interval:			Initials:
Transect	Left Bank	Center Upstream	Center Right	Center-downstream	Center Left	Right Bank	Comments:
1	0	0	0	0	0	0	
2	0	0	0	0	0	7	RB = bank
3	0	0	0	0	0	6	RB = bank
4	7	0	0	0	0	5	LB = grass/bank RB = bank
5	9	0	0	0	0	13	LB = grass/bank RB = grass/bank
6	3	0	0	0	0	4	LB = grass RB = grass
7	16	0	0	0	0	3	LB = grass RB = grass
8	4	0	0	0	0	0	LB = grass
9	2	0	0	0	0	0	LB = Bank
10	3	0	0	0	0	0	LB = Grass
11	0	0	0	0	0	0	

Transect Data

Project Site ID: BVC01	Stream Name: Beaver Creek	Transect Number 1 of 11
Date: 4/15/08		
Habitat Type Along Transect (circle one):	[pool] riffle run	

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	A	A
Bank Height (0.1 m)	1.3	1.3
Bank Angle (degrees)	25	21
Streambank length (0.1 m)	8.6	2.7
Length of Streambank Vegetated (0.1 m)	8.6	2.7
Length of Streambank Eroded (0.1 m)	0	0
Length of Streambank Deposition (0.1 m)	0	0
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0	0
Undercut Bank (0.1 m)	0	0
Riparian landuse (circle one)	Cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify	cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify
Animal Vegetation Use (circle one)	none / low / moderate / [high]	none / low / moderate / [high]
Riparian Vegetation Type (Dominant)	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout / young/sapling / mature / decadent / dead / [none]	seedling/sprout / young/sapling / mature / decadent / dead / [none]
Submergent Macrophytes (0.1 m)	0	
Emergent Macrophytes (0.1 m)	0	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	0.3			
LBF	1.5	0.0		
LEW	3.0	0.4	0.00	
LCB	3.5	0.5	0.09	
STR (@1/4)	4.9	0.5	0.12	
STR (@1/2)	6.1	0.4	0.03	
STR (@3/4)	7.5	0.5	0.09	
RCB	8.8	0.4	0.03	
REW	9.4	0.4	0.00	
RBF	11.8	0.0		
RTB	13.7			

Location Codes:

LTB left top bank
RTB right top bank
LBF left bankfull
RBF right bankfull
LCB left channel bottom
RCB right channel bottom
LEW left edge water
REW right edge water
STR stream

Bank top width (RTB-LTB) =__13.4__

Bankfull width (RBF-LBF)=____10.2__

Channel Bottom Width (RCB-LCB)=____5.4__

Stream Width (REW-LEW)=___6.3_

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

Transect Data

Project Site ID: BVC01	Stream Name: Beaver Creek	Transect Number
Date: 4/15/08		2 of 11
Habitat Type Along Transect (circle one):	pool riffle run	

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	A	P
Bank Height (0.1 m)	1.7	1.8
Bank Angle (degrees)	15	41
Streambank length (0.1 m)	8.6	2.7
Length of Streambank Vegetated (0.1 m)	8.6	2.7
Length of Streambank Eroded (0.1 m)	0	0
Length of Streambank Deposition (0.1 m)	0	0
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0	0
Undercut Bank (0.1 m)	0	0
Riparian landuse (circle one)	Cropland / pasture/rangeland / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify	cropland / pasture/rangeland / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify
Animal Vegetation Use (circle one)	none / low / moderate / high	none / low / moderate / high
Riparian Vegetation Type (Dominant)	sedge/rush / cottonwoods / grass/forb / green ash / willows / silver maple / shrubs / other_____	sedge/rush / cottonwoods / grass/forb / green ash / willows / silver maple / shrubs / other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout / young/sapling / mature / decadent / dead / not present	seedling/sprout / young/sapling / mature / decadent / dead / not present
Submergent Macrophytes (0.1 m)	0	
Emergent Macrophytes (0.1 m)	0	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	0.3			
LBF	6.9	0.0		
LEW	8.1	0.3	0.00	
LCB	10.4	0.6	0.30	
STR (@1/4)	9.6	0.4	0.09	
STR (@1/2)	11.8	0.8	0.52	
STR (@3/4)	13.3	0.7	0.43	
RCB	13.9	0.6	0.37	
REW	14.6	0.3	0.00	
RBF	15.0	0.0		
RTB	15.9			

Location Codes:

LTB left top bank
RTB right top bank
LBF left bankfull
RBF right bankfull
LCB left channel bottom
RCB right channel bottom
LEW left edge water
REW right edge water
STR stream

Bank top width (RTB-LTB) = 15.5

Bankfull width (RBF-LBF)= 8.1

Channel Bottom Width (RCB-LCB)= 3.5

Stream Width (REW-LEW)= 6.5

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

Transect Data

Project Site ID: BVC01	Stream Name: Beaver Creek	Transect Number
Date: 4/15/08		3 of 11
Habitat Type Along Transect (circle one): pool riffle [run]		

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	A	P
Bank Height (0.1 m)	1.6	1.6
Bank Angle (degrees)	8	48
Streambank length (0.1 m)	12.0	3.3
Length of Streambank Vegetated (0.1 m)	12.0	0.5
Length of Streambank Eroded (0.1 m)	0	2.9
Length of Streambank Deposition (0.1 m)	0	0
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0.2	0.2
Undercut Bank (0.1 m)	0	0
Riparian landuse (circle one)	Cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify	cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify
Animal Vegetation Use (circle one)	none / low / [moderate] / high	none / low / [moderate] / high
Riparian Vegetation Type (Dominant)	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout / young/sapling / mature / decadent / dead / [none]	seedling/sprout / young/sapling / mature / [decadent] / dead / [none]
Submergent Macrophytes (0.1 m)	0	
Emergent Macrophytes (0.1 m)	0	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	0.3			
LBF	9.8	0.0		
LEW	11.2	0.5	0.00	
LCB	12.7	0.5	0.06	
STR (@1/4)	12.9	0.5	0.09	
STR (@1/2)	14.2	0.5	0.06	
STR (@3/4)	15.1	0.5	0.09	
RCB	15.6	0.5	0.06	
REW	16.0	0.3	0.00	
RBF	16.9	0.0		
RTB	17.7			

Location Codes:

LTB left top bank
RTB right top bank
LBF left bankfull
RBF right bankfull
LCB left channel bottom
RCB right channel bottom
LEW left edge water
REW right edge water
STR stream

Bank top width (RTB-LTB) = 17.4

Bankfull width (RBF-LBF)= 7.2

Channel Bottom Width (RCB-LCB)= 3.0

Stream Width (REW-LEW)= 4.8

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

Transect Data

Project Site ID: BVC01	Stream Name: Beaver Creek	Transect Number 4 of 11
Date: 4/15/08		
Habitat Type Along Transect (circle one): pool [riffle] run		

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	A	A
Bank Height (0.1 m)	1.7	1.7
Bank Angle (degrees)	15	43
Streambank length (0.1 m)	8.1	2.6
Length of Streambank Vegetated (0.1 m)	8.1	2.6
Length of Streambank Eroded (0.1 m)	0	0
Length of Streambank Deposition (0.1 m)	0.6	0
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0.3	0.1
Undercut Bank (0.1 m)	0.2	0
Riparian landuse (circle one)	Cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify	cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify
Animal Vegetation Use (circle one)	none / low / [moderate] / high	none / low / [moderate] / high
Riparian Vegetation Type (Dominant)	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout / young/sapling / mature / decadent / dead / [none]	seedling/sprout / young/sapling / mature / decadent / dead / [none]
Submergent Macrophytes (0.1 m)	0	
Emergent Macrophytes (0.1 m)	0	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	0.3			
LBF	7.9	0.0		
LEW	7.8	0.2	0.00	
LCB	8.0	0.3	0.12	
STR (@1/4)	9.6	0.3	0.06	
STR (@1/2)	11.2	0.4	0.15	
STR (@3/4)	12.9	0.4	0.15	
RCB	13.9	0.3	0.06	
REW	14.3	0.2	0.00	
RBF	14.4	0.0		
RTB	15.7			

Location Codes:

LTB left top bank
RTB right top bank
LBF left bankfull
RBF right bankfull
LCB left channel bottom
RCB right channel bottom
LEW left edge water
REW right edge water
STR stream

Bank top width (RTB-LTB) = 15.4

Bankfull width (RBF-LBF)= 6.5

Channel Bottom Width (RCB-LCB)= 5.8

Stream Width (REW-LEW)= 6.6

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

Transect Data

Project Site ID: BVC01	Stream Name: Beaver Creek	Transect Number
Date: 4/16/08, 4/17/08		5 of 11
Habitat Type Along Transect (circle one):	[pool] riffle run	

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	P	P
Bank Height (0.1 m)	1.6	1.5
Bank Angle (degrees)	23	45
Streambank length (0.1 m)	4.0	4.0
Length of Streambank Vegetated (0.1 m)	3.9	3.2
Length of Streambank Eroded (0.1 m)	0.1	0.8
Length of Streambank Deposition (0.1 m)	0	0
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0	0
Undercut Bank (0.1 m)	0	0
Riparian landuse (circle one)	Cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify	cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify
Animal Vegetation Use (circle one)	none / [low] / moderate / high	none / [low] / moderate / high
Riparian Vegetation Type (Dominant)	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout / young/sapling / mature / decadent / dead / [none]	seedling/sprout / young/sapling / mature / decadent / dead / [none]
Submergent Macrophytes (0.1 m)	0	
Emergent Macrophytes (0.1 m)	0	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	0.0			
LBF	3.7	0.0		
LEW	3.7	0.4	0.07	
LCB	4.7	0.7	0.21	
STR (@1/4)	5.8	0.6	0.29	
STR (@1/2)	7.3	0.6	0.31	
STR (@3/4)	9.5	0.6	0.25	
RCB	10.9	0.6	0.21	
REW	11.3	0.5	0.12	
RBF	11.7	0.1		
RTB	12.9			

Location Codes:

LTB left top bank
RTB right top bank
LBF left bankfull
RBF right bankfull
LCB left channel bottom
RCB right channel bottom
LEW left edge water
REW right edge water
STR stream

Bank top width (RTB-LTB) = 12.9

Bankfull width (RBF-LBF)= 8.0

Channel Bottom Width (RCB-LCB)= 6.2

Stream Width (REW-LEW)= 7.6

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

Transect Data

Project Site ID: BVC01	Stream Name: Beaver Creek	Transect Number
Date: 4/16/08, 4/17/08		6 of 11
Habitat Type Along Transect (circle one):	[pool] riffle run	

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	P	P
Bank Height (0.1 m)	1.8	1.5
Bank Angle (degrees)	25	55
Streambank length (0.1 m)	3.0	2.2
Length of Streambank Vegetated (0.1 m)	3.0	
Length of Streambank Eroded (0.1 m)	0	
Length of Streambank Deposition (0.1 m)	0	0
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0	0
Undercut Bank (0.1 m)	0	0
Riparian landuse (circle one)	Cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify	cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify
Animal Vegetation Use (circle one)	none / [low] / moderate / high	none / [low] / moderate / high
Riparian Vegetation Type (Dominant)	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout / young/sapling / mature / decadent / dead / [none]	seedling/sprout / young/sapling / mature / [decadent] / dead
Submergent Macrophytes (0.1 m)	0	
Emergent Macrophytes (0.1 m)	0	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	0.5			
LBF	4.1	0.0		
LEW	4.7	0.9*	0.30	
LCB	4.7	0.9	0.30	
STR (@1/4)	6.4	0.9	0.42	
STR (@1/2)	8.5	1.0	0.64	
STR (@3/4)	10.5	0.9	0.59	
RCB	11.5	0.7	0.31	
REW	11.8	0.5*	0.14	
RBF	12.2	0.0		
RTB	13.1			

Location Codes:

LTB left top bank
RTB right top bank
LBF left bankfull
RBF right bankfull
LCB left channel bottom
RCB right channel bottom
LEW left edge water
REW right edge water
STR stream

Bank top width (RTB-LTB) = 12.6

Bankfull width (RBF-LBF) = 8.1

Channel Bottom Width (RCB-LCB) = 6.9

Stream Width (REW-LEW) = 7.2

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

Transect Data

Project Site ID: BVC01	Stream Name: Beaver Creek	Transect Number 7 of 11
Date: 4/16/08, 4/17/08		
Habitat Type Along Transect (circle one):	pool riffle run	

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	P	P
Bank Height (0.1 m)	1.6	1.8
Bank Angle (degrees)	23	50
Streambank length (0.1 m)	3.0	2.2
Length of Streambank Vegetated (0.1 m)	2.9	1.5
Length of Streambank Eroded (0.1 m)	0.1	0.7
Length of Streambank Deposition (0.1 m)	0	0
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0.2	0.2
Undercut Bank (0.1 m)	0	0.25
Riparian landuse (circle one)	Cropland / pasture/rangeland / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify	cropland / pasture/rangeland / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify
Animal Vegetation Use (circle one)	none / low / moderate / high	none / low / moderate / high
Riparian Vegetation Type (Dominant)	sedge/rush / cottonwoods / grass/forb / green ash / willows / silver maple / shrubs / other_____	sedge/rush / cottonwoods / grass/forb / green ash / willows / silver maple / shrubs / other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout / young/sapling / mature / decadent / dead / none	seedling/sprout / young/sapling / mature / decadent / dead / none
Submergent Macrophytes (0.1 m)	0	
Emergent Macrophytes (0.1 m)	0	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	0.5			
LBF	4.1	0.0		
LEW	4.7	0.7	0.21	
LCB	4.7	0.7	0.21	
STR (@1/4)	6.4	1.0	0.50	
STR (@1/2)	8.4	1.0	0.51	
STR (@3/4)	10.1	0.9	0.40	
RCB	12.0	0.9	0.39	
REW	12.5	0.7	0.16	
RBF	13.2	0.0		
RTB	14.0			

Location Codes:

LTB left top bank
RTB right top bank
LBF left bankfull
RBF right bankfull
LCB left channel bottom
RCB right channel bottom
LEW left edge water
REW right edge water
STR stream

Bank top width (RTB-LTB) =___13.5__

Bankfull width (RBF-LBF)=____9.1__

Channel Bottom Width (RCB-LCB)=____7.3___

Stream Width (REW-LEW)=_____7.8__

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

Transect Data

Project Site ID: BVC01	Stream Name: Beaver Creek	Transect Number
Date: 4/16/08, 4/17/08		8 of 11
Habitat Type Along Transect (circle one): pool **riffle** run		

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	P	P
Bank Height (0.1 m)	1.5	1.5
Bank Angle (degrees)	23	41
Streambank length (0.1 m)	3.0	3.0
Length of Streambank Vegetated (0.1 m)	3.0	1.8
Length of Streambank Eroded (0.1 m)	0	1.2
Length of Streambank Deposition (0.1 m)	0	0
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0.2	0
Undercut Bank (0.1 m)	0	0
Riparian landuse (circle one)	Cropland, woodland/forested, **pasture/rangeland**, barnyard, prairie, developed, wetland, other-specify, shrub	cropland, woodland/forested, **pasture/rangeland**, barnyard, prairie, developed, wetland, other-specify, shrub
Animal Vegetation Use (circle one)	none, **moderate**, low, high	none, **moderate**, low, high
Riparian Vegetation Type (Dominant)	sedge/rush, willows, cottonwoods, silver maple, **grass/forb**, shrubs, green ash, other_____	sedge/rush, willows, cottonwoods, silver maple, grass/forb, **shrubs**, green ash, other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout, decadent, young/sapling, dead, mature, **none**	seedling/sprout, decadent, young/sapling, dead, mature, **none**
Submergent Macrophytes (0.1 m)	0	
Emergent Macrophytes (0.1 m)	0	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	0.5			
LBF	3.4	0.0		
LEW	4.0	0.6	0.10	
LCB	4.4	0.6	0.20	
STR (@1/4)	5.6	0.6	0.20	
STR (@1/2)	7.2	0.6	0.19	
STR (@3/4)	8.8	0.7	0.24	
RCB	10.1	0.7	0.20	
REW	10.6	0.5	0.00	
RBF	11.9	1.0		
RTB	12.5			

Location Codes:

LTB left top bank
RTB right top bank
LBF left bankfull
RBF right bankfull
LCB left channel bottom
RCB right channel bottom
LEW left edge water
REW right edge water
STR stream

Bank top width (RTB-LTB) = 12.0

Bankfull width (RBF-LBF)= 8.5

Channel Bottom Width (RCB-LCB)= 5.7

Stream Width (REW-LEW)= 6.6

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

Transect Data

Project Site ID: BVC01	Stream Name: Beaver Creek	Transect Number
Date: 4/16/08, 4/17/08		9 of 11
Habitat Type Along Transect (circle one): pool riffle [run]		

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	P	A
Bank Height (0.1 m)	1.6	1.5
Bank Angle (degrees)	25	25
Streambank length (0.1 m)	3.3	4.8
Length of Streambank Vegetated (0.1 m)	2.9	8.8
Length of Streambank Eroded (0.1 m)	0.4	0.4
Length of Streambank Deposition (0.1 m)	0	1.0
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0	0.7
Undercut Bank (0.1 m)	0.2	0
Riparian landuse (circle one)	Cropland, woodland/forested, [pasture/rangeland], barnyard, prairie, developed, wetland, other-specify, shrub	cropland, woodland/forested, [pasture/rangeland], barnyard, prairie, developed, wetland, other-specify, shrub
Animal Vegetation Use (circle one)	none, [moderate], low, high	none, [moderate], low, high
Riparian Vegetation Type (Dominant)	sedge/rush, willows, cottonwoods, silver maple, grass/forb, [shrubs], green ash, other_____	sedge/rush, willows, cottonwoods, silver maple, grass/forb, [shrubs], green ash, other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout, decadent, young/sapling, dead, mature, [none]	seedling/sprout, decadent, young/sapling, dead, [mature]
Submergent Macrophytes (0.1 m)	0	
Emergent Macrophytes (0.1 m)	0	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	0.5			
LBF	3.7	0.0		
LEW	4.0	0.5	0.00	
LCB	4.7	0.5	0.18	
STR (@1/4)	5.6	0.5	0.19	
STR (@1/2)	6.9	0.5	0.19	
STR (@3/4)	8.7	0.5	0.11	
RCB	9.4	0.4	0.11	
REW	10.9	0.5	0.01	
RBF	12.5	0.0		
RTB	14.3			

Location Codes:

LTB left top bank
RTB right top bank
LBF left bankfull
RBF right bankfull
LCB left channel bottom
RCB right channel bottom
LEW left edge water
REW right edge water
STR stream

Bank top width (RTB-LTB) = 13.8

Bankfull width (RBF-LBF)= 8.8

Channel Bottom Width (RCB-LCB)= 4.7

Stream Width (REW-LEW)= 6.9

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

Transect Data

Project Site ID: BVC01	Stream Name: Beaver Creek	Transect Number
Date: 4/16/08, 4/17/08		10 of 11
Habitat Type Along Transect (circle one): pool riffle run		

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	P	P
Bank Height (0.1 m)	1.8	2.0
Bank Angle (degrees)	29	20
Streambank length (0.1 m)	2.8	6
Length of Streambank Vegetated (0.1 m)	2.4	5.8
Length of Streambank Eroded (0.1 m)	0.4	0.2
Length of Streambank Deposition (0.1 m)	0	0
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0.2	0
Undercut Bank (0.1 m)	0	0
Riparian landuse (circle one)	Cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify	cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify
Animal Vegetation Use (circle one)	none / low / [moderate] / high	none / low / [moderate] / high
Riparian Vegetation Type (Dominant)	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout / young/sapling / mature / decadent / dead / [none]	seedling/sprout / young/sapling / mature / decadent / dead / [none]
Submergent Macrophytes (0.1 m)	0	
Emergent Macrophytes (0.1 m)	0	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	0.5			
LBF	3.4	0.0		
LEW	3.6	0.4	0.02	
LCB	3.9	0.6	0.20	
STR (@1/4)	4.9	0.7	0.32	
STR (@1/2)	6.1	0.8	0.38	
STR (@3/4)	7.5	0.8	0.19	
RCB	8.0	0.8	0.14	
REW	8.5	0.7	0.00	
RBF	10.2	0.2		
RTB	14.3			

Location Codes:

LTB left top bank
RTB right top bank
LBF left bankfull
RBF right bankfull
LCB left channel bottom
RCB right channel bottom
LEW left edge water
REW right edge water
STR stream

Bank top width (RTB-LTB) = 13.8

Bankfull width (RBF-LBF)= 6.8

Channel Bottom Width (RCB-LCB)= 4.0

Stream Width (REW-LEW)= 4.9

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

Transect Data

Project Site ID: BVC01	Stream Name: Beaver Creek	Transect Number
Date: 4/16/08, 4/17/08		11 of 11
Habitat Type Along Transect (circle one): pool [riffle] run		

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	P	A
Bank Height (0.1 m)		
Bank Angle (degrees)	35	10
Streambank length (0.1 m)	5.0	10.4
Length of Streambank Vegetated (0.1 m)	2.4	9.7
Length of Streambank Eroded (0.1 m)	2.6	0.7
Length of Streambank Deposition (0.1 m)	0	0
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0.2	0
Undercut Bank (0.1 m)	0	0
Riparian landuse (circle one)	Cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify	cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify
Animal Vegetation Use (circle one)	none / low / [moderate] / high	none / low / [moderate] / high
Riparian Vegetation Type (Dominant)	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout / young/sapling / mature / decadent / dead / [none]	seedling/sprout / young/sapling / mature / decadent / dead / [none]
Submergent Macrophytes (0.1 m)	0	
Emergent Macrophytes (0.1 m)	0	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	0.5			
LBF	1.5	0.0		
LEW	3.3	0.5	0.01	
LCB	3.5	0.7	0.13	
STR (@1/4)	4.2	0.7	0.20	
STR (@1/2)	5.1	0.7	0.18	
STR (@3/4)	5.8	0.7	0.11	
RCB	6.3	0.7	0.08	
REW	6.7	0.5	0.00	
RBF	8.8	0.2		
RTB	16.8			

Location Codes:

LTB left top bank
RTB right top bank
LBF left bankfull
RBF right bankfull
LCB left channel bottom
RCB right channel bottom
LEW left edge water
REW right edge water
STR stream

Bank top width (RTB-LTB) =___16.3__

Bankfull width (RBF-LBF)=_____7.3_

Channel Bottom Width (RCB-LCB)=___2.9

Stream Width (REW-LEW)=____3.5__

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

SAMPLE COLLECTION FORM - STREAMS

Site ID	BVC01	Date	7/9/2008

Water Chemistry		
Sample ID	Transect	Comments
		NA

Reach-wide Benthos Sample		
Sample ID	No. of Jars	Comment
BVC01	1	Low flow sampling. Composit sample from 11 transects. Appears to have low benthic abundance.

Transect		A		B		C		D		E		F		G		H		I		J		K	
Substrate	Channel	Sub	Chan	Sub	Chan	Sub	Chan	Sub	Chan	Sub	Chan	Sub	Chan	Sub	Chan	Sub	Chan	Sub	Chan	Sub	Chan	Sub	Chan
Fine/Sand	Pool								P		P		P								P		P
Gravel	Glide	G	GL	G	GL			G		G		G		G		G		G		G		G	
Coarse	Riffle					C	R								R		R		R				
other	Run																						

Transect		A	B	C	D	E	F	G	H	I	J	K
Sample Location	Left	X			X			X			X	
	Right		X			X			X			X
	Center			X			X			X		

Substrate Size Classes
Fine/Sand - ladybug or smaller (<2mm)
Gravel - ladybug to tennis ball (2 to 64mm)
Coarse - tennis ball to car sized (64 to 4000mm)
Other - bedrock, hardpan, wood etc

SAMPLE COLLECTION FORM - STREAMS

Site ID	BVC04	Date	7/8/2008

Water Chemistry		
Sample ID	Transect	Comments

Reach-wide Benthos Sample		
Sample ID	No. of Jars	Comment
BVC04	2	Spring sampling. Composit sample from 11 transects.

Transect		A		B		C		D		E		F		G		H		I		J		K	
Substrate	Channel	Sub	Chan	Sub	Chan	Sub	Chan	Sub	Chan	Sub	Chan	Sub	Chan	Sub	Chan	Sub	Chan	Sub	Chan	Sub	Chan	Sub	Chan
Fine/Sand	Pool											F				F	P	F	P	F	P		P
Gravel	Glide		GL			G	GL	G		G			GL	G									
Coarse	Riffle	C		C	R				R		R				R							C	
other	Run																						

Transect		A	B	C	D	E	F	G	H	I	J	K
Sample Location	Left	X			X			X			X	
	Right		X			X			X			X
	Center			X			X			X		

Substrate Size Classes
Fine/Sand - ladybug or smaller (<2mm)
Gravel - ladybug to tennis ball (2 to 64mm)
Coarse - tennis ball to car sized (64 to 4000mm)
Other - bedrock, hardpan, wood etc

On Site Description Data

Section A

Project Site ID: BVC01		T_____, R_____, _____1/4 of Sec_____		Date: 09 JUL 2008
Stream Name: Beaver Creek				Time: 14:51
Transect 1(Upstream)			Transect 11(Downstream)	
GPS Coordinates (utm): WGS84	Northing: 4820631.96	Easting: 0571323.79	Northing: 4820515.00	Easting: 0571485.75
Investigators: C. Foreman, G. McKee (Sections A, B, C), A. Wones, K. Shook, M. Winland (Sections D, E, F, G, H, I, J)				

Section B

Preliminary Mean Stream Width (PMSW)

	Width Number											
	1	2	3	4	5	6	7	8	9	10	Sum	Avg. PMSW
Width (0.1m)	6.7	6.9	7.7	8.8	5.9	11.3	8.2	5.0	5.9	7.1	73.5	7.35

Transect Spacing *: 22 m

*If PMSW <10m space transects every 3 PMSW. If >10m, transects are spaced every 2 PMSW.

Total Reach Length: 220 m

Reach Length = 11 Transects, 10 distances apart X 3 PMSW = 30 PMSW or 20 PMSW if width >10m.

Section C

Water Quality

Reading	Time (2400)	Water Temperature (°C)	Air Temperature (oC)	Turbidity (NTU)	Secchi (cm)	Dissolved Oxygen (mg/L	Specific Conductance (µS/cm)	Conductivity (µS/cm)
Morning	0945	23.63	25.5			8.41		5,939
Afternoon								

Visual Observations

1) Odor (~~Yes~~ / No)	2) Septic (~~Yes~~ / No)	3) Deadfish (~~Yes~~ / No)	4) Surface Film (~~Yes~~ / No)
5) Color: Olive Drab, clear		6) Ice Cover (~~Yes~~ / No)	

Weather Conditions:	Current	Past 24 hrs
Clear/sunny	☐	☐
Partly cloudy	✓	✓
Intermittent showers	☐	☐
Steady rain	☐	☐
Heavy rain	☐	☐

Field Comments: wind 5-10 mph, sparse high clouds.

Section D

Habitats Available number of each (also place on map Section E)	Pool 2 Run/Glide 1 Riffle 2 Other (describe) see Table 1 Lengths of Riffle(s): 13, 57.8, 6.7, _____, _____. Nearest Transect # : 3, 7, _____, _____, _____. Total Length (riffles) = 70.8 Pool Forming Elements See Table 1= _____ F

Map, Slope Measurements, and Photo-documentation Data

Project Site ID: BVC01	Stream Name: Beaver Creek	Date: 09 JUL 2008

Section E cont.

Draw a map of the site with location of most upstream and most downstream transects. Include locations of photographic points, direction of photograph, and frame number.

Approximately 320 m.

Bed Substrate Composition

Project Site ID:BVC01	Stream Name: Beaver Creek	Date: 09 JUL 2008

Section F

Organic Substrates

	Description	Tally	Number
Detritus	sticks, wood, coarse plant material (CPOM)		2
Muck-Mud	black, very fine organic (FPOM)		6

Inorganic Substrates

	Diameter	Tally	Number
Clay	<0.004 (slick)		1
Silt	0.004-0.062		8
Sand	0.062-2 (gritty)		1
Very Fine Gravel	>2-4		6
Fine Gravel	>4-8		2
Medium Gravel	>8-16		19
Coarse Gravel	>16-32		15
Very Coarse Gravel	>32-64		28
Cobble	>64-128		20
Large Cobble	>128-256		5
Boulder	>256-512		1
Large Boulder	>512		1
		Total Number:	105

Section G

Large Woody Debris Data

1

Project Site ID: BVC01 Stream Name: Beaver Creek m/d/yr: 07/09/2008 Page 1 of 1

Transect Spacing	Log Jam Number	LWD Number	Zone	Meander Location	Habitat Association	Angle	Length	Diameter
1-2	0	0						
2-3	0	0						
3-4	0	0						
4-5	0	0						
5-6	0	0						
6-7	0	0						
7-8	0	0						
8-9	0	0						
9-10	0	0						
10-11	0	0						

Stream Shade and Canopy Cover Monitoring

Project Site ID:BVC01	Stream Name: Beaver Creek	Date: 17 APR 2008

Section H

Site Name:BVC01							Date: 7/09/2008
Reach Length:				Transect Interval:			Initials:
Transect	Left Bank	Center Upstream	Center Right	Center-downstream	Center Left	Right Bank	Comments:
1	0	0	0	0	0	0	
2	0	0	0	0	0	4	RB = bank
3	0	0	0	0	0	7	RB = bank
4	0	0	0	0	0	0	LB = grass/bank RB = bank
5	0	0	0	0	0	0	LB = grass/bank RB = grass/bank
6	0	0	0	0	0	3	LB = grass RB = grass
7	0	0	0	0	0	0	LB = grass RB = grass
8	0	0	0	0	0	0	LB = grass
9	0	0	0	0	0	0	LB = Bank
10	0	0	0	0	0	0	LB = Grass
11	0	0	0	0	0	0	

Transect Data

Project Site ID: BVC01	Stream Name: Beaver Creek	Transect Number
Date: 7/11/08		1 of 11
Habitat Type Along Transect (circle one): pool riffle [run]		

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	P	P
Bank Height (0.1 m)	1.56	1.52
Bank Angle (degrees)	24	16
Streambank length (0.1 m)	3.5	6.4
Length of Streambank Vegetated (0.1 m)	3.5	6.4
Length of Streambank Eroded (0.1 m)	0	0
Length of Streambank Deposition (0.1 m)	0	0
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0	0
Undercut Bank (0.1 m)	0	0
Riparian landuse (circle one)	Cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify	cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify
Animal Vegetation Use (circle one)	none / low / [moderate] / high	none / low / [moderate] / high
Riparian Vegetation Type (Dominant)	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout / young/sapling / mature / decadent / dead / [none]	seedling/sprout / young/sapling / mature / decadent / dead / [none]
Submergent Macrophytes (0.1 m)	0	
Emergent Macrophytes (0.1 m)	*Juncus sp.* 0.2	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	0.0			
LBF	1.0	0.0		
LEW	2.6	0.66	0.00	
LCB	3.3	0.73	0.12	
STR (@1/4)	4.5	0.74	0.18	
STR (@1/2)	6.0	0.77	0.23	
STR (@3/4)	7.8	0.77	0.25	
RCB	8.7	0.69	0.16	
REW	9.2	0.56	0.00	
RBF	10.9	0.18		
RTB	14.6			

Location Codes:

LTB left top bank
RTB right top bank
LBF left bankfull
RBF right bankfull
LCB left channel bottom
RCB right channel bottom
LEW left edge water
REW right edge water
STR stream

Bank top width (RTB-LTB) = 14.6

Bankfull width (RBF-LBF) = 9.9

Channel Bottom Width (RCB-LCB) = 5.4

Stream Width (REW-LEW) = 6.6

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

Transect Data

Project Site ID: BVC01	Stream Name: Beaver Creek	Transect Number
Date: 7/11/08		2 of 11
Habitat Type Along Transect (circle one): pool riffle [run]		

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	A	A
Bank Height (0.1 m)	2.57	2.80
Bank Angle (degrees)	8	55
Streambank length (0.1 m)	10.35	3.2
Length of Streambank Vegetated (0.1 m)	10.32	3.2
Length of Streambank Eroded (0.1 m)	0	0
Length of Streambank Deposition (0.1 m)	0	0
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0	0.10
Undercut Bank (0.1 m)	0	010
Riparian landuse (circle one)	Cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify	cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify
Animal Vegetation Use (circle one)	none / low / [moderate] / high	none / low / [moderate] / high
Riparian Vegetation Type (Dominant)	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout / young/sapling / mature / decadent / dead / [not present]	seedling/sprout / young/sapling / mature / decadent / dead / [not present]
Submergent Macrophytes (0.1 m)	0	
Emergent Macrophytes (0.1 m)	*Juncus sp.* 0.5	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	20.5			
LBF	27.3	0.0		
LEW	28.0	0.59	0.00	
LCB	30.0	0.95	0.35	
STR (@1/4)	31.0	1.09	0.48	
STR (@1/2)	32.4	1.20	0.54	
STR (@3/4)	33.9	1.24	0.53	
RCB	34.7	1.18	0.46	
REW	35.0	0.77	0.00	
RBF	35.0	0.25		
RTB	36.2			

Location Codes:

LTB left top bank
RTB right top bank
LBF left bankfull
RBF right bankfull
LCB left channel bottom
RCB right channel bottom
LEW left edge water
REW right edge water
STR stream

Bank top width (RTB-LTB) =___15.7_____

Bankfull width (RBF-LBF)=____7.7____

Channel Bottom Width (RCB-LCB)=____4.7_____

Stream Width (REW-LEW)=____7.0_____

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

Transect Data

Project Site ID: BVC01	Stream Name: Beaver Creek	Transect Number 3 of 11
Date: 7/11/08		
Habitat Type Along Transect (circle one): pool [riffle] run		

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	A	A
Bank Height (0.1 m)	1.9	2.5
Bank Angle (degrees)	8	54
Streambank length (0.1 m)	12.7	3.0
Length of Streambank Vegetated (0.1 m)	12.7	2.0
Length of Streambank Eroded (0.1 m)	0	1.0
Length of Streambank Deposition (0.1 m)	0	0
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0	0
Undercut Bank (0.1 m)	0	0
Riparian landuse (circle one)	Cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify	cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify
Animal Vegetation Use (circle one)	none / low / [moderate] / high	none / low / [moderate] / high
Riparian Vegetation Type (Dominant)	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout / young/sapling / mature / decadent / dead / [none]	seedling/sprout / young/sapling / mature / [decadent] / dead / [none]
Submergent Macrophytes (0.1 m)	0	
Emergent Macrophytes (0.1 m)	*Juncus sp.* 0.2, grass sp. 0.2. Total = 0.4	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	20.0			
LBF	29.1	0.00		
LEW	31.7	0.67	0.00	
LCB	32.4	0.77	0.11	
STR (@1/4)	33.2	0.85	0.17	
STR (@1/2)	34.1	0.87	0.19	
STR (@3/4)	35.0	0.93	0.18	
RCB	35.4	0.91	0.15	
REW	35.8	0.77	0.00	
RBF	35.9	0.35		
RTB	37.0			

Location Codes:

LTB left top bank
RTB right top bank
LBF left bankfull
RBF right bankfull
LCB left channel bottom
RCB right channel bottom
LEW left edge water
REW right edge water
STR stream

Bank top width (RTB-LTB) =___17.0_____

Bankfull width (RBF-LBF)=____6.8____

Channel Bottom Width (RCB-LCB)=____3.0_____

Stream Width (REW-LEW)=____4.1_____

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

Transect Data

Project Site ID: BVC01	Stream Name: Beaver Creek	Transect Number 4 of 11
Date: 7/11/08		
Habitat Type Along Transect (circle one):	pool riffle run	

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	A	A
Bank Height (0.1 m)	1.6	2.0
Bank Angle (degrees)	14	25
Streambank length (0.1 m)	7.9	6.0
Length of Streambank Vegetated (0.1 m)	7.4	5.4
Length of Streambank Eroded (0.1 m)	0.5	0.6
Length of Streambank Deposition (0.1 m)	0	0
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0	0
Undercut Bank (0.1 m)	0	0
Riparian landuse (circle one)	Cropland / pasture/rangeland / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify	cropland / pasture/rangeland / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify
Animal Vegetation Use (circle one)	none / low / moderate / high	none / low / moderate / high
Riparian Vegetation Type (Dominant)	sedge/rush / cottonwoods / grass/forb / green ash / willows / silver maple / shrubs / other_____	sedge/rush / cottonwoods / grass/forb / green ash / willows / silver maple / shrubs / other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout / young/sapling / mature / decadent / dead / none	seedling/sprout / young/sapling / mature / decadent / dead / none
Submergent Macrophytes (0.1 m)	*Chara sp.* 0.5	
Emergent Macrophytes (0.1 m)	*Juncus sp.* 0.5	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	0.3			
LBF	5.8	0.00		
LEW	6.1	0.65	0.00	
LCB	7.6	0.80	0.27	
STR (@1/4)	8.5	0.81	0.23	
STR (@1/2)	9.9	0.91	0.29	
STR (@3/4)	11.8	1.10	0.26	
RCB	12.7	0.85	0.22	
REW	13.4	0.70	0.00	
RBF	13.9	0.00		
RTB	19.4			

Location Codes:

LTB left top bank
RTB right top bank
LBF left bankfull
RBF right bankfull
LCB left channel bottom
RCB right channel bottom
LEW left edge water
REW right edge water
STR stream

Bank top width (RTB-LTB) =___19.1_____

Bankfull width (RBF-LBF)=____8.2____

Channel Bottom Width (RCB-LCB)=____5.1_____

Stream Width (REW-LEW)=____7.3_____

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

Transect Data

Project Site ID: BVC01	Stream Name: Beaver Creek	Transect Number
Date: 7/11/08		5 of 11
Habitat Type Along Transect (circle one):	pool riffle run	

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	A	A
Bank Height (0.1 m)	2.1	2.1
Bank Angle (degrees)	21	32
Streambank length (0.1 m)	7.7	4.2
Length of Streambank Vegetated (0.1 m)	7.7	3.18
Length of Streambank Eroded (0.1 m)	0	0.2
Length of Streambank Deposition (0.1 m)	0	0
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0.2	0.1
Undercut Bank (0.1 m)	0.2	0
Riparian landuse (circle one)	Cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify	cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify
Animal Vegetation Use (circle one)	none / low / [moderate] / high	none / low / [moderate] / high
Riparian Vegetation Type (Dominant)	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout / young/sapling / mature / decadent / dead / [none]	seedling/sprout / young/sapling / mature / decadent / dead / [none]
Submergent Macrophytes (0.1 m)	0	
Emergent Macrophytes (0.1 m)	*Juncus sp.* 0.3	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	0.4			
LBF	6.2	0.00		
LEW	6.5	0.70	0.02	
LCB	7.2	0.98	0.35	
STR (@1/4)	8.5	1.12	0.49	
STR (@1/2)	10.1	1.28	0.59	
STR (@3/4)	12.5	1.12	0.48	
RCB	13.8	0.99	0.30	
REW	14.1	0.87	0.15	
RBF	14.6	0.00		
RTB	17.0			

Location Codes:

LTB left top bank
RTB right top bank
LBF left bankfull
RBF right bankfull
LCB left channel bottom
RCB right channel bottom
LEW left edge water
REW right edge water
STR stream

Bank top width (RTB-LTB) = 16.6

Bankfull width (RBF-LBF) = 8.4

Channel Bottom Width (RCB-LCB) = 6.7

Stream Width (REW-LEW) = 7.7

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

Transect Data

Project Site ID: BVC01	Stream Name: Beaver Creek	Transect Number 6 of 11
Date: 7/11/08		
Habitat Type Along Transect (circle one):	[pool] riffle run	

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	A	A
Bank Height (0.1 m)	1.9	1.9
Bank Angle (degrees)	22	36
Streambank length (0.1 m)	7.0	3.4
Length of Streambank Vegetated (0.1 m)	6.9	3.2
Length of Streambank Eroded (0.1 m)	0.1	0.2
Length of Streambank Deposition (0.1 m)	0	2.5
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0.1	0.1
Undercut Bank (0.1 m)	0	0
Riparian landuse (circle one)	Cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify	cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify
Animal Vegetation Use (circle one)	none / low / [moderate] / high	none / low / [moderate] / high
Riparian Vegetation Type (Dominant)	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout / young/sapling / mature / decadent / dead / [none]	seedling/sprout / young/sapling / mature / decadent / dead / [none]
Submergent Macrophytes (0.1 m)	0	
Emergent Macrophytes (0.1 m)	*Juncus sp.* 0.1	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	2.0			
LBF	5.0	0.00		
LEW	5.7	0.61	0.00	
LCB	5.8	0.89	0.34	
STR (@1/4)	7.4	0.90	0.48	
STR (@1/2)	9.4	1.03	0.55	
STR (@3/4)	11.7	0.98	0.44	
RCB	13.4	0.91	0.37	
REW	13.9	0.79	0.24	
RBF	14.5	0.05		
RTB	15.3			

Location Codes:

LTB left top bank
RTB right top bank
LBF left bankfull
RBF right bankfull
LCB left channel bottom
RCB right channel bottom
LEW left edge water
REW right edge water
STR stream

Bank top width (RTB-LTB) = 13.3

Bankfull width (RBF-LBF)= 9.5

Channel Bottom Width (RCB-LCB)= 7.6

Stream Width (REW-LEW)= 8.2

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

Transect Data

Project Site ID: BVC01	Stream Name: Beaver Creek	Transect Number 7 of 11
Date: 7/11/08		
Habitat Type Along Transect (circle one): pool **riffle** run		

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	P	P
Bank Height (0.1 m)	1.7	1.5
Bank Angle (degrees)	22	23
Streambank length (0.1 m)	5.8	4.8
Length of Streambank Vegetated (0.1 m)	5.7	4.6
Length of Streambank Eroded (0.1 m)	0.1	0.2
Length of Streambank Deposition (0.1 m)	0	0
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0	0
Undercut Bank (0.1 m)	0	0
Riparian landuse (circle one)	Cropland / **pasture/rangeland** / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify	cropland / **pasture/rangeland** / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify
Animal Vegetation Use (circle one)	none / low / **moderate** / high	none / low / **moderate** / high
Riparian Vegetation Type (Dominant)	sedge/rush / cottonwoods / **grass/forb** / green ash / willows / silver maple / shrubs / other_____	sedge/rush / cottonwoods / **grass/forb** / green ash / willows / silver maple / shrubs / other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout / young/sapling / mature / decadent / dead / **none**	seedling/sprout / young/sapling / mature / decadent / dead / **none**
Submergent Macrophytes (0.1 m)	*Chara sp.* 0.05	
Emergent Macrophytes (0.1 m)	Juncus Sp. & Grass 0.30	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	1.0			
LBF	4.7	0.00		
LEW	5.4	0.60	0.17	
LCB	6.0	0.62	0.20	
STR (@1/4)	7.1	0.58	0.16	
STR (@1/2)	8.5	0.50	0.17	
STR (@3/4)	6.0	0.49	0.19	
RCB	10.7	0.44	0.15	
REW	11.2	0.35	0.01	
RBF	13.4	0.03		
RTB	15.0			

Location Codes:

LTB left top bank
RTB right top bank
LBF left bankfull
RBF right bankfull
LCB left channel bottom
RCB right channel bottom
LEW left edge water
REW right edge water
STR stream

Bank top width (RTB-LTB) = 14.0

Bankfull width (RBF-LBF)= 8.7

Channel Bottom Width (RCB-LCB)= 4.7

Stream Width (REW-LEW)= 5.8

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

Transect Data

Project Site ID: BVC01	Stream Name: Beaver Creek	Transect Number
Date: 7/11/08		8 of 11
Habitat Type Along Transect (circle one): pool **riffle** run		

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	P	P
Bank Height (0.1 m)	1.9	1.6
Bank Angle (degrees)	25	11
Streambank length (0.1 m)	4.3	5.5
Length of Streambank Vegetated (0.1 m)	3.9	5.3
Length of Streambank Eroded (0.1 m)	0.4	0.2
Length of Streambank Deposition (0.1 m)	0	0
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0.10	0
Undercut Bank (0.1 m)	0	0
Riparian landuse (circle one)	Cropland / **pasture/rangeland** / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify	cropland / **pasture/rangeland** / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify
Animal Vegetation Use (circle one)	none / low / **moderate** / high	none / low / **moderate** / high
Riparian Vegetation Type (Dominant)	sedge/rush / cottonwoods / **grass/forb** / green ash / willows / silver maple / shrubs / other_____	sedge/rush / cottonwoods / **grass/forb** / green ash / willows / silver maple / shrubs / other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout / young/sapling / mature / decadent / dead / **none**	seedling/sprout / young/sapling / mature / **decadent** / dead / none
Submergent Macrophytes (0.1 m)	*Chara sp.* 0.1	
Emergent Macrophytes (0.1 m)	*Juncus sp.* 0.25	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	0.7			
LBF	4.0	0.00		
LEW	4.1	0.58	0.13	
LCB	4.4	0.75	0.30	
STR (@1/4)	5.6	0.58	0.29	
STR (@1/2)	7.0	0.48	0.18	
STR (@3/4)	8.6	0.42	0.17	
RCB	9.9	0.38	0.15	
REW	10.3	0.35	0.10	
RBF	10.6	0.00		
RTB	14.5			

Location Codes:

LTB left top bank
RTB right top bank
LBF left bankfull
RBF right bankfull
LCB left channel bottom
RCB right channel bottom
LEW left edge water
REW right edge water
STR stream

Bank top width (RTB-LTB) =___16.9_____

Bankfull width (RBF-LBF)=____11.3____

Channel Bottom Width (RCB-LCB)=___8.1_____

Stream Width (REW-LEW)=___8.1___

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

Transect Data

Project Site ID: BVC01	Stream Name: Beaver Creek	Transect Number
Date: 7/11/08		9 of 11
Habitat Type Along Transect (circle one): pool [riffle] run		

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	P	A
Bank Height (0.1 m)	2.2	2.0
Bank Angle (degrees)	32	12.5
Streambank length (0.1 m)	3.9	8.4
Length of Streambank Vegetated (0.1 m)	2.9	8.2
Length of Streambank Eroded (0.1 m)	1.0	0.2
Length of Streambank Deposition (0.1 m)	0	0
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0.1	0
Undercut Bank (0.1 m)	0.1	0
Riparian landuse (circle one)	Cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify	cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify
Animal Vegetation Use (circle one)	none / low / [moderate] / high	none / low / [moderate] / high
Riparian Vegetation Type (Dominant)	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout / young/sapling / mature / decadent / dead / [none]	seedling/sprout / young/sapling / mature / decadent / dead / [none]
Submergent Macrophytes (0.1 m)	*Chara sp.* 0.20	
Emergent Macrophytes (0.1 m)	*Juncus sp.* 0.1	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	3.7			
LBF	5.5	0.0		
LEW	6.5	0.2	0.05	
LCB	7.0	0.2	0.10	
STR (@1/4)	8.8	0.4	0.31	
STR (@1/2)	10.4	0.3	0.35	
STR (@3/4)	12.2	0.4	0.31	
RCB	14.3	0.2	0.14	
REW	14.7	0.0	0.01	
RBF	14.9	-0.4		
RTB	22.6			

Location Codes:

LTB left top bank

RTB right top bank
LBF left bankfull
RBF right bankfull

LCB left channel bottom
RCB right channel bottom
LEW left edge water

REW right edge water
STR stream

Bank top width (RTB-LTB) =___18.9___

Bankfull width (RBF-LBF)=____9.4___

Channel Bottom Width (RCB-LCB)=____7.3___

Stream Width (REW-LEW)=____8.2

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

Transect Data

Project Site ID: BVC01	Stream Name: Beaver Creek	Transect Number
Date: 7/11/08		10 of 11
Habitat Type Along Transect (circle one):	pool riffle run	

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	P	A
Bank Height (0.1 m)	2.0	1.7
Bank Angle (degrees)	33	34.5
Streambank length (0.1 m)	6.0	7.6
Length of Streambank Vegetated (0.1 m)	4.5	6.60
Length of Streambank Eroded (0.1 m)	1.5	1.0
Length of Streambank Deposition (0.1 m)	0	0
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0.1	0
Undercut Bank (0.1 m)	0	0
Riparian landuse (circle one)	Cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify	cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify
Animal Vegetation Use (circle one)	none / low / [moderate] / high	none / low / [moderate] / high
Riparian Vegetation Type (Dominant)	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout / young/sapling / mature / decadent / dead / [none]	seedling/sprout / young/sapling / mature / decadent / dead / [none]
Submergent Macrophytes (0.1 m)	0	
Emergent Macrophytes (0.1 m)	*Juncus sp.* 0.1	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	-0.6			
LBF	2.6	0.0		
LEW	2.9	0.60	0.01	
LCB	3.9	1.19	0.60	
STR (@1/4)	5.0	1.04	0.58	
STR (@1/2)	6.3	0.87	0.45	
STR (@3/4)	8.2	0.82	0.24	
RCB	9.2	0.92	0.18	
REW	9.8	0.84	0.00	
RBF	11.5	0		
RTB	16.0			

Location Codes:

LTB left top bank
RTB right top bank
LBF left bankfull
RBF right bankfull
LCB left channel bottom
RCB right channel bottom
LEW left edge water
REW right edge water
STR stream

Bank top width (RTB-LTB) =___16.6___

Bankfull width (RBF-LBF)=____8.9__

Channel Bottom Width (RCB-LCB)=____5.3

Stream Width (REW-LEW)=____6.9____

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

Transect Data

Project Site ID: BVC01	Stream Name: Beaver Creek	Transect Number
Date: 7/11/08		11 of 11
Habitat Type Along Transect (circle one):	pool riffle run	

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	P	P
Bank Height (0.1 m)	2.1	1.9
Bank Angle (degrees)	30	30
Streambank length (0.1 m)	4.3	4.0
Length of Streambank Vegetated (0.1 m)	3.6	3.9
Length of Streambank Eroded (0.1 m)	0.7	0.1
Length of Streambank Deposition (0.1 m)	0	0
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0	0
Undercut Bank (0.1 m)	0	0
Riparian landuse (circle one)	Cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify	cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify
Animal Vegetation Use (circle one)	none / low / [moderate] / high	none / low / [moderate] / high
Riparian Vegetation Type (Dominant)	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout / young/sapling / mature / decadent / dead / [none]	seedling/sprout / young/sapling / mature / decadent / dead / [none]
Submergent Macrophytes (0.1 m)	0	
Emergent Macrophytes (0.1 m)	*Juncus Sp.* 0.5	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	1.0			
LBF	2.8	0.0		
LEW	3.6	0.90	0.00	
LCB	4.0	1.15	0.30	
STR (@1/4)	5.4	1.42	0.52	
STR (@1/2)	7.0	1.53	0.63	
STR (@3/4)	9.0	1.45	0.55	
RCB	9.7	1.30	0.41	
REW	11.0	0.96	0.00	
RBF	11.6	0.44		
RTB	13.6			

Location Codes:

LTB left top bank
RTB right top bank
LBF left bankfull
RBF right bankfull
LCB left channel bottom
RCB right channel bottom
LEW left edge water
REW right edge water
STR stream

Bank top width (RTB-LTB) =___12.6__

Bankfull width (RBF-LBF)=____8.8_

Channel Bottom Width (RCB-LCB)=___5.6

Stream Width (REW-LEW)=____7.4__

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

On Site Description Data

Section A

Project Site ID: BVC04		T_____, R_____, _____1/4 of Sec_____	Date: 14 APR 2008
Stream Name: Beaver Creek			Time: 17:32
Transect 1(Upstream)		**Transect 11(Downstream)**	
GPS Coordinates (utm):	Northing: 4810963 / Easting: 0579684	Northing:	Easting:
Investigators: C. Foreman, G. McKee (Sections A, B, C), A. Wones, K. Shook, E. Krantz (Sections D, E, F, G, H, I, J)			

Section B

Preliminary Mean Stream Width (PMSW)

	Width Number											
	1	2	3	4	5	6	7	8	9	10	Sum	Avg. PMSW
Width (0.1m)	6.1	7.1	3.6	6.7	7.7	7.0	8.0	5.5	5.4	4.5	61.6	6.2

Transect Spacing *: 18.5

*If PMSW <10m space transects every 3 PMSW. If >10m, transects are spaced every 2 PMSW.

Total Reach Length: 184.9

Reach Length = 11 Transects, 10 distances apart X 3 PMSW = 30 PMSW or 20 PMSW if width >10m.

Section C

Water Quality

Reading	Time (2400)	Water Temperature (°C)	Air Temperature (oC)	Turbidity (NTU)	Secchi (cm)	Dissolved Oxygen (mg/L	Specific Conductance (µS/cm)	Conductivity (µS/cm)
Morning	11:28	7.0	-	-	-	-	-	-
Afternoon	18:43	16.03	-	11.8	-	9.20	5109	

Visual Observations

1) Odor (~~Yes~~ / No)	**2) Septic (~~Yes~~ / No)**	**3) Deadfish (~~Yes~~ / No)**	**4) Surface Film (~~Yes~~ / No)**
5) Color: Clear		**6) Ice Cover (~~Yes~~ / No)**	

Weather Conditions:	Current	Past 24 hrs
Clear/sunny	✓	✓
Partly cloudy	☐	☐
Intermittent showers	☐	☐
Steady rain	☐	☐
Heavy rain	☐	☐

Field Comments: Heavy silt deposition in pools.

Section D

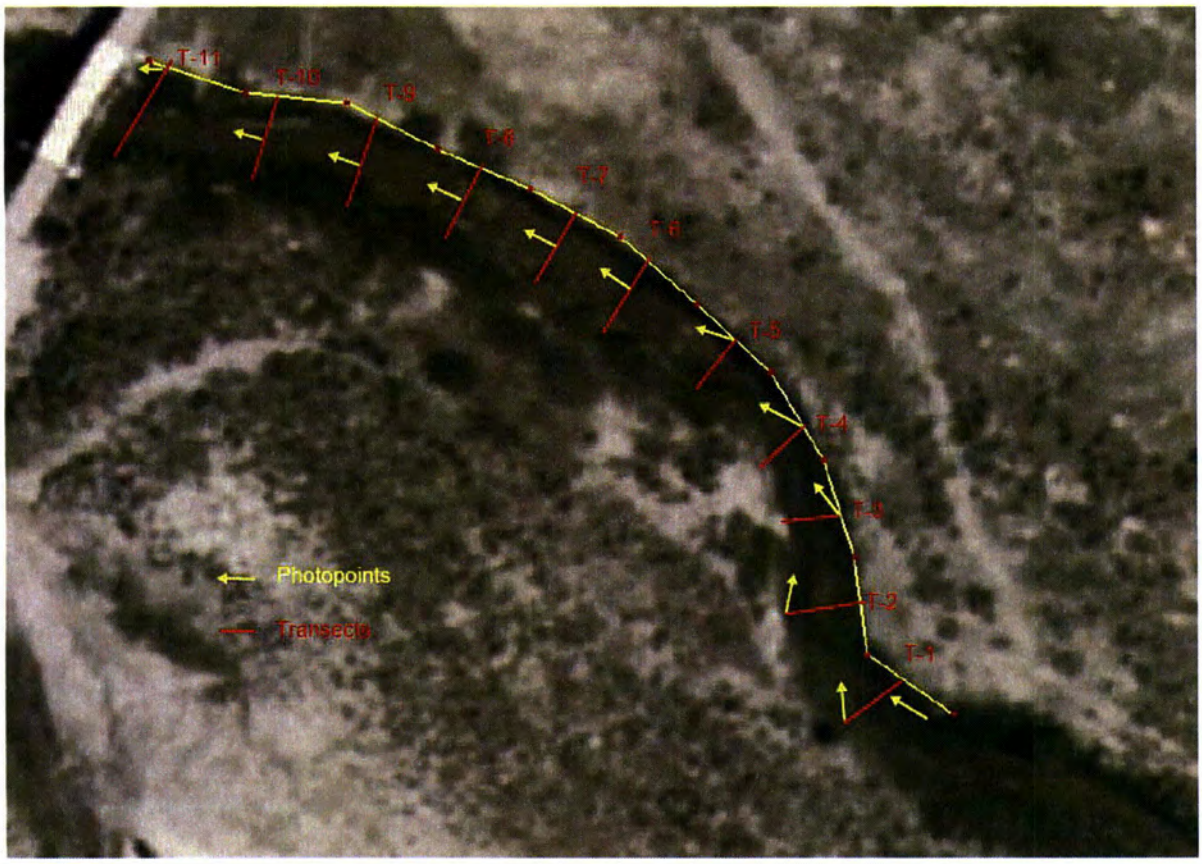
Habitats Available number of each (also place on map Section E)	Pool 2 Run/Glide 2 Riffle 3 Other (describe) see Table 1 Lengths of Riffle(s): 22.0, 22.0, 10.7, _____, _____. Nearest Transect # : 1,2, 2,3, 8, _____, _____. Total Length (riffles) = 54.6 Pool Forming Elements See Table 1= _____LS, F

Map, Slope Measurements, and Photo-documentation Data

Project Site ID: BVC04	Stream Name: Beaver Creek	Date: 16 APR 2008

Section E cont.

Draw a map of the site with location of most upstream and most downstream transects. Include locations of photographic points, direction of photograph, and frame number.



Approximately 200 m.

Bed Substrate Composition

Project Site ID:BVC04	Stream Name: Beaver Creek	Date: 16 APR 2008

Section F

Organic Substrates

	Description	Tally	Number
Detritus	sticks, wood, coarse plant material (CPOM)		1
Muck-Mud	black, very fine organic (FPOM)		

Inorganic Substrates

	Diameter	Tally	Number
Clay	<0.004 (slick)		1
Silt	0.004-0.062		26
Sand	0.062-2 (gritty)		4
Very Fine Gravel	>2-4		3
Fine Gravel	>4-8		3
Medium Gravel	>8-16		3
Coarse Gravel	>16-32		5
Very Coarse Gravel	>32-64		5
Cobble	>64-128		4
Large Cobble	>128-256		
Boulder	>256-512		
Large Boulder	>512		
		Total Number:	55

Section G

Large Woody Debris Data

1

Project Site ID: BVC04 Stream Name: Beaver Creek m/d/yr: 04/16/2008 Page 1 of 1

Transect Spacing	Log Jam Number	LWD Number	Zone	Meander Location	Habitat Association	Angle	Length	Diameter
1-2	0	0						
2-3	0	0						
3-4	0	0						
4-5	0	1	2	IM	Run	0	4.5	0.25
5-6	1	1	2	OM	Riffle	90	3.0	0.15
5-6	1	2	2	OM	Riffle	45	1.5	0.10
5-6	1	3	2	OM	Riffle	35	1.8	0.25
5-6	1	4	2	OM	Riffle	125	2.0	0.10
5-6	1	5	2	OM	Riffle	45	1.6	0.15
6-7	0	0						
7-8	0	0						
8-9	0	1	2	SS	Riffle	45	2.0	0.17
8-9	0	2	2	SS	Riffle	45	2.2	0.15
9-10	0	0						
10-11	0	0						

Zone: Zone 1 is water surface at baseflow, Zone 2 is between baseflow surface and bankfull flow surface, Zone 3 is bankfull channel width above bankfull flow surface.

Meander Location: IM=inside meander, OM=outside meander, CO=crossover, SS=straight section

Habitat Association: PL=pool, RF=riffle, RN=run

LARGE WOODY DEBRIS CATEGORIES (≥10 cm small end diameter; ≥1.5 m length)				
Categories	**1**	**2**	**3**	**4**
Diameter Large End	0.1-<0.3m	0.3-0.6m	0.6-0.8m	>0.8m
Length	>1.5-5m	5-15m	>15m	-

Stream Shade and Canopy Cover Monitoring

Project Site ID:BVC04	Stream Name: Beaver Creek	Date: 16 APR 2008

Section H

Site Name:BVC04							Date: 4/16/2008
Reach Length: 220 m				Transect Interval: 22 m			Initials: AW
Transect	Left Bank	Center Upstream	Center Right	Center-downstream	Center Left	Right Bank	Comments:
1	0	0	0	0	0	5	RB = Shrubs
2	0	0	0	0	0	2	RB = Tree
3	0	0	0	0	0	5	RB = Tree
4	2	0	0	0	0	0	LB = Shrubs
5	6	0	0	0	0	0	LB = Shrubs
6	4	0	0	0	0	0	LB = Bank
7	8	0	0	0	0	3	LB = Bank RB = Shrub
8	6	0	0	0	0	0	LB = Bank
9	3	0	0	0	0	10	LB = Bank RB = Shrubs
10	2	0	0	0	0	4	LB = Forbs RB = Grass
11	5	13	0	0	4	4	LB, CU, CL = Bridge RB = Shrubs
Note: No leaves on trees and shrubs. Cover from shrubs reported here is more potential than actual cover at this time of year.							

Transect Data

Project Site ID: BVC04	Stream Name: Beaver Creek	Transect Number
Date: 4/16/08		1 of 11
Habitat Type Along Transect (circle one): pool **riffle** run		

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	A	P
Bank Height (0.1 m)	3.7	3.9
Bank Angle (degrees)	26.0	40.0
Streambank length (0.1 m)	8.0	6.0
Length of Streambank Vegetated (0.1 m)	8.0	5.4
Length of Streambank Eroded (0.1 m)	0	0.6
Length of Streambank Deposition (0.1 m)	0.4	0
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0	0
Undercut Bank (0.1 m)	0	0
Riparian landuse (circle one)	Cropland / **pasture/rangeland** / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify	cropland / **pasture/rangeland** / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify
Animal Vegetation Use (circle one)	none / **low** / moderate / high	none / **low** / moderate / high
Riparian Vegetation Type (Dominant)	sedge/rush / cottonwoods / **grass/forb** / green ash / willows / silver maple / shrubs / other_____	sedge/rush / cottonwoods / **grass/forb** / green ash / willows / silver maple / shrubs / other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout / young/sapling / **mature** / decadent / dead	seedling/sprout / young/sapling / mature / decadent / dead
Submergent Macrophytes (0.1 m)	0	
Emergent Macrophytes (0.1 m)	0	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	0.3			
LBF	5.1	0.0		
LEW	7.1	* 1.0	0.0	
LCB	7.9	1.1	0.18	
STR (@1/4)	9.1	1.2	0.19	
STR (@1/2)	10.1	1.2	0.21	
STR (@3/4)	11.6	1.4	0.20	
RCB	12.2	1.3	0.17	
REW	13.1	* 1.3	0.09	
RBF	13.5	0.4		
RTB	17.4			

Location Codes:

LTB left top bank
RTB right top bank
LBF left bankfull
RBF right bankfull
LCB left channel bottom
RCB right channel bottom
LEW left edge water
REW right edge water
STR stream

Bank top width (RTB-LTB) =___17.1_____

Bankfull width (RBF-LBF)=____8.4____

Channel Bottom Width (RCB-LCB)=____4.4_____

Stream Width (REW-LEW)=____6.0_____

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

Transect Data

Project Site ID: BVC04	Stream Name: Beaver Creek	Transect Number
Date: 4/16/08		2 of 11
Habitat Type Along Transect (circle one): pool [riffle] run		

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	A	P
Bank Height (0.1 m)	2.3	2.2
Bank Angle (degrees)	27	34
Streambank length (0.1 m)	4.6	4.8
Length of Streambank Vegetated (0.1 m)	4.0	3.6
Length of Streambank Eroded (0.1 m)	0.6	1.2
Length of Streambank Deposition (0.1 m)	0	0.4
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0	0
Undercut Bank (0.1 m)	0	0
Riparian landuse (circle one)	Cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify	cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify
Animal Vegetation Use (circle one)	none / [low] / moderate / high	none / [low] / moderate / high
Riparian Vegetation Type (Dominant)	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout / young/sapling / mature / decadent / dead / [not present]	seedling/sprout / young/sapling / [mature] / decadent / dead
Submergent Macrophytes (0.1 m)	0	
Emergent Macrophytes (0.1 m)	0	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	0.3			
LBF	1.8	0.0		
LEW	4.1	* 0.3	0.0	
LCB	4.6	0.4	0.20	
STR (@1/4)	5.4	0.3	0.12	
STR (@1/2)	6.4	0.3	0.12	
STR (@3/4)	7.5	0.4	0.17	
RCB	8.1	0.4	0.17	
REW	8.8	* 0.3	0.0	
RBF	10.0	0.0		
RTB	11.0			

Location Codes:

LTB left top bank
RTB right top bank
LBF left bankfull
RBF right bankfull
LCB left channel bottom
RCB right channel bottom
LEW left edge water
REW right edge water
STR stream

Bank top width (RTB-LTB) = 10.7

Bankfull width (RBF-LBF)= 8.2

Channel Bottom Width (RCB-LCB)= 3.5

Stream Width (REW-LEW)= 4.7

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

Transect Data

Project Site ID: BVC04	Stream Name: Beaver Creek	Transect Number 3 of 11
Date: 4/16/08		
Habitat Type Along Transect (circle one): pool [riffle] run		

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	P	P
Bank Height (0.1 m)	1.8	2.0
Bank Angle (degrees)	11	50
Streambank length (0.1 m)	11.3	2.4
Length of Streambank Vegetated (0.1 m)	10.7	1.2
Length of Streambank Eroded (0.1 m)	0.6	1.2
Length of Streambank Deposition (0.1 m)	0	0.4
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0	1.0
Undercut Bank (0.1 m)	0	0.1
Riparian landuse (circle one)	Cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify	cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify
Animal Vegetation Use (circle one)	none / [low] / moderate / high	none / [low] / moderate / high
Riparian Vegetation Type (Dominant)	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout / young/sapling / mature / decadent / dead / [none]	seedling/sprout / young/sapling / mature / [decadent] / dead
Submergent Macrophytes (0.1 m)	0	
Emergent Macrophytes (0.1 m)	0	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	1.4			
LBF	10.6	0.0		
LEW	11.7	* 0.4	0.0	
LCB	12.0	0.4	0.06	
STR (@1/4)	12.7	0.5	0.11	
STR (@1/2)	13.7	0.5	0.12	
STR (@3/4)	14.9	0.5	0.13	
RCB	15.9	0.6	0.20	
REW	15.9	* 0.6	0.20	
RBF	16.6	0.0		
RTB	17.3			

Location Codes:

LTB left top bank

RTB right top bank
LBF left bankfull
RBF right bankfull

LCB left channel bottom
RCB right channel bottom
LEW left edge water

REW right edge water
STR stream

Bank top width (RTB-LTB) = 15.9

Bankfull width (RBF-LBF)= 5.9

Channel Bottom Width (RCB-LCB)= 4.0

Stream Width (REW-LEW)= 4.2

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

Transect Data

Project Site ID: BVC04	Stream Name: Beaver Creek	Transect Number
Date: 4/16/08		4 of 11
Habitat Type Along Transect (circle one): pool [riffle] run		

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	P	A
Bank Height (0.1 m)	1.8	1.6
Bank Angle (degrees)	26.5	38.0
Streambank length (0.1 m)	4.7	3.0
Length of Streambank Vegetated (0.1 m)	3.5	2.6
Length of Streambank Eroded (0.1 m)	1.2	0.4
Length of Streambank Deposition (0.1 m)	0.6	0
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0	0
Undercut Bank (0.1 m)	0	0
Riparian landuse (circle one)	Cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify	cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify
Animal Vegetation Use (circle one)	none / [low] / moderate / high	none / [low] / moderate / high
Riparian Vegetation Type (Dominant)	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout / young/sapling / mature / decadent / dead / [none]	seedling/sprout / young/sapling / mature / decadent / dead / [none]
Submergent Macrophytes (0.1 m)	0	
Emergent Macrophytes (0.1 m)	0	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	0			
LBF	3.0	0.0		
LEW	4.1	* 0.5	0.0	
LCB	4.5	0.6	0.15	
STR (@1/4)	6.0	0.5	0.09	
STR (@1/2)	7.5	0.4	0.10	
STR (@3/4)	9.1	0.4	0.10	
RCB	10.5	0.4	0.05	
REW	11.0	* 0.4	0	
RBF	12.3	-0.1		
RTB	13.1			

Location Codes:

LTB left top bank
RTB right top bank
LBF left bankfull
RBF right bankfull
LCB left channel bottom
RCB right channel bottom
LEW left edge water
REW right edge water
STR stream

Bank top width (RTB-LTB) = 13.1

Bankfull width (RBF-LBF) = 9.3

Channel Bottom Width (RCB-LCB) = 6.0

Stream Width (REW-LEW) = 6.9

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

Transect Data

Project Site ID: BVC04	Stream Name: Beaver Creek	Transect Number
Date: 4/16/08		5 of 11
Habitat Type Along Transect (circle one): pool riffle [run]		

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	A	P
Bank Height (0.1 m)	2.5	2.2
Bank Angle (degrees)	48	40.0
Streambank length (0.1 m)	3.2	6.0
Length of Streambank Vegetated (0.1 m)	0.3	5.4
Length of Streambank Eroded (0.1 m)	2.9	0.6
Length of Streambank Deposition (0.1 m)	0	0
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0	0
Undercut Bank (0.1 m)	0	0
Riparian landuse (circle one)	Cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify	cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify
Animal Vegetation Use (circle one)	none / [low] / moderate / high	none / [low] / moderate / high
Riparian Vegetation Type (Dominant)	sedge/rush / cottonwoods / grass/forb / green ash / willows / silver maple / [shrubs] / other_____	sedge/rush / cottonwoods / grass/forb / green ash / willows / silver maple / [shrubs] / other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout / young/sapling / mature / decadent / dead / [none]	seedling/sprout / young/sapling / mature / [decadent] / dead
Submergent Macrophytes (0.1 m)	0	
Emergent Macrophytes (0.1 m)	0	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	0.3			
LBF	1.3	0.0		
LEW	2.5	0.8	0.00	
LCB	2.8	1.0	0.20	
STR (@1/4)	9.7	1.0	0.28	
STR (@1/2)	5.5	0.8	0.15	
STR (@3/4)	7.3	0.7	0.12	
RCB	8.7	0.7	0.06	
REW	9.0	0.7	0.00	
RBF	11.0	0.0		
RTB	14.3			

Location Codes:

LTB left top bank
RTB right top bank
LBF left bankfull
RBF right bankfull
LCB left channel bottom
RCB right channel bottom
LEW left edge water
REW right edge water
STR stream

Bank top width (RTB-LTB) = 14.0

Bankfull width (RBF-LBF) = 9.7

Channel Bottom Width (RCB-LCB) = 5.9

Stream Width (REW-LEW) = 6.5

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

Transect Data

Project Site ID: BVC04	Stream Name: Beaver Creek	Transect Number 6 of 11
Date: 4/16/08		
Habitat Type Along Transect (circle one):	[pool] riffle run	

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	P	A
Bank Height (0.1 m)	3.5	3.6
Bank Angle (degrees)	46	20
Streambank length (0.1 m)	4.6	6.3
Length of Streambank Vegetated (0.1 m)	1.6	5.6
Length of Streambank Eroded (0.1 m)	2.8	0.7
Length of Streambank Deposition (0.1 m)	0	2.5
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0	0
Undercut Bank (0.1 m)	0	0
Riparian landuse (circle one)	Cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify	cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify
Animal Vegetation Use (circle one)	none / [low] / moderate / high	none / [low] / moderate / high
Riparian Vegetation Type (Dominant)	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout / young/sapling / mature / decadent / dead / [none]	seedling/sprout / young/sapling / mature / [decadent] / dead
Submergent Macrophytes (0.1 m)	0	
Emergent Macrophytes (0.1 m)	0	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	0.0			
LBF	1.9	0		
LEW	2.7	0.4*	0.00	
LCB	3.2	0.6	0.24	
STR (@1/4)	4.4	0.7	0.31	
STR (@1/2)	6.1	0.7	0.26	
STR (@3/4)	8.0	0.6	0.20	
RCB	8.8	0.6	0.10	
REW	10.0	0.5*	0.00	
RBF	13.1	0.0		
RTB	12.1			

Location Codes:

LTB left top bank
RTB right top bank
LBF left bankfull
RBF right bankfull
LCB left channel bottom
RCB right channel bottom
LEW left edge water
REW right edge water
STR stream

Bank top width (RTB-LTB) = 17.1

Bankfull width (RBF-LBF) = 11.3

Channel Bottom Width (RCB-LCB) = 5.6

Stream Width (REW-LEW) = 7.3

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

Transect Data

Project Site ID: BVC04	Stream Name: Beaver Creek	Transect Number
Date: 4/16/08		7 of 11
Habitat Type Along Transect (circle one):	pool riffle run	

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	P	A
Bank Height (0.1 m)	3.2	3.1
Bank Angle (degrees)	55	50
Streambank length (0.1 m)	4.0	5.2
Length of Streambank Vegetated (0.1 m)	1.8	4.2
Length of Streambank Eroded (0.1 m)	2.2	1.0
Length of Streambank Deposition (0.1 m)	0	0.5
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0	0.2
Undercut Bank (0.1 m)	0	0.25
Riparian landuse (circle one)	Cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify	cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify
Animal Vegetation Use (circle one)	none / [low] / moderate / high	none / [low] / moderate / high
Riparian Vegetation Type (Dominant)	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____	sedge/rush / cottonwoods / grass/forb / green ash / willows / silver maple / [shrubs] / other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout / young/sapling / mature / decadent / dead / [none]	seedling/sprout / [young/sapling] / mature / decadent / dead
Submergent Macrophytes (0.1 m)	0	
Emergent Macrophytes (0.1 m)	0	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	1.6			
LBF	3.4	0.0		
LEW	3.7	0.3	0.00	
LCB	4.0	0.5	0.20	
STR (@1/4)	6.4	0.8	0.60	
STR (@1/2)	8.5	0.6	0.61	
STR (@3/4)	11.4	0.7	0.73	
RCB	13.7	0.4	0.42	
REW	14.3	0.2	0.04	
RBF	14.5	-0.5		
RTB	17.7			

Location Codes:

LTB left top bank
RTB right top bank
LBF left bankfull
RBF right bankfull
LCB left channel bottom
RCB right channel bottom
LEW left edge water
REW right edge water
STR stream

Bank top width (RTB-LTB) = 16.1

Bankfull width (RBF-LBF)= 11.1

Channel Bottom Width (RCB-LCB)= 9.7

Stream Width (REW-LEW)= 10.7

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

Transect Data

Project Site ID: BVC04	Stream Name: Beaver Creek	Transect Number
Date: 4/16/08		8 of 11
Habitat Type Along Transect (circle one): pool [riffle] run		

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	P	P
Bank Height (0.1 m)	3.2	3.1
Bank Angle (degrees)	55	25
Streambank length (0.1 m)	3.9	8.3
Length of Streambank Vegetated (0.1 m)	1.3	5.8
Length of Streambank Eroded (0.1 m)	2.6	2.5
Length of Streambank Deposition (0.1 m)	0	0.4
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0	0
Undercut Bank (0.1 m)	0	0
Riparian landuse (circle one)	Cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify	cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify
Animal Vegetation Use (circle one)	none / [low] / moderate / high	none / [low] / moderate / high
Riparian Vegetation Type (Dominant)	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____	sedge/rush / cottonwoods / grass/forb / green ash / willows / silver maple / [shrubs] / other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout / young/sapling / mature / decadent / dead / [none]	seedling/sprout / young/sapling / mature / decadent / dead / [none]
Submergent Macrophytes (0.1 m)	0	
Emergent Macrophytes (0.1 m)	0	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	1.4			
LBF	2.4	0.0		
LEW	3.4	0.6*	0.10	
LCB	3.5	0.6	0.04	
STR (@1/4)	4.3	0.6	0.18	
STR (@1/2)	8.5	0.5	0.12	
STR (@3/4)	10.6	0.5	0.18	
RCB	11.6	0.5	0.16	
REW	11.6	0.5*	0.16	
RBF	13.7	0.0		
RTB	18.3			

Location Codes:

LTB left top bank
RTB right top bank
LBF left bankfull
RBF right bankfull
LCB left channel bottom
RCB right channel bottom
LEW left edge water
REW right edge water
STR stream

Bank top width (RTB-LTB) =___16.9_____

Bankfull width (RBF-LBF)=____11.3____

Channel Bottom Width (RCB-LCB)=___8.1_ _____

Stream Width (REW-LEW)=___8.1___

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

Transect Data

Project Site ID: BVC04	Stream Name: Beaver Creek	Transect Number 9 of 11
Date: 4/16/08		
Habitat Type Along Transect (circle one):	pool riffle run	

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	P	A
Bank Height (0.1 m)	3.2	3.2
Bank Angle (degrees)	48	24.5
Streambank length (0.1 m)	4.1	9.0
Length of Streambank Vegetated (0.1 m)	2.1	8.8
Length of Streambank Eroded (0.1 m)	2.0	0.2
Length of Streambank Deposition (0.1 m)	0	0
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0	0.7
Undercut Bank (0.1 m)	0	0
Riparian landuse (circle one)	Cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify	cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify
Animal Vegetation Use (circle one)	none / [low] / moderate / high	none / [low] / moderate / high
Riparian Vegetation Type (Dominant)	sedge/rush / cottonwoods / grass/forb / green ash / willows / silver maple / [shrubs] / other_____	sedge/rush / cottonwoods / grass/forb / green ash / willows / silver maple / [shrubs] / other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout / young/sapling / mature / decadent / dead / [none]	[seedling/sprout] / [young/sapling] / mature / decadent / dead
Submergent Macrophytes (0.1 m)	0	
Emergent Macrophytes (0.1 m)	0	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	3.7			
LBF	5.5	0.0		
LEW	6.5	0.2	0.05	
LCB	7.0	0.2	0.10	
STR (@1/4)	8.8	0.4	0.31	
STR (@1/2)	10.4	0.3	0.35	
STR (@3/4)	12.2	0.4	0.31	
RCB	14.3	0.2	0.14	
REW	14.7	0.0	0.01	
RBF	14.9	-0.4		
RTB	22.6			

Location Codes:

LTB left top bank
RTB right top bank
LBF left bankfull
RBF right bankfull
LCB left channel bottom
RCB right channel bottom
LEW left edge water
REW right edge water
STR stream

Bank top width (RTB-LTB) = 18.9

Bankfull width (RBF-LBF)= 9.4

Channel Bottom Width (RCB-LCB)= 7.3

Stream Width (REW-LEW)= 8.2

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

Transect Data

Project Site ID: BVC04	Stream Name: Beaver Creek	Transect Number
Date: 4/16/08		10 of 11
Habitat Type Along Transect (circle one):	[pool] riffle run	

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	A	A
Bank Height (0.1 m)	1.7	1.8
Bank Angle (degrees)	25	28
Streambank length (0.1 m)	3.0	4.2
Length of Streambank Vegetated (0.1 m)	2.7	3.8
Length of Streambank Eroded (0.1 m)	0.3	0.4
Length of Streambank Deposition (0.1 m)	0.8	0
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0	0
Undercut Bank (0.1 m)	0	0
Riparian landuse (circle one)	Cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify	cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify
Animal Vegetation Use (circle one)	none / [low] / moderate / high	none / low / [moderate] / high
Riparian Vegetation Type (Dominant)	sedge/rush / cottonwoods / grass/forb / green ash / willows / silver maple / shrubs / other_____	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout / young/sapling / mature / decadent / dead / [none]	seedling/sprout / young/sapling / mature / decadent / dead / [none]
Submergent Macrophytes (0.1 m)	0	
Emergent Macrophytes (0.1 m)	0	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	0.7			
LBF	1.8	0.0		
LEW	3.2	0.5	0.02	
LCB	3.5	0.6	0.10	
STR (@1/4)	4.9	0.7	0.26	
STR (@1/2)	7.3	0.7	0.35	
STR (@3/4)	8.5	0.6	0.30	
RCB	10.1	0.6	0.17	
REW	10.3	0.5	0.00	
RBF	10.4	0.1		
RTB	13.1			

Location Codes:

LTB left top bank
RTB right top bank
LBF left bankfull
RBF right bankfull
LCB left channel bottom
RCB right channel bottom
LEW left edge water
REW right edge water
STR stream

Bank top width (RTB-LTB) =___12.4___

Bankfull width (RBF-LBF)=____8.6__

Channel Bottom Width (RCB-LCB)=____6.6

Stream Width (REW-LEW)=____7.1____

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

Transect Data

Project Site ID: BVC04	Stream Name: Beaver Creek	Transect Number
Date: 4/16/08		11 of 11
Habitat Type Along Transect (circle one):	pool riffle run	

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	P	P
Bank Height (0.1 m)	1.9	2.1
Bank Angle (degrees)	30	37
Streambank length (0.1 m)	3.2	3.7
Length of Streambank Vegetated (0.1 m)	1.7	2.7
Length of Streambank Eroded (0.1 m)	1.5	1.0
Length of Streambank Deposition (0.1 m)	2.0	0.5
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0	0
Undercut Bank (0.1 m)	0	0
Riparian landuse (circle one)	Cropland / pasture/rangeland / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify	cropland / pasture/rangeland / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify
Animal Vegetation Use (circle one)	none / low / moderate / high	none / low / moderate / high
Riparian Vegetation Type (Dominant)	sedge/rush / cottonwoods / grass/forb / green ash / willows / silver maple / shrubs / other_____	sedge/rush / cottonwoods / grass/forb / green ash / willows / silver maple / shrubs / other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout / young/sapling / mature / decadent / dead / none	seedling/sprout / young/sapling / mature / decadent / dead / none
Submergent Macrophytes (0.1 m)	0	
Emergent Macrophytes (0.1 m)	0	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	0.0			
LBF	0.6	0.0		
LEW	3.0	0.6	0.01	
LCB	3.7	0.8	0.20	
STR (@1/4)	4.9	0.8	0.24	
STR (@1/2)	6.1	1.0	0.35	
STR (@3/4)	7.9	1.0	0.31	
RCB	8.8	1.0	0.20	
REW	9.6	0.8	0.00	
RBF	7.3	0.4		
RTB	12.5			

Location Codes:

LTB left top bank

RTB right top bank
LBF left bankfull
RBF right bankfull

LCB left channel bottom
RCB right channel bottom
LEW left edge water

REW right edge water
STR stream

Bank top width (RTB-LTB) =___12.5__

Bankfull width (RBF-LBF)=_____6.7_

Channel Bottom Width (RCB-LCB)=___5.2

Stream Width (REW-LEW)=____ 6.5_

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

On Site Description Data

Section A

Project Site ID: BVC04		T_____, R_____, _____1/4 of Sec_____		Date: 8 JUL 2008
Stream Name: Beaver Creek				Time: 12:05
Transect 1(Upstream)			**Transect 11(Downstream)**	
GPS Coordinates (utm): WGS 84	Northing: 4811175.61	Easting: 0579834.93	Northing: 4811171.63	Easting: 0579653.03
Investigators: A. Wones, K. Shook, L. Dunn				

Section B

Preliminary Mean Stream Width (PMSW)

	Width Number											
	1	2	3	4	5	6	7	8	9	10	Sum	Avg. PMSW
Width (0.1m)	6.1	7.1	3.6	6.7	7.7	7.0	8.0	5.5	5.4	4.5	61.6	6.2

Transect Spacing *: 18.5

*If PMSW <10m space transects every 3 PMSW. If >10m, transects are spaced every 2 PMSW.

Total Reach Length: 184.9

Reach Length = 11 Transects, 10 distances apart X 3 PMSW = 30 PMSW or 20 PMSW if width >10m.

Section C

Water Quality

Reading	Time (2400)	Water Temperature (°C)	Air Temperature (oC)	Turbidity (NTU)	Secchi (cm)	Dissolved Oxygen (mg/L	Specific Conductance (µS/cm)	Conductivity (µS/cm)
Morning			-	-	-	-	-	-
Afternoon	12:05	24	25	-	-	-	-	-

Visual Observations

1) Odor (~~Yes~~ / No) | **2) Septic (~~Yes~~ / No)** | **3) Deadfish (~~Yes~~ / No)** | **4) Surface Film (~~Yes~~ / No)**

5) Color: Clear, Olive drab | **6) Ice Cover (~~Yes~~ / No)**

Weather Conditions:	Current	Past 24 hrs
Clear/sunny	☐	☐
Partly cloudy	✓	☐
Intermittent showers	☐	✓
Steady rain	☐	☐
Heavy rain	☐	☐

Field Comments: Heavy silt deposition in pools.

Section D

Habitats Available number of each (also place on map Section E)

Pool 1 Run/Glide 3 Riffle 3 Other (describe) see Table 1

Lengths of Riffle(s): 25.3, 18.6 *, 14.0* . * Two sides of an island .

Nearest Transect # : 2, 4, 7, _____, _____.

Total Length (riffles) = 57.9

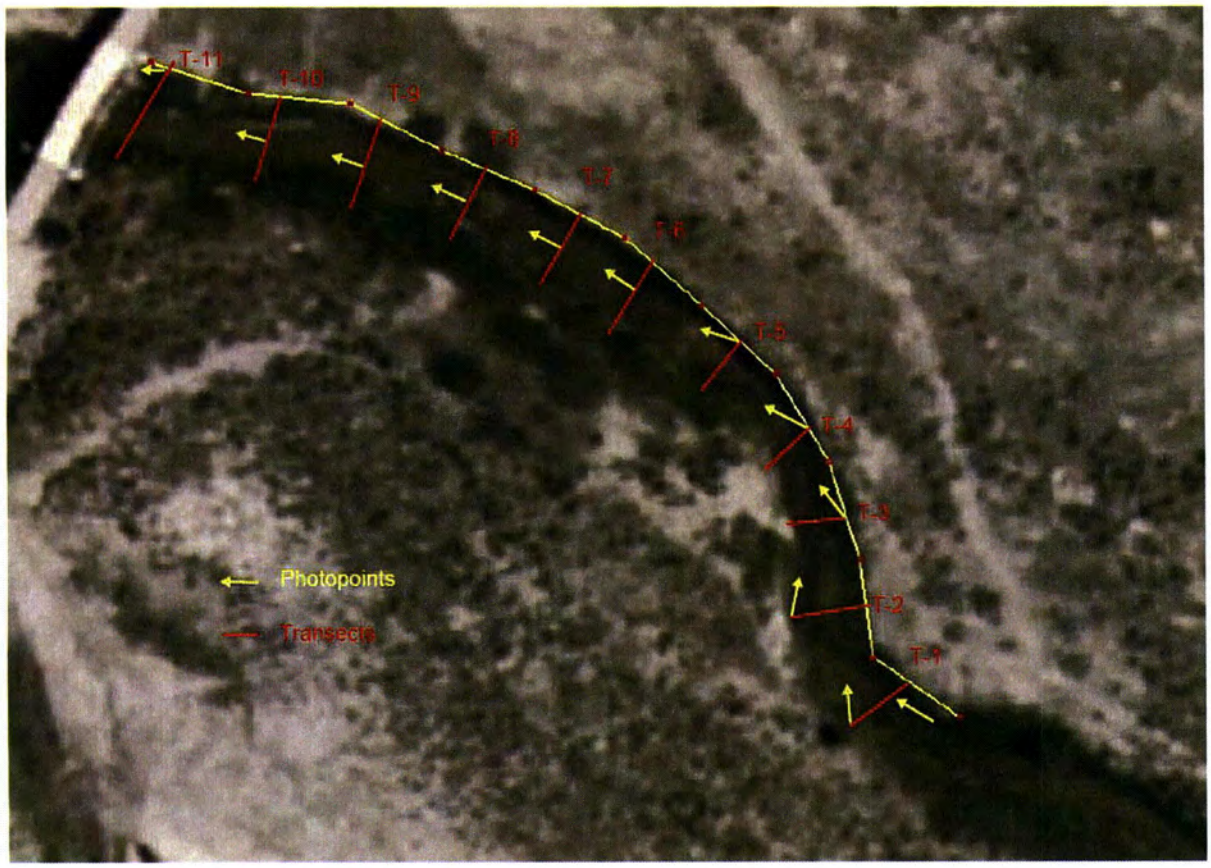
Pool Forming Elements See Table 1= ____ F

Map, Slope Measurements, and Photo-documentation Data

Project Site ID: BVC04	Stream Name: Beaver Creek	Date: 8 July 2008

Section E cont.

Draw a map of the site with location of most upstream and most downstream transects. Include locations of photographic points, direction of photograph, and frame number.



Approximately 200 m.

Bed Substrate Composition

Project Site ID:BVC04	Stream Name: Beaver Creek	Date: 8JUL 2008

Section F

Organic Substrates

	Description	Tally	Number
Detritus	sticks, wood, coarse plant material (CPOM)		
Muck-Mud	black, very fine organic (FPOM)		20

Inorganic Substrates

	Diameter	Tally	Number
Clay	<0.004 (slick)		1
Silt	0.004-0.062		15
Sand	0.062-2 (gritty)		10
Very Fine Gravel	>2-4		0
Fine Gravel	>4-8		7
Medium Gravel	>8-16		9
Coarse Gravel	>16-32		13
Very Coarse Gravel	>32-64		18
Cobble	>64-128		11
Large Cobble	>128-256		1
Boulder	>256-512		
Large Boulder	>512		
		Total Number:	105

Section G

Large Woody Debris Data

1

Project Site ID: BVC04 Stream Name: Beaver Creek m/d/yr: 07/11/2008 Page 1 of 1

Transect Spacing	Log Jam Number	LWD Number	Zone	Meander Location	Habitat Association	Angle	Length	Diameter
1-2	0	0						
2-3	0	0						
3-4	0	0						
4-5	0	0						
5-6	0	0						
6-7	0	0						
7-8	0	1	2	SS	Riffle	250	2.0	0.12
8-9	0	0						
9-10	0	0						
10-11	0	2	3	SS	Pool	180	8.0	0.4

Zone: Zone 1 is water surface at baseflow, Zone 2 is between baseflow surface and bankfull flow surface, Zone 3 is bankfull channel width above bankfull flow surface.
Meander Location: IM=inside meander, OM=outside meander, CO=crossover, SS=straight section
Habitat Association: PL=pool, RF=riffle, RN=run

LARGE WOODY DEBRIS CATEGORIES (≥10 cm small end diameter; ≥1.5 m length)				
Categories	**1**	**2**	**3**	**4**
Diameter Large End	0.1-<0.3m	0.3-0.6m	0.6-0.8m	>0.8m
Length	>1.5-5m	5-15m	>15m	-

Stream Shade and Canopy Cover Monitoring

Project Site ID:BVC04	Stream Name: Beaver Creek	Date: 8 JUL 2008

Section H

Site Name:BVC04							Date: 7/8/2008
Reach Length: 185 m				Transect Interval: 18.5 m			Initials: KS, LD
Transect	Left Bank	Center Upstream	Center Right	Center-downstream	Center Left	Right Bank	Comments:
1	0	0	0	0	0	8	RB = Shrubs
2	0	0	0	0	0	0	RB = Tree
3	2	0	0	0	0	1	RB = Tree
4	4	0	0	0	0	0	LB = Shrubs
5	8	0	0	0	0	4	LB = Shrubs
6	5	0	0	0	0	3	LB = Bank
7	13	0	0	0	0	3	LB = Bank RB = Shrub
8	8	0	0	0	0	9	LB = Bank
9	3	0	0	0	0	13	LB = Bank RB = Shrubs
10	11	0	0	0	0	11	LB = Forbs RB = Grass
11	12	16	2	0	9	12	LB, CU, CL = Bridge RB = Shrubs
Note: Cover in Transect 11 from bridge.							

Transect Data

Project Site ID: BVC04	Stream Name: Beaver Creek	Transect Number
Date: 7/8/08		1 of 11
Habitat Type Along Transect (circle one): pool riffle [run]		

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	A	P
Bank Height (0.1 m)	2.1	2.8
Bank Angle (degrees)	14	57
Streambank length (0.1 m)	8.3	5.0
Length of Streambank Vegetated (0.1 m)	7.3	4.0
Length of Streambank Eroded (0.1 m)	0	1.0
Length of Streambank Deposition (0.1 m)	1.0	0
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0.1	0.3
Undercut Bank (0.1 m)	0	0.3
Riparian landuse (circle one)	Cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify	cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify
Animal Vegetation Use (circle one)	none / [low] / moderate / high	none / [low] / moderate / high
Riparian Vegetation Type (Dominant)	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____	sedge/rush / cottonwoods / grass/forb / green ash / willows / silver maple / [shrubs] / other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout / young/sapling / mature / decadent / dead / [none]	seedling/sprout / young/sapling / mature / decadent / dead / [none]
Submergent Macrophytes (0.1 m)	0	
Emergent Macrophytes (0.1 m)	*Juncus Sp.*	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	0.4			
LBF	7.8	0.00		
LEW	9.3	0.58	0.00	
LCB	10.7	0.90	0.32	
STR (@1/4)	11.3	1.31	0.45	
STR (@1/2)	11.8	0.90	0.40	
STR (@3/4)	12.4	0.90	0.40	
RCB	13.3	1.60	0.39	
REW	13.6	0.81	0.35	
RBF	13.7	0.10		
RTB	16.5			

Location Codes:

LTB left top bank
RTB right top bank
LBF left bankfull
RBF right bankfull
LCB left channel bottom
RCB right channel bottom
LEW left edge water
REW right edge water
STR stream

Bank top width (RTB-LTB) = 16.1
Bankfull width (RBF-LBF) = 6.0
Channel Bottom Width (RCB-LCB) = 2.6
Stream Width (REW-LEW) = 4.3

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

Transect Data

Project Site ID: BVC04	Stream Name: Beaver Creek	Transect Number 2 of 11
Date: 7/11/08		
Habitat Type Along Transect (circle one): pool **riffle** run		

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	A	P
Bank Height (0.1 m)	2.2	2.3
Bank Angle (degrees)	**16**	27
Streambank length (0.1 m)	8.1	4.6
Length of Streambank Vegetated (0.1 m)	8.5	3.1
Length of Streambank Eroded (0.1 m)	0.5	1.0
Length of Streambank Deposition (0.1 m)	0	0.5
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0.1	0.1
Undercut Bank (0.1 m)	0	0
Riparian landuse (circle one)	Cropland / **pasture/rangeland** / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify	cropland / **pasture/rangeland** / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify
Animal Vegetation Use (circle one)	none / **low** / moderate / high	none / **low** / moderate / high
Riparian Vegetation Type (Dominant)	sedge/rush / cottonwoods / **grass/forb** / green ash / willows / silver maple / shrubs / other_____	sedge/rush / cottonwoods / **grass/forb** / green ash / willows / silver maple / shrubs / other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout / young/sapling / mature / decadent / dead / **not present**	seedling/sprout / young/sapling / mature / decadent / dead / **not present**
Submergent Macrophytes (0.1 m)	0	
Emergent Macrophytes (0.1 m)	*Juncus Sp.*	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	1.0			
LBF	6.1	0.00		
LEW	8.5	0.25	0.00	
LCB	8.9	0.38	0.11	
STR (@1/4)	9.8	0.41	0.15	
STR (@1/2)	10.6	0.47	0.22	
STR (@3/4)	11.6	0.46	0.17	
RCB	12.0	0.47	0.12	
REW	13.1	0.38	0.00	
RBF	14.2	-0.02		
RTB	16.0			

Location Codes:

LTB left top bank
RTB right top bank
LBF left bankfull
RBF right bankfull
LCB left channel bottom
RCB right channel bottom
LEW left edge water
REW right edge water
STR stream

Bank top width (RTB-LTB) = 15.0

Bankfull width (RBF-LBF)= 8.2

Channel Bottom Width (RCB-LCB)= 3.1

Stream Width (REW-LEW)= 4.6

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

Transect Data

Project Site ID: BVC04	Stream Name: Beaver Creek	Transect Number
Date: 7/11/08		3 of 11
Habitat Type Along Transect (circle one): pool riffle [run]		

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	A	A
Bank Height (0.1 m)	2.7	2.4
Bank Angle (degrees)	30	25
Streambank length (0.1 m)	5.3	6.3
Length of Streambank Vegetated (0.1 m)	5.0	4.3
Length of Streambank Eroded (0.1 m)	0.3	1.0
Length of Streambank Deposition (0.1 m)	0	1.0
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0.1	0.1
Undercut Bank (0.1 m)	0.2	0
Riparian landuse (circle one)	Cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify	cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify
Animal Vegetation Use (circle one)	none / [low] / moderate / high	none / [low] / moderate / high
Riparian Vegetation Type (Dominant)	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout / young/sapling / mature / decadent / dead / [none]	seedling/sprout / young/sapling / mature / [decadent] / dead
Submergent Macrophytes (0.1 m)	0	
Emergent Macrophytes (0.1 m)	*Juncus sp.*	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	0.5			
LBF	4.0	0.00		
LEW	4.6	0.31	0.05	
LCB	5.1	0.69	0.31	
STR (@1/4)	6.2	0.58	0.29	
STR (@1/2)	7.6	0.44	0.19	
STR (@3/4)	9.0	0.45	0.15	
RCB	9.8	0.43	0.16	
REW	10.3	0.33	0.00	
RBF	12.6	-0.34		
RTB	15.5			

Location Codes:

LTB left top bank
RTB right top bank
LBF left bankfull
RBF right bankfull
LCB left channel bottom
RCB right channel bottom
LEW left edge water
REW right edge water
STR stream

Bank top width (RTB-LTB) = 15.0

Bankfull width (RBF-LBF)= 8.6

Channel Bottom Width (RCB-LCB)= 4.7

Stream Width (REW-LEW)= 5.7

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

Transect Data

Project Site ID: BVC04	Stream Name: Beaver Creek	Transect Number
Date: 7/11/08		4 of 11
Habitat Type Along Transect (circle one): pool [riffle] run		

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	P	A
Bank Height (0.1 m)	3.7	3.7
Bank Angle (degrees)	45	22
Streambank length (0.1 m)	4.7	7.3
Length of Streambank Vegetated (0.1 m)	1.0	7.30
Length of Streambank Eroded (0.1 m)	3.7	0
Length of Streambank Deposition (0.1 m)	0	0
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0	0.2
Undercut Bank (0.1 m)	0	0
Riparian landuse (circle one)	Cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify	cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify
Animal Vegetation Use (circle one)	none / [low] / moderate / high	none / [low] / moderate / high
Riparian Vegetation Type (Dominant)	sedge/rush / cottonwoods / grass/forb / green ash / willows / silver maple / [shrubs] / other_____	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout / young/sapling / mature / decadent / dead / [none]	seedling/sprout / [young/sapling] / mature / decadent / dead / none
Submergent Macrophytes (0.1 m)	0	
Emergent Macrophytes (0.1 m)	*Juncus sp.*	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	0.3			
LBF	3.0	0.0		
LEW	3.4	0.54	0.06	
LCB	3.7	0.74	0.31	
STR (@1/4)	4.6	0.79	0.36	
STR (@1/2)	6.4	0.63	0.12	
STR (@3/4)	8.4	0.71	0.21	
RCB	9.2	0.76	0.17	
REW	10.4	0.67	0.00	
RBF	11.1	0.05		
RTB	17.6			

Location Codes:

LTB left top bank

RTB right top bank
LBF left bankfull
RBF right bankfull

LCB left channel bottom
RCB right channel bottom
LEW left edge water

REW right edge water
STR stream

Bank top width (RTB-LTB) =___17.3_____

Bankfull width (RBF-LBF)=____ _8.1___

Channel Bottom Width (RCB-LCB)=____ _5.5____

Stream Width (REW-LEW)=____ 7.0___

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

Transect Data

Project Site ID: BVC04	Stream Name: Beaver Creek	Transect Number
Date: 7/11/08		5 of 11
Habitat Type Along Transect (circle one): pool riffle [run]		

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	A	P
Bank Height (0.1 m)	3.5	3.2
Bank Angle (degrees)	55	21
Streambank length (0.1 m)	4.4	8.0
Length of Streambank Vegetated (0.1 m)	2.0	7.5
Length of Streambank Eroded (0.1 m)	2.4	0.5
Length of Streambank Deposition (0.1 m)	0	0
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0	0.2
Undercut Bank (0.1 m)	0	0
Riparian landuse (circle one)	Cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify	cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify
Animal Vegetation Use (circle one)	none / [low] / moderate / high	none / [low] / moderate / high
Riparian Vegetation Type (Dominant)	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout / young/sapling / mature / decadent / dead / [none]	seedling/sprout / [young/sapling] / mature / decadent / dead
Submergent Macrophytes (0.1 m)	0	
Emergent Macrophytes (0.1 m)	*Juncus sp.*	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	0.7			
LBF	2.2	0.0		
LEW	3.0	0.50	0.00	
LCB	3.3	0.84	0.32	
STR (@1/4)	4.6	0.91	0.49	
STR (@1/2)	6.8	0.75	0.38	
STR (@3/4)	8.6	0.50	0.26	
RCB	9.8	0.48	0.21	
REW	10.7	0.40	0.00	
RBF	13.4	0.0		
RTB	17.7			

Location Codes:

LTB left top bank

RTB right top bank
LBF left bankfull
RBF right bankfull

LCB left channel bottom
RCB right channel bottom
LEW left edge water

REW right edge water
STR stream

Bank top width (RTB-LTB) =___17.0____

Bankfull width (RBF-LBF)=____11.2___

Channel Bottom Width (RCB-LCB)=____ 6.6___

Stream Width (REW-LEW)=___7.7_

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

Transect Data

Project Site ID: BVC04	Stream Name: Beaver Creek	Transect Number 6 of 11
Date: 7/11/08		
Habitat Type Along Transect (circle one): pool riffle run		

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	A	A
Bank Height (0.1 m)	3.7	3.9
Bank Angle (degrees)	53	40
Streambank length (0.1 m)	4.6	5.7
Length of Streambank Vegetated (0.1 m)	4.1	5.7
Length of Streambank Eroded (0.1 m)	0.5	0
Length of Streambank Deposition (0.1 m)	0	0
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0.1	2.0
Undercut Bank (0.1 m)	0.1	0.3
Riparian landuse (circle one)	Cropland / pasture/rangeland / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify	cropland / pasture/rangeland / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify
Animal Vegetation Use (circle one)	none / low / moderate / high	none / low / moderate / high
Riparian Vegetation Type (Dominant)	sedge/rush / cottonwoods / grass/forb / green ash / willows / silver maple / shrubs / other_____	sedge/rush / cottonwoods / grass/forb / green ash / willows / silver maple / shrubs / other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout / young/sapling / mature / decadent / dead / none	seedling/sprout / young/sapling / mature / decadent / dead
Submergent Macrophytes (0.1 m)	0	
Emergent Macrophytes (0.1 m)	*Juncus sp.*	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	8.0			
LBF	10.3	0		
LEW	11.0	0.52	0.06	
LCB	11.3	0.85	0.38	
STR (@1/4)	13.0	0.97	0.52	
STR (@1/2)	14.6	1.02	0.53	
STR (@3/4)	18.4	1.02	0.50	
RCB	20.0	1.07	0.45	
REW	20.9	0.67	0.00	
RBF	21.5	0.0		
RTB	25.5			

Location Codes:

LTB left top bank
RTB right top bank
LBF left bankfull
RBF right bankfull
LCB left channel bottom
RCB right channel bottom
LEW left edge water
REW right edge water
STR stream

Bank top width (RTB-LTB) =___17.5_

Bankfull width (RBF-LBF)=____11.2__

Channel Bottom Width (RCB-LCB)=__8.7__

Stream Width (REW-LEW)=___ 9.9

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

Transect Data

Project Site ID: BVC04	Stream Name: Beaver Creek	Transect Number
Date: 7/11/08		7 of 11
Habitat Type Along Transect (circle one): pool [riffle] run		

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	A	P
Bank Height (0.1 m)	3.4	3.6
Bank Angle (degrees)	60	29
Streambank length (0.1 m)	3.9	8.0
Length of Streambank Vegetated (0.1 m)	0.1	8.0
Length of Streambank Eroded (0.1 m)	3.8	0
Length of Streambank Deposition (0.1 m)	0	0
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0	0.3
Undercut Bank (0.1 m)	0	0.4
Riparian landuse (circle one)	Cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify	cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify
Animal Vegetation Use (circle one)	none / [low] / moderate / high	none / [low] / moderate / high
Riparian Vegetation Type (Dominant)	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____	sedge/rush / cottonwoods / grass/forb / green ash / willows / silver maple / [shrubs] / other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout / young/sapling / mature / decadent / dead / [none]	seedling/sprout / young/sapling / mature / decadent / dead / [none]
Submergent Macrophytes (0.1 m)	0	
Emergent Macrophytes (0.1 m)	*Juncus sp.*	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	13.0			
LBF	14.1	0.0		
LEW	14.5	0.68	0.00	
LCB	14.9	0.84	0.19	
STR (@1/4)	15.9	0.99	0.34	
STR (@1/2)	22.2	1.01	0.29	
STR (@3/4)	23.6	1.13	0.23	
RCB	24.4	1.11	0.33	
REW	24.6	1.17	0.30	
RBF	25.3	0.02		
RTB	31.0			

Location Codes:

LTB left top bank
RTB right top bank
LBF left bankfull
RBF right bankfull
LCB left channel bottom
RCB right channel bottom
LEW left edge water
REW right edge water
STR stream

Bank top width (RTB-LTB) = 18.0

Bankfull width (RBF-LBF) = 11.2

Channel Bottom Width (RCB-LCB) = 9.5

Stream Width (REW-LEW) = 10.1

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

Transect Data

Project Site ID: BVC04	Stream Name: Beaver Creek	Transect Number 8 of 11
Date: 7/11/08		
Habitat Type Along Transect (circle one):	pool riffle run	

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	A	P
Bank Height (0.1 m)	3.2	3.3
Bank Angle (degrees)	55	30
Streambank length (0.1 m)	4.4	7.6
Length of Streambank Vegetated (0.1 m)	3.4	7.2
Length of Streambank Eroded (0.1 m)	1.0	0
Length of Streambank Deposition (0.1 m)	0	0.4
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0	0.1
Undercut Bank (0.1 m)	0	0
Riparian landuse (circle one)	Cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify	cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify
Animal Vegetation Use (circle one)	none / [low] / moderate / high	none / [low] / moderate / high
Riparian Vegetation Type (Dominant)	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____	sedge/rush / cottonwoods / grass/forb / green ash / willows / silver maple / [shrubs] / other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout / young/sapling / mature / decadent / dead / [none]	seedling/sprout / [young/sapling] / mature / decadent / dead / none
Submergent Macrophytes (0.1 m)	0	
Emergent Macrophytes (0.1 m)	*Juncus sp.*	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	1.0			
LBF	2.8	0.0		
LEW	3.1	1.05	0.00	
LCB	3.5	0.61	0.31	
STR (@1/4)	5.0	0.70	0.34	
STR (@1/2)	7.4	0.89	0.52	
STR (@3/4)	10.5	0.85	0.50	
RCB	11.7	0.70	0.27	
REW	12.5	0.60	0.11	
RBF	13.0	0.0		
RTB	18.0			

Location Codes:

LTB left top bank
RTB right top bank
LBF left bankfull
RBF right bankfull
LCB left channel bottom
RCB right channel bottom
LEW left edge water
REW right edge water
STR stream

Bank top width (RTB-LTB) = 17.0

Bankfull width (RBF-LBF) = 10.2

Channel Bottom Width (RCB-LCB) = 8.2

Stream Width (REW-LEW) = 9.4

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

Transect Data

Project Site ID: BVC04	Stream Name: Beaver Creek	Transect Number 9 of 11
Date: 7/8/08		
Habitat Type Along Transect (circle one):	[pool] riffle run	

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	A	A
Bank Height (0.1 m)	3.8	3.7
Bank Angle (degrees)	40	26
Streambank length (0.1 m)	5.2	8.4
Length of Streambank Vegetated (0.1 m)	4.1	8.4
Length of Streambank Eroded (0.1 m)	1.1	0
Length of Streambank Deposition (0.1 m)	0	0
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0	0.2
Undercut Bank (0.1 m)	0	0.1
Riparian landuse (circle one)	Cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify	cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify
Animal Vegetation Use (circle one)	none / [low] / moderate / high	none / [low] / moderate / high
Riparian Vegetation Type (Dominant)	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / [shrubs] / other_____	sedge/rush / cottonwoods / grass/forb / green ash / willows / silver maple / shrubs / other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout / young/sapling / mature / decadent / dead / [none]	[seedling/sprout] / [young/sapling] / mature / decadent / dead
Submergent Macrophytes (0.1 m)	0	
Emergent Macrophytes (0.1 m)	Juncus sp.	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	1.0			
LBF	3.5	0.0		
LEW	4.2	0.60	0.02	
LCB	4.3	1.05	0.42	
STR (@1/4)	7.2	0.90	0.44	
STR (@1/2)	9.3	1.02	0.55	
STR (@3/4)	11.2	1.10	0.40	
RCB	12.4	0.95	0.28	
REW	12.9	0.90	0.20	
RBF	13.1	0.0		
RTB	20.0			

Location Codes:

LTB left top bank
RTB right top bank
LBF left bankfull
RBF right bankfull
LCB left channel bottom
RCB right channel bottom
LEW left edge water
REW right edge water
STR stream

Bank top width (RTB-LTB) = 19.0

Bankfull width (RBF-LBF)= 9.6

Channel Bottom Width (RCB-LCB 8.1

Stream Width (REW-LEW)= 8.7

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

Transect Data

Project Site ID: BVC04	Stream Name: Beaver Creek	Transect Number
Date: 7/11/08		10 of 11
Habitat Type Along Transect (circle one):	pool riffle run	

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	A	A
Bank Height (0.1 m)	3.5	3.7
Bank Angle (degrees)	20.5	28
Streambank length (0.1 m)	3.0	40
Length of Streambank Vegetated (0.1 m)	10.7	6.8
Length of Streambank Eroded (0.1 m)	10.7	6.8
Length of Streambank Deposition (0.1 m)	0.8	0
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0	0.2
Undercut Bank (0.1 m)	0	0.2
Riparian landuse (circle one)	Cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify	cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify
Animal Vegetation Use (circle one)	none / [low] / moderate / high	none / [low] / moderate / high
Riparian Vegetation Type (Dominant)	sedge/rush / cottonwoods / grass/forb / green ash / willows / silver maple / [shrubs] / other_____	sedge/rush / cottonwoods / grass/forb / green ash / willows / silver maple / [shrubs] / other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout / young/sapling / mature / decadent / dead / [none]	seedling/sprout / young/sapling / mature / decadent / dead / [none]
Submergent Macrophytes (0.1 m)	0	
Emergent Macrophytes (0.1 m)	*Juncus sp.*	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	1.5			
LBF	9.9	0.0		
LEW	10.3	0.55	0.01	
LCB	11.5	0.82	0.31	
STR (@1/4)	12.5	0.85	0.36	
STR (@1/2)	14.3	0.95	0.41	
STR (@3/4)	16.3	1.04	0.38	
RCB	17.2	1.00	0.32	
REW	17.9	0.75	0.01	
RBF	18.3	0.0		
RTB	22.5			

Location Codes:

LTB left top bank
RTB right top bank
LBF left bankfull
RBF right bankfull
LCB left channel bottom
RCB right channel bottom
LEW left edge water
REW right edge water
STR stream

Bank top width (RTB-LTB) =___21.0___

Bankfull width (RBF-LBF)=____8.4__

Channel Bottom Width (RCB-LCB)=___5.7_

Stream Width (REW-LEW)=____7.6___

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

Transect Data

Project Site ID: BVC04	Stream Name: Beaver Creek	Transect Number
Date: 7/8/08		11 of 11
Habitat Type Along Transect (circle one):	pool riffle run	

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	P	A
Bank Height (0.1 m)	3.2	3.8
Bank Angle (degrees)	35	37
Streambank length (0.1 m)	5.4	6.5
Length of Streambank Vegetated (0.1 m)	4.4	5.5
Length of Streambank Eroded (0.1 m)	1.0	1.0
Length of Streambank Deposition (0.1 m)	0	0
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0	1.0
Undercut Bank (0.1 m)	0	0.1
Riparian landuse (circle one)	Cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify	cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard, / developed / other-specify
Animal Vegetation Use (circle one)	none / [low] / moderate / high	none / [low] / moderate / high
Riparian Vegetation Type (Dominant)	sedge/rush / cottonwoods / grass/forb / green ash / [willows] / silver maple / shrubs / other_____	sedge/rush / cottonwoods / grass/forb / green ash / willows / silver maple / shrubs / other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout / [young/sapling] / mature / decadent / dead / none	seedling/sprout / [young/sapling] / mature / decadent / dead / none
Submergent Macrophytes (0.1 m)	0	
Emergent Macrophytes (0.1 m)	*Juncus sp.*	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	5.0			
LBF	6.8	0.0		
LEW	8.6	0.78	0.01	
LCB	9.1	0.90	0.24	
STR (@1/4)	11.0	1.21	0.40	
STR (@1/2)	12.9	1.32	0.39	
STR (@3/4)	14.3	1.52	0.42	
RCB	15.8	1.50	0.28	
REW	16.2	1.31	0.14	
RBF	16.6	0.0		
RTB	20.9			

Location Codes:

LTB left top bank
RTB right top bank
LBF left bankfull
RBF right bankfull
LCB left channel bottom
RCB right channel bottom
LEW left edge water
REW right edge water
STR stream

Bank top width (RTB-LTB) = 15.9

Bankfull width (RBF-LBF)= 9.8

Channel Bottom Width (RCB-LCB)= 6.7

Stream Width (REW-LEW)= 7.7

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

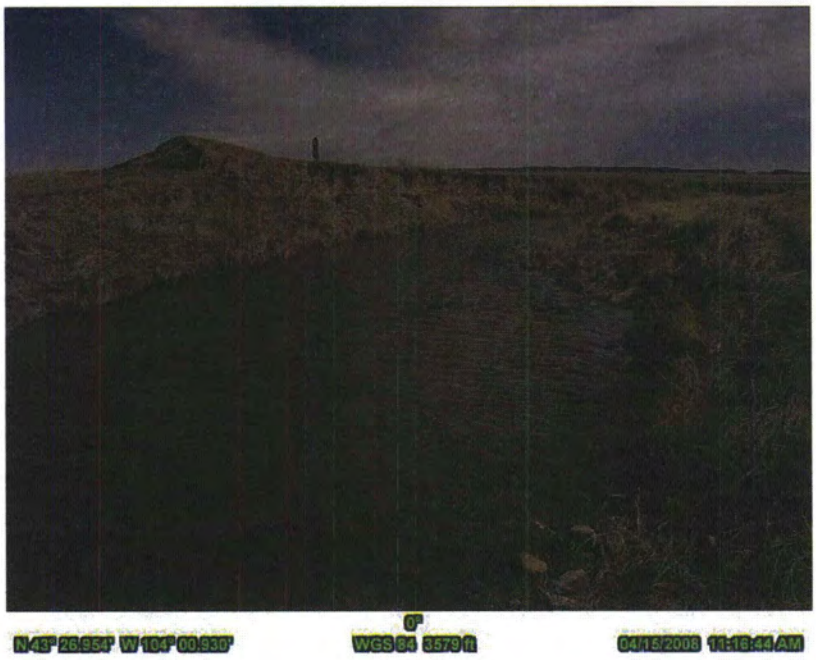


Photo 1. Site BVC01 looking upstream at Transect 1, April 15, 2008.

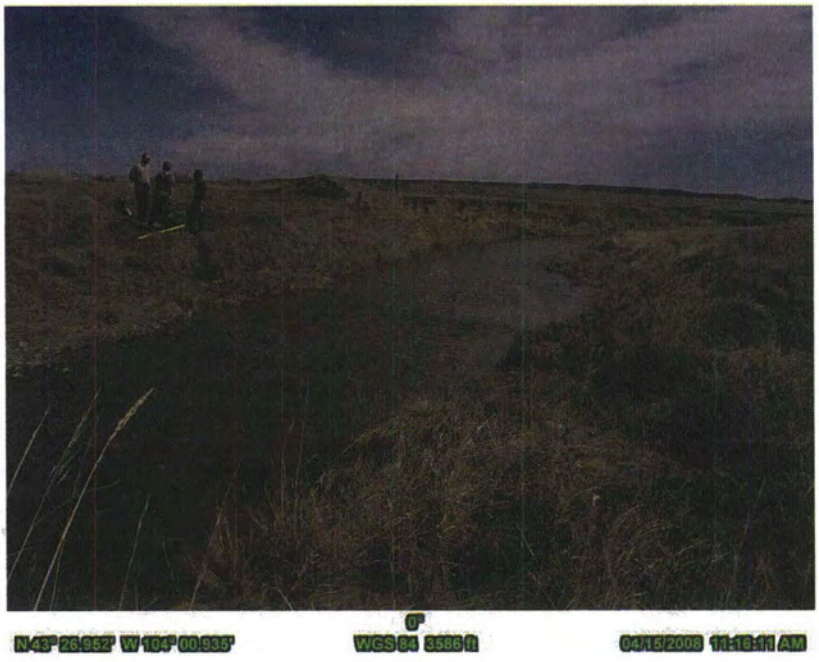


Photo 2. Site BVC01 looking upstream at Transect 2, April 15, 2008.

Photo 3. Site BVC01 looking upstream at Transcect 3, April 15, 2008.

Photo 4. Site BVC01 looking upstream at Transcect 4, April 15, 2008.

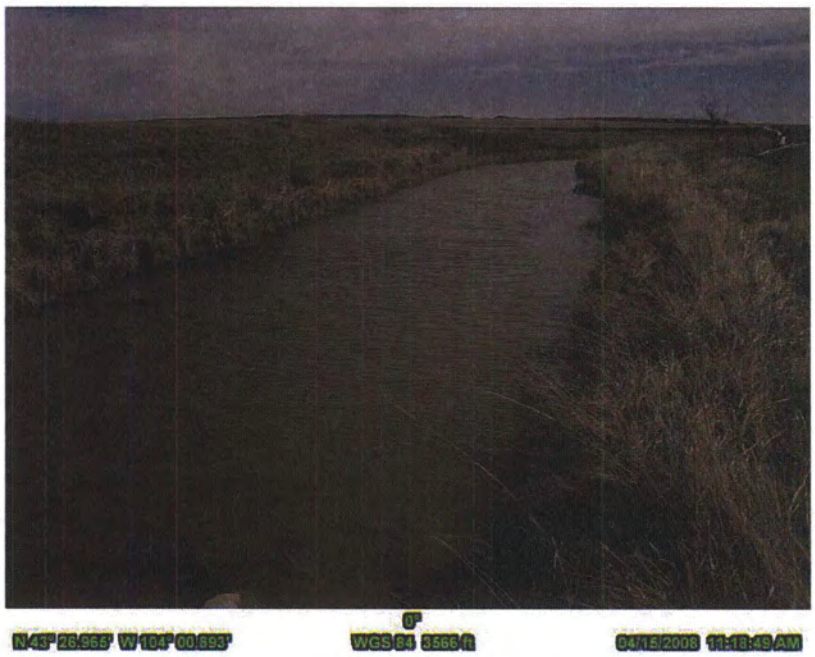


Photo 5. Site BVC01 looking upstream at Transect 5, April 15, 2008.

Photo 6. Site BVC01 f looking upstream at Transect 6, April 15, 2008.

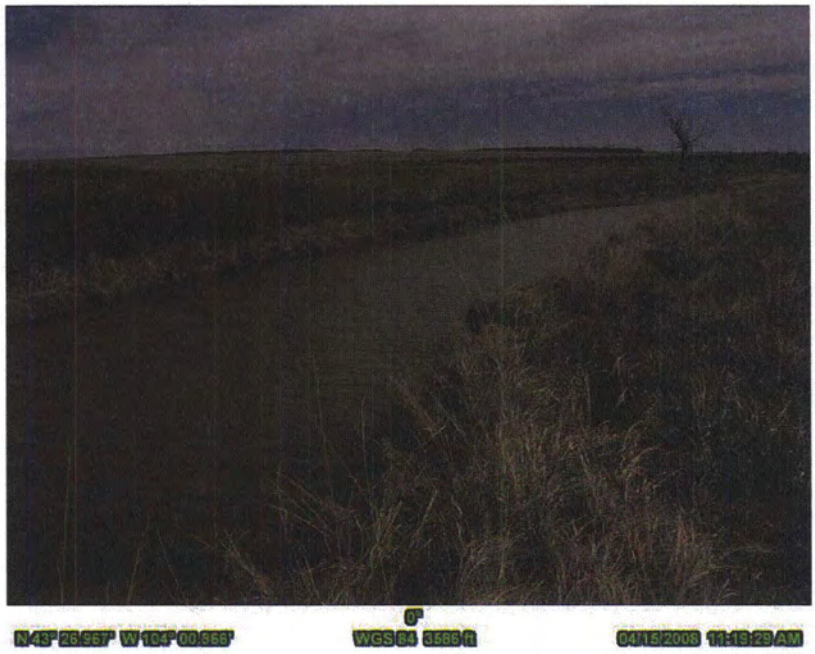


Photo 7. Site BVC01 looking upstream at Transcect 7, April 15, 2008.

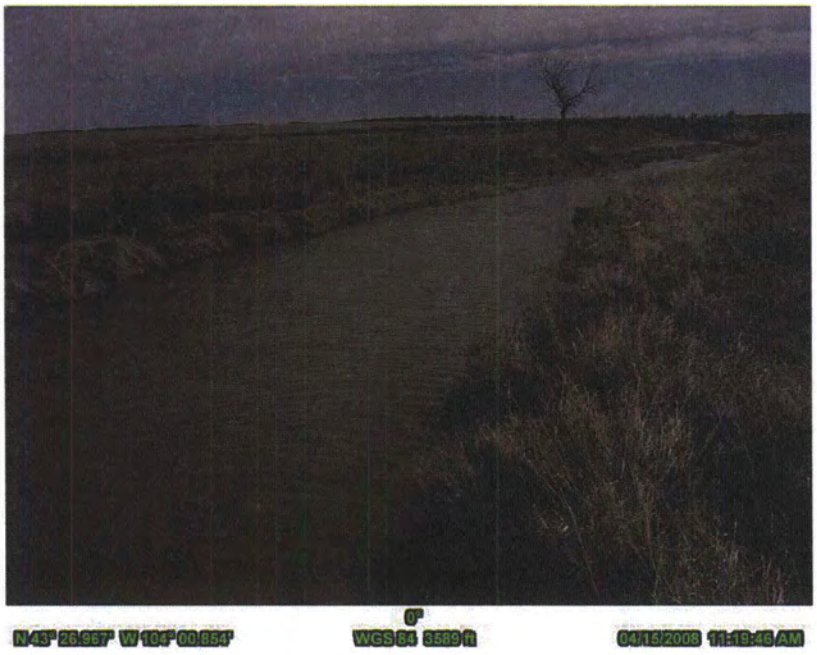


Photo 8. Site BVC01 looking upstream at Transect 8, April 15, 2008.

Photo 9. Site BVC01 looking upstream at Transcect 9, April 15, 2008.

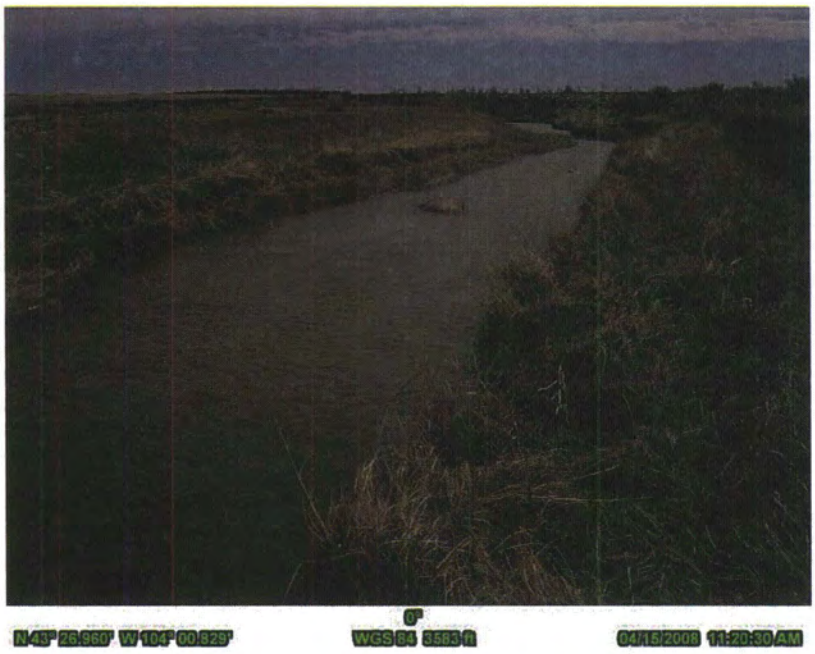


Photo 10. Site BVC01 looking upstream at Transcect 10, April 15, 2008.

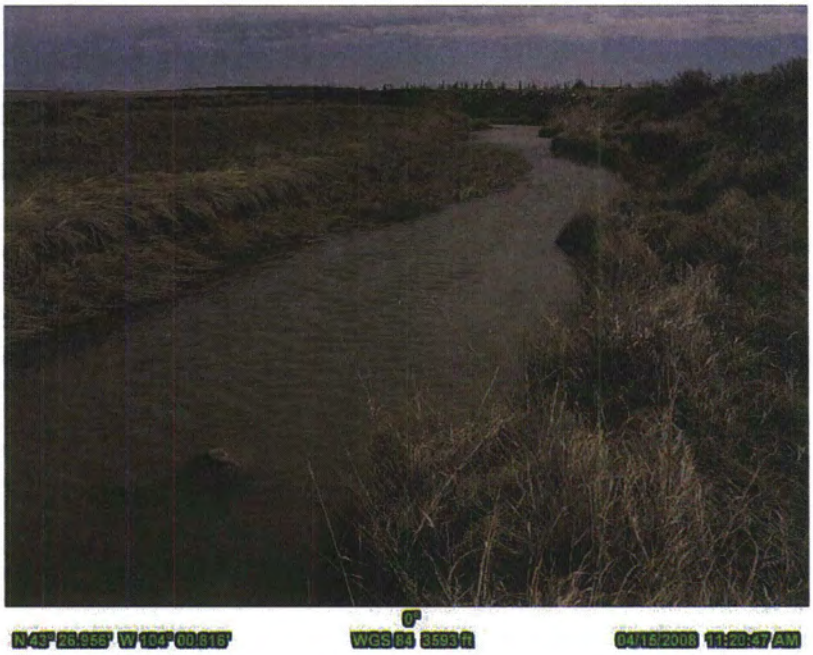


Photo 11. Site BVC01 looking upstream at Transect 11 April 15, 2008.

Photo 12. Site BVC01 looking upstream from Transect 11 April 15, 2008.

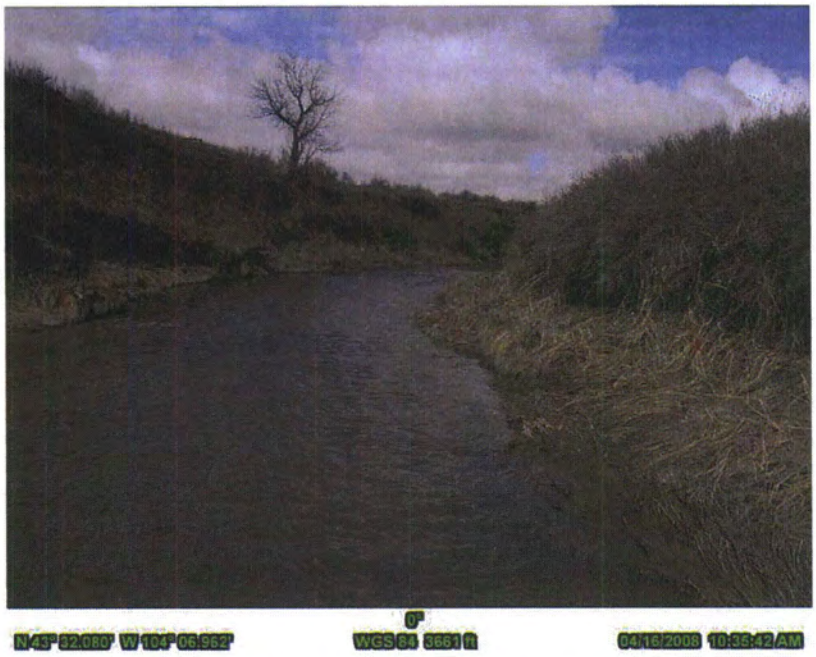


Photo 13. Site BVC04 looking upstream from Transect 1 April 16, 2008.

Photo 14. Site BVC04 looking upstream from Transect 2 April 16, 2008.

Photo 15. Site BVC04 looking upstream from Transect 3 April 16, 2008.

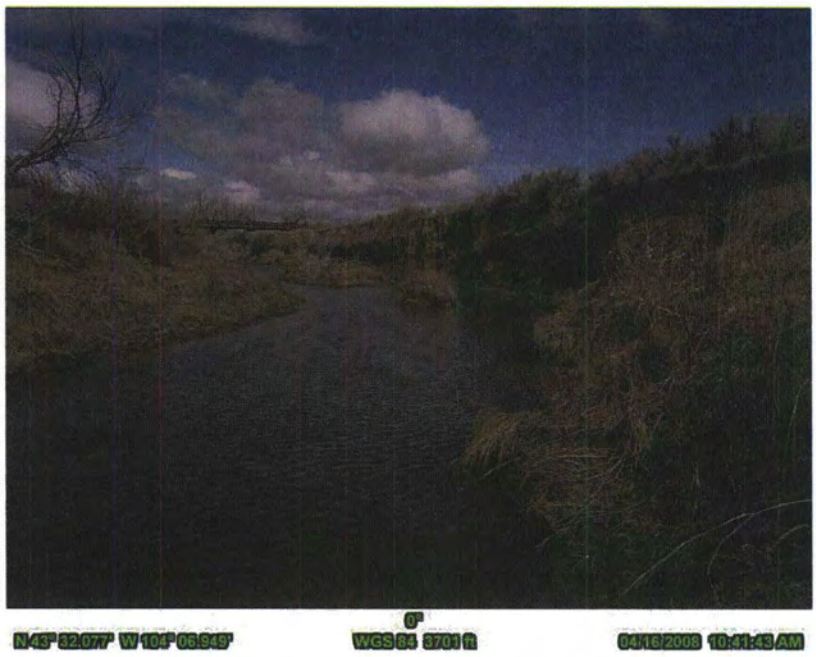


Photo 16. Site BVC04 looking upstream from Transect 4 April 16, 2008.

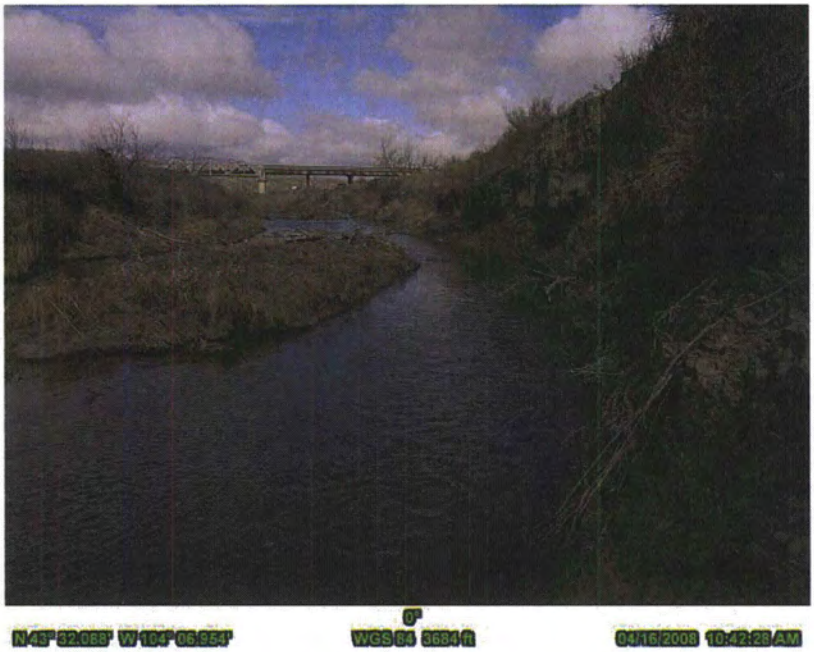


Photo 17. Site BVC04 looking upstream from Transect 5 April 16, 2008.

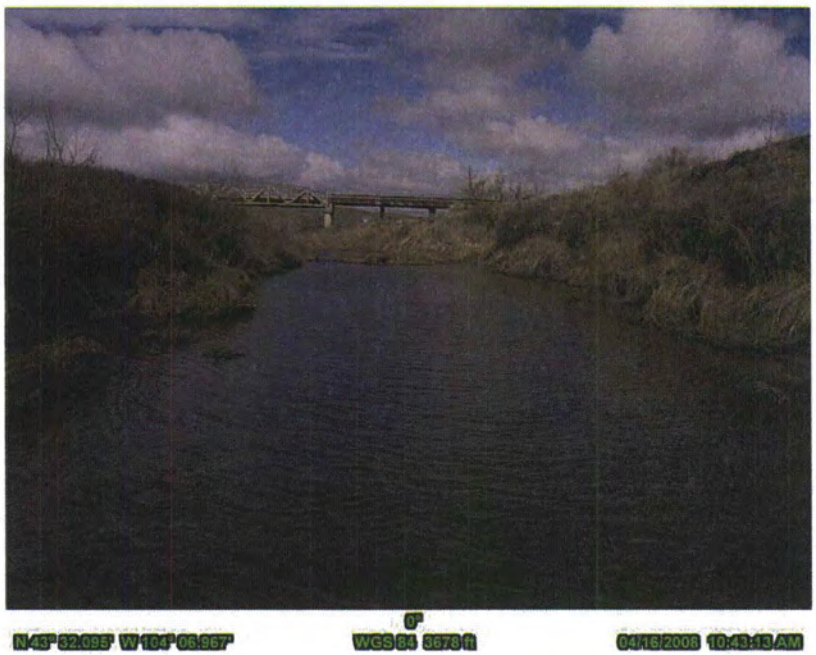


Photo 18. Site BVC04 looking upstream from Transect 6 April 16, 2008.

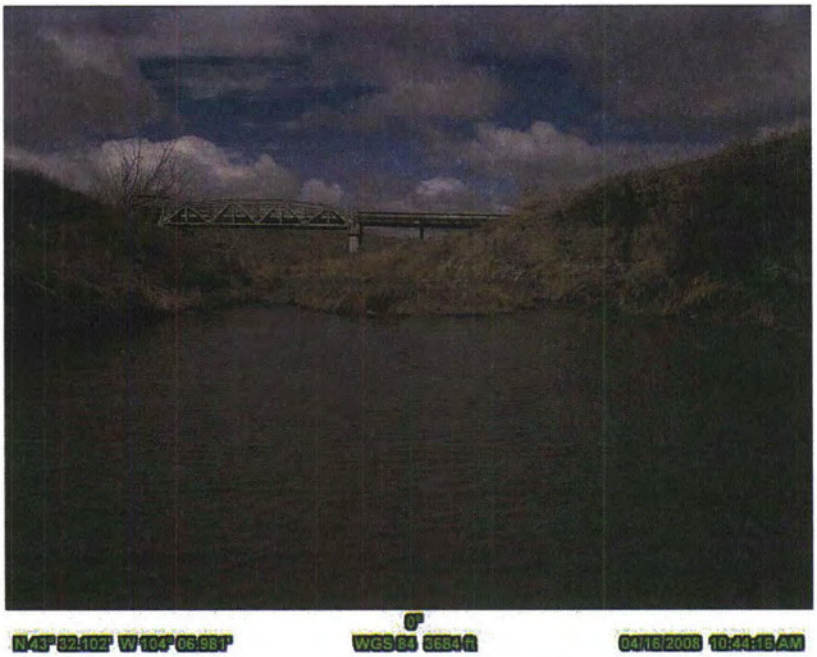


Photo 19. Site BVC04 looking upstream from Transect 7 April 16, 2008.

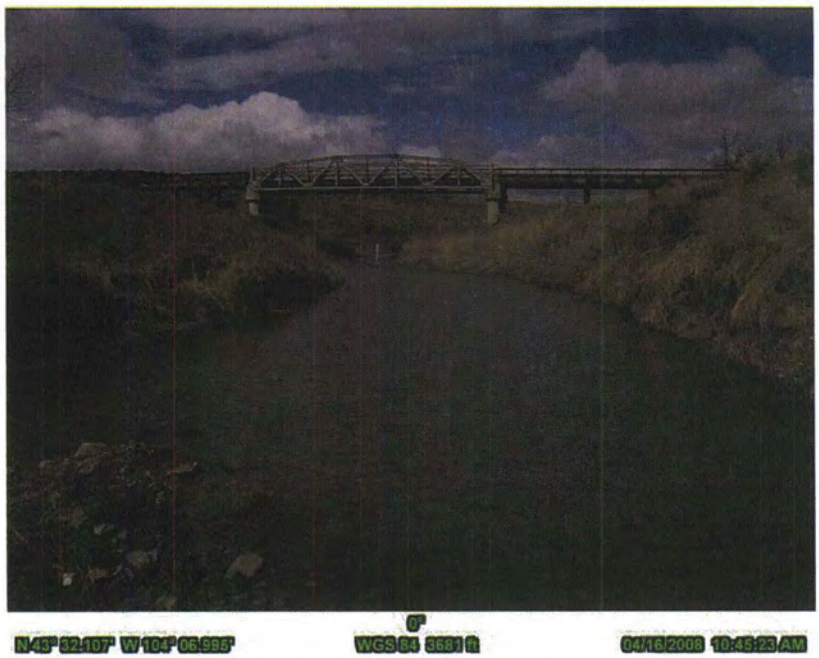


Photo 20. Site BVC04 looking upstream from Transect 8 April 16, 2008.

Photo 21. Site BVC04 looking upstream from Transect 9 April 16, 2008.

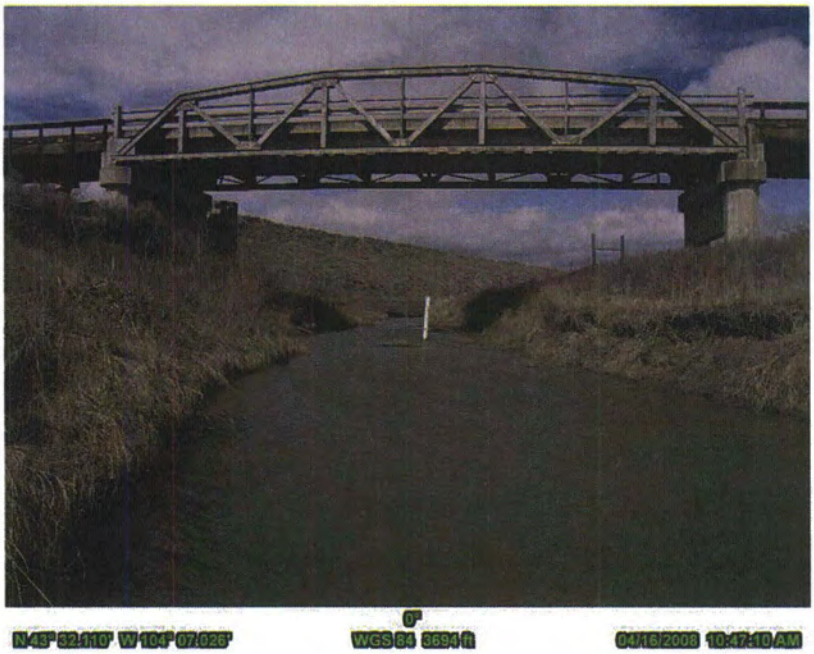


Photo 22. Site BVC04 looking upstream from Transect 10 April 16, 2008.

Photo 23. Site BVC04 looking upstream from Transect 11 April 16, 2008.

Photo 24. Site BVC01 looking upstream at Transect 1, July 9, 2008.

Photo 25. Site BVC01 looking upstream at Transect 2, July 9, 2008.

Photo 26. Site BVC01 looking upstream at Transect 3, July 9, 2008.

Photo 27. Site BVC01 looking upstream at Transect 4, July 9, 2008.

Photo 28. Site BVC01 looking upstream at Transect 5, July 9, 2008.

Photo 29. Site BVC01 f looking upstream at Transect 6, July 9, 2008.

Photo 30. Site BVC01 looking upstream at Transect 7, July 9, 2008.

Photo 31. Site BVC01 looking upstream at Transect 8, July 9, 2008.

Photo 32. Site BVC01 looking upstream at Transect 9, July 9, 2008.

Photo 33. Site BVC01 looking upstream at Transect 10, July 9, 2008.

Photo 34. Site BVC01 looking upstream at Transect 11, July 9, 2008.

Photo 35. Site BVC04 looking upstream at Transect 1, July 8, 2008.

Photo 36. Site BVC04 looking upstream from Transect 1 July 8, 2008.

Photo 37. Site BVC04 looking upstream from Transect 2 July 8, 2008.

Photo 38. Site BVC04 looking upstream from Transect 3 July 8, 2008.

Photo 39. Site BVC04 looking upstream from Transect 4 July 8, 2008.

Photo 40. Site BVC04 looking upstream from Transect 5 July 8, 2008.

Photo 41. Site BVC04 looking upstream from Transect 6 July 8, 2008.

Photo 42. Site BVC04 looking upstream from Transect 7 July 8, 2008.

Photo 43. Site BVC04 looking upstream from Transect 8 July 8, 2008.

Photo 44. Site BVC04 looking upstream from Transect 9 July 8, 2008.

Photo 45. Site BVC04 looking upstream from Transect 10 July 8, 2008.

Photo 46. Site BVC04 looking upstream from Transect 11 July 8, 2008.

Photo 47. Site BVC04 looking downstream from Transect 11 July 8, 2008.

APPENDIX 2.8-J

FISH COLLECTION DATA FORMS

S. D. GAME FISH AND PARKS - STREAM SURVEY FIELD DATA SHEET
REVISED 2JUL2008

Stream Name: Beaver Creek

Site Number:

Site Description: BVC01 - Beaver Creek downstream

DATE (d d m m m y y): 16APR08

Site Length (meters): 100 S 09 R 01E T 07S

pH:

Cond. (umhos/cm): 7186

Temp.(C) air:

Water: 11.8

Dist. below top net (meters) / Stream Widths (meters)

Dist. below top net (meters)	Stream Widths (meters)
0	07.45005.7
10	07.56004.8
20	07.67005.6
30	07.18006.5
40	06.69006.4
	10006.3

Smith-Roots
Mode:
Volts:

Personnel: A. Wones, K. Shook

#1	#2	#3	#4
#5	#6	#7	#8
Data	Scales	Lengths	Weights

	Pass #1	Pass #2	Pass #3	Pass #4	Pass #5
Start time: (hhmm)					
End time: (hhmm)					
Smith-Root (seconds)					
Shocker #1					
Smith-Root (seconds)					
Shocker #2					
Smith-Root (seconds)					
Shocker #3					

Barge Shocker:

Range (H/L): Percent: Amps: . Pulse:

Pass	Start time (h h m m)	End time (h h m m)	Duration (seconds)	Anode #1	Anode #2	Anode #3
1						
2						
3						
4						
5						

REVISED 2JUL2008

Stream Name: Beaver Creek

Bulk Weights - (Record #5)

	(m m)			(m m)			Pass#	Species			Total Number			Total Weight		
Size Range:	2	9	to	0	6	4	1	F	H	M	0	6	4	0	8	1
Size Range:	4	1	to	4	8		1	P	L	K	0	0	2	0	0	8
Size Range:			to	1	2	0	1	G	R	S	0	0	1	0	2	5
Size Range:	4	8	to	0	4	8	1	L	N	D	0	0	1	0	0	<1
Size Range:			to													
Size Range:			to													
Size Range:			to													
Size Range:			to													
Size Range:			to													
Size Range:			to													

Digital Photos - Description

Top Blocking Net Looking Upstream 122

Top Blocking Net Looking Downstream

Bottom Blocking Net Looking Upstream 116

Bottom Blocking Net Looking Downstream

Upstream blocknet UTM: E 579651; N 4811171

Downstream blocknet UTM: E 579745; N 4811201

Video Camera

Tape #:

Begin:

End:

	(d d m m m y y)	Personnel
Photos labeled:		
Photos filed:		

Comments: FHM = fathead minnow, GRS = Green Sunfish, LND = Long-Nosed Dace. PLK = Plains Killifish.

DATA ENTRY - RECORD 2

	(d d m m m y y)	Personnel
Data Entry		
Verification:		

Field Q.C. by:

Batch Number:

DATA ENTRY - RECORD 3

	(d d m m m y y)	Personnel
Data Entry		
Verification:		

DATA ENTRY - RECORD 4

	(d d m m m y y)	Personnel
Data Entry		
Verification:		

DATA ENTRY - RECORD 5

	(d d m m m y y)	Personnel
Data Entry		
Verification:		

SOUTH DAKOTA GAME FISH AND PARKS 3305 WEST SOUTH STREET RAPID CITY, SD 57702

REVISED 2JUL2008

Stream Name Beaver Creek

Site Number BVC01

DATE dd-mmm-yy						
1	6	A	P	R	0	8

Page __1__ **of** __1__

example 0 2 M A Y 9 2

Fish ID #	Pass #	Species Code	Total Length (mm)	Weight (grams)	Sca.	Mor.	Sex	Comments
1	1	FHM	036					Fathead Minnow
2	1	FHM	048					
3	1	FHM	060					
4	1	FHM	062					
5	1	FHM	046					
6	1	FHM	050					
7	1	FHM	061					
8	1	FHM	059					
9	1	FHM	048					
10	1	FHM	052					
11	1	FHM	058					
12	1	FHM	043					
13	1	FHM	043					
14	1	FHM	059					
15	1	FHM	059					
16	1	FHM	062					
17	1	FHM	041					
18	1	FHM	048					
19	1	FHM	056					
20	1	FHM	060					
21	1	FHM	050					
22	1	FHM	044					
23	1	FHM	045					
24	1	FHM	061					
25	1	FHM	054					
26	1	FHM	030					
27	1	FHM	059					
28	1	FHM	030					
29	1	FHM	055					
30	1	FHM	046					
31	1	FHM	050					
32	1	FHM	031					
33	1	FHM	052					
34	1	FHM	066					
35	1	FHM	056					
36	1	FHM	030					
37	1	FHM	032					
38	1	FHM	035					
39	1	FHM	030					
40	1	FHM	034					
41	1	FHM	059					
42	1	FHM	052					
43	1	FHM	057					
44	1	FHM	064					
45	1	FHM	058					
46	1	FHM	037					
47	1	FHM	029					
48	1	FHM	046					
49	1	FHM	035					
50	1	FHM	064					
51	1	FHM	053					
52	1	FHM	040					
53	1	FHM	056					
54	1	FHM	049					
55	1	FHM	050					
56	1	FHM	030					
57	1	FHM	061					
58	1	FHM	036					
59	1	FHM	049					
60	1	FHM	053					
61	1	FHM	059					
62	1	FHM	038					
63	1	FHM	036					
64	1	FHM	042	0081				Combined Wt. For all FHM
65	1	PLK	041					Plains Killifish
66	1	PLK	048	0008				Combined Wt. For all PLK
67	1	GRS	120	0025				Green Sunfish
68	1	LND	048	000<1				Long-Nosed Dace
69	1							
70	1							
71	1							
72	1							
73	1							
74	1							
75	1							
76	1							
77	1							
78	1							
79	1							
80	1							
81	1							
82	1							
83	1							
84	1							
85	1							
86	1							
87	1							
88	1							
89	1							
90	1							
91	1							
92	1							
93	1							
94	1							
95	1							
96	1							
97	1							
98	1							
99	1							
00	1							

S. D. GAME FISH AND PARKS - STREAM SURVEY FIELD DATA SHEET
REVISED 2JUL2008

Stream Name: Beaver Creek

Site Number:

Site Description: BVC04 - Upstream Site

DATE (d d m m m y y): 16APR08

Site Length (meters): 100 S R T

pH:

Cond. (umhos/cm): 5109

Temp.(C) air:

Water: 7.0

Dist. below top net (meters)	Stream Widths (meters)								
0			.		50			.	
10	10		.	40	60		4	.	2
20			.		70			.	
30		6	.	50	80		4	.	7
40		6	.	90	90			.	
					100		6	.	0

Smith-Roots
Mode:
Volts:

Personnel:

#1		#2		#3		#4	
#5		#6		#7		#8	
Data		Scales		Lengths		Weights	

	Pass #1	Pass #2	Pass #3	Pass #4	Pass #5
Start time: (hhmm)					
End time: (hhmm)					
Smith-Root (seconds)					
Shocker #1					
Smith-Root (seconds)					
Shocker #2					
Smith-Root (seconds)					
Shocker #3					

Barge Shocker:

Range (H/L): Percent: Amps: . Pulse:

Pass	Start time (h h m m)	End time (h h m m)	Duration (seconds)	Anode #1	Anode #2	Anode #3
1						
2						
3						
4						
5						

Stream Name: Beaver Creek

Bulk Weights - (Record #5)

	(m m)			(m m)			Pass#	Species			Total Number			Total Weight		
Size Range:	4	9	to	1	1	2	1	G	R	S	0	0	4	0	3	0
Size Range:		0	to	2	1	5	1	C	H	C	0	0	1	0	7	2
Size Range:			to				1	C	A	P			3		2	8
Size Range:	4	2	to	0	6	6	1	P	L	K	0	1	0	0	1	4
Size Range:	2	1	to	0	6	6	1	F	H	M		8	4	0	9	2
Size Range:			to													
Size Range:			to													
Size Range:			to													
Size Range:			to													
Size Range:			to													

Digital Photos - Description

Top Blocking Net Looking Upstream

Top Blocking Net Looking Downstream

Bottom Blocking Net Looking Upstream

Bottom Blocking Net Looking Downstream

Upstream Blocknet E 571380 N 4820615

Downstream blocknet E 571444 N4820551

Video Camera

Tape #:

Begin:

End:

	(d d m m m y y)	Personnel
Photos labeled:		
Photos filed:		

Comments: GRS=Green Sunfish, CHC= Channel Catfish, PLK= Plains Killifish, FHM= Fathead Minnow CAP= CARP

Water temp 7.0 C at 11:28 and 16.03 at 18:43; Turbidity 11.8, DO 9.20

DATA ENTRY - RECORD 2

	(d d m m m y y)	Personnel
Data Entry		
Verification:		

Field Q.C. by: A. Wones

Batch Number:

DATA ENTRY - RECORD 3

	(d d m m m y y)	Personnel
Data Entry		
Verification:		

DATA ENTRY - RECORD 4

	(d d m m m y y)	Personnel
Data Entry		
Verification:		

DATA ENTRY - RECORD 5

	(d d m m m y y)	Personnel
Data Entry		
Verification:		

SOUTH DAKOTA GAME FISH AND PARKS 3305 WEST SOUTH STREET RAPID CITY, SD 57702

REVISED 2JULY, 2008

Stream Name Beaver Creek

Site Number BVC04

DATE dd-mmm-yy						
1	6	A	P	R	0	8

Page __1__ **of** _2__

example 0 2 M A Y 9 2

Fish ID #	Pass #	Species Code	Total Length (mm)	Weight (grams)	Sca.	Mor.	Sex	Comments	Fish ID #	Pass #	Species Code	Total Length (mm)	Weight (grams)	Sca.	Mor.	Sex	Comments
1	1	GRS	112	0025				Green Sunfish	51	1	FHM	045					
2	1	GRS	050						52	1	FHM	047					
3	1	GRS	049						53	1	FHM	031					
4	1	GRS	053	0030				Comb. Wt	54	1	FHM	048					
5	1	CHC	215	0072				Channel Catfish	55	1	FHM	055					
6	1	PLK	04					Plains Killifish	56	1	FHM	040					
7	1	PLK	06						57	1	FHM	045					
8	1	PLK	04					Comb. Wt	58	1	FHM	046					
9	1	PLK	05						59	1	FHM	035					
10	1	PLK	04						60	1	FHM	045					
11	1	PLK	04						61	1	FHM	054					
12	1	PLK	04						62	1	FHM	039					
13	1	PLK	05						63	1	FHM	043					
14	1	PLK	04						64	1	FHM	031					
15	1	PLK	04						65	1	FHM	058					
16	1	CAP	111	0021				Carp	66	1	FHM	056					
17	1	CAP	062					Comb. Wt of #17,18=7g	67	1	FHM	047					
18	1	CAP	053	7				Comb. Wt	68	1	FHM	053					
19	1	FHM	052					Fathead Minnow	69	1	FHM	032					
20	1	FHM	041	92				Comb. Wt	70	1	FHM	038					
21	1	FHM	042						71	1	FHM	041					
22	1	FHM	054						72	1	FHM	039					
23	1	FHM	035						73	1	FHM	051					
24	1	FHM	037						74	1	FHM	044					
25	1	FHM	041						75	1	FHM	038					
26	1	FHM	043						76	1	FHM	057					
27	1	FHM	036						77	1	FHM	050					
28	1	FHM	033						78	1	FHM	041					
29	1	FHM	044						79	1	FHM	044					
30	1	FHM	046						80	1	FHM	057					
31	1	FHM	052						81	1	FHM	045					
32	1	FHM	036						82	1	FHM	047					
33	1	FHM	050						83	1	FHM	043					
34	1	FHM	039						84	1	FHM	045					
35	1	FHM	057						85	1	FHM	046					
36	1	FHM	036						86	1	FHM	052					
37	1	FHM	033						87	1	FHM	047					
38	1	FHM	039						88	1	FHM	040					
39	1	FHM	065						89	1	FHM	048					
40	1	FHM	043						90	1	FHM	045					
41	1	FHM	060						91	1	FHM	047					
42	1	FHM	021						92	1	FHM	041					
43	1	FHM	040						93	1	FHM	045					
44	1	FHM	030						94	1	FHM	035					
45	1	FHM	039						95	1	FHM	039					
46	1	FHM	056						96	1	FHM	047					
47	1	FHM	054						97	1	FHM	058					
48	1	FHM	063						98	1	FHM	047					
49	1	FHM	049						99	1	FHM	031					
50	1	FHM	066						00	1	FHM	027					

S. D. GAME FISH AND PARKS - STREAM SURVEY FIELD DATA SHEET
REVISED 2JUL2008

Stream Name: Cheyenne River

Site Number:

DATE (d d m m m y y)

Site Description: Site CHR05 - Cheyenne River at Marietta — 15APR08

Site Length (meters): 100 S 06 R 02E T 39N

pH:
Cond. (umhos/cm):
Temp.(C) air:
Water: 15.0

Dist. below top net (meters)

0	
10	
20	
30	
40	

Stream Widths (meters)

	50	
	60	
	70	
	80	
	90	
100		

Smith-Roots
Mode:
Volts:

Personnel:

#1		#2		#3		#4	
#5		#6		#7		#8	
Data		Scales		Lengths		Weights	

	Pass #1	Pass #2	Pass #3	Pass #4	Pass #5
Start time: (hhmm)					
End time: (hhmm)					
Smith-Root (seconds)					
Shocker #1					
Smith-Root (seconds)					
Shocker #2					
Smith-Root (seconds)					
Shocker #3					

Barge Shocker:
Range (H/L): Percent: Amps: . Pulse:

Pass	Start time (h h m m)	End time (h h m m)	Duration (seconds)	Anode #1	Anode #2	Anode #3
1						
2						
3						
4						
5						

REVISED 2JUL2008

Stream Name: Cheyenne River

Bulk Weights - (Record #5)

	(m m)			(m m)			Pass#	Species			Total Number			Total Weight		
Size Range:	9	7	to	0	9	7		R	I	C	0	0	1	0	1	3
Size Range:	9	8	to	0	9	8		G	R	S	0	0	1	0	2	0
Size Range:	3	2	to	0	7	4		P	L	K	0	4	8	0	6	9
Size Range:	8	2	to	2	2	0		S	R	S	0	1	4	6	1	2
Size Range:	5	1	to	0	5	1		P	T	M	0	0	1	0	0	<1
Size Range:	3	1	to	0	6	7		S	A	S	0	3	8	0	5	3
Size Range:	2	5	to	0	8	8		C	R	C	1	0	0	0	9	1
Size Range:			to													
Size Range:			to													
Size Range:			to													

Digital Photos - Description

Top Blocking Net Looking Upstream

Top Blocking Net Looking Downstream

Bottom Blocking Net Looking Upstream

Bottom Blocking Net Looking Downstream

Upstream blocknet at UTM E0587455 N4804678

Downstream blocknet at UTM E0587538 N4804736

Video Camera

Tape #:

Begin:

End:

	(d d m m m y y)	Personnel
Photos labeled:		
Photos filed:		

Comments: RIC= River Carpsucker; GRS = Green Sunfish; PLK = Plains killifish; SRS = Shorthead Redhorse Sucker; PTM = Plains Topminnow; SAS = Sand Shiner; CRC = Creek Chub.

DATA ENTRY - RECORD 2

	(d d m m m y y)	Personnel
Data Entry:		
Verification:		

DATA ENTRY - RECORD 3

	(d d m m m y y)	Personnel
Data Entry:		
Verification:		

DATA ENTRY - RECORD 4

	(d d m m m y y)	Personnel
Data Entry:		
Verification:		

DATA ENTRY - RECORD 5

	(d d m m m y y)	Personnel
Data Entry:		
Verification:		

Field Q.C. by: A. Wones

Batch Number:

SOUTH DAKOTA GAME FISH AND PARKS 3305 WEST SOUTH STREET RAPID CITY, SD 57702

Revised: 08JUL08

Stream Name Cheyenne River

Site Number CHR05

DATE
dd-mmm-yy
15APR08

example 02MAY92

Fish ID #	Pass #	Species Code	Total Length (mm)	Weight (grams)	Scar.	Mor.	Sex	Comments
1	1	CRC	039					Creek Chu
2	1	CRC	068	091				Combined wt =
3	1	CRC	049					
4	1	CRC	050					
5	1	CRC	061					
6	1	CRC	045					
7	1	CRC	075					
8	1	CRC	039					
9	1	CRC	046					
10	1	CRC	038					
11	1	CRC	041					
12	1	CRC	035					
13	1	CRC	035					
14	1	CRC	058					
15	1	CRC	043					
16	1	CRC	040					
17	1	CRC	040					
18	1	CRC	060					
19	1	CRC	049					
20	1	CRC	037					
21	1	CRC	041					
22	1	CRC	033					
23	1	CRC	032					
24	1	CRC	052					
25	1	CRC	031					
26	1	CRC	026					
27	1	CRC	050					
28	1	CRC	046					
29	1	CRC	054					
30	1	CRC	045					
31	1	CRC	052					
32	1	CRC	033					
33	1	CRC	030					
34	1	CRC	050					
35	1	CRC	035					
36	1	CRC	071					
37	1	CRC	048					
38	1	CRC	066					
39	1	CRC	044					
40	1	CRC	041					
41	1	CRC	040					
42	1	CRC	039					
43	1	CRC	036					
44	1	CRC	070					
45	1	CRC	051					
46	1	CRC	042					
47	1	CRC	088					
48	1	CRC	036					
49	1	CRC	077					
50	1	CRC	075					
51	1	CRC	044					
52	1	CRC	042					
53	1	CRC	045					
54	1	CRC	077					
55	1	CRC	037					
56	1	CRC	048					
57	1	CRC	041					
58	1	CRC	074					
59	1	CRC	037					
60	1	CRC	038					
61	1	CRC	039					
62	1	CRC	040					
63	1	CRC	025					
64	1	CRC	042					
65	1	CRC	030					
66	1	CRC	052					
67	1	CRC	030					
68	1	CRC	058					
69	1	CRC	043					
70	1	CRC	060					
71	1	CRC	062					
72	1	CRC	052					
73	1	CRC	041					
74	1	CRC	058					
75	1	CRC	044					
76	1	CRC	041					
77	1	CRC	040					
78	1	CRC	042					
79	1	CRC	060					
80	1	CRC	038					
81	1	CRC	070					
82	1	CRC	057					
83	1	CRC	049					
84	1	CRC	047					
85	1	CRC	059					
86	1	CRC	059					
87	1	CRC	038					
88	1	CRC	058					
89	1	CRC	040					
90	1	CRC	032					
91	1	CRC	037					
92	1	CRC	036					
93	1	CRC	047					
94	1	CRC	041					
95	1	CRC	056					
96	1	CRC	048					
97	1	CRC	050					
98	1	CRC	040					
99	1	CRC	040					
00	1	CRC	045					

SOUTH DAKOTA GAME FISH AND PARKS 3305 WEST SOUTH STREET RAPID CITY, SD 57702

Revised: 2JUL08

Stream Name Cheyenne River

Site Number CHR05

DATE dd-mmm-yy
15APR08

example 02MAY92

Fish ID #	Pass #	Species Code	Total Length (mm)	Weight (grams)	Sca.	Mor.	Sex	Comments
1	1	RIC	097	0013				likely River carpsucker
2	1	GRS	098	0020				Green sunfish
3	1	PLK	058					Plains killifish.
4	1	PLK	065	0069				Combined wt
5	1	PLK	035					
6	1	PLK	057					
7	1	PLK	039					
8	1	PLK	070					
9	1	PLK	042					
10	1	PLK	072					
11	1	PLK	046					
12	1	PLK	036					
13	1	PLK	044					
14	1	PLK	052					
15	1	PLK	065					
16	1	PLK	040					
17	1	PLK	067					
18	1	PLK	068					
19	1	PLK	052					
20	1	PLK	060					
21	1	PLK	060					
22	1	PLK	074					
23	1	PLK	048					
24	1	PLK	041					
25	1	PLK	040					
26	1	PLK	032					
27	1	PLK	064					
28	1	PLK	057					
29	1	PLK	040					
30	1	PLK	043					
31	1	PLK	053					
32	1	PLK	068					
33	1	PLK	037					
34	1	PLK	042					
35	1	PLK	034					
36	1	PLK	046					
37	1	PLK	036					
38	1	PLK	040					
39	1	PLK	049					
40	1	PLK	048					
41	1	PLK	060					
42	1	PLK	041					
43	1	PLK	032					
44	1	PLK	051					
45	1	PLK	038					
46	1	PLK	040					
47	1	PLK	060					
48	1	PLK	045					
49	1	PLK	036					
50	1	PLK	044					
51	1	SRS	174	0072				Shorthead redhorse sucker
52	1	SRS	220	0122				
53	1	SRS	201	0100				
54	1	SRS	197	0094				
55	1	SRS	178	0080				
56	1	SRS	169	0054				
57	1	SRS	110	0007				
58	1	SRS	084	0005				
59	1	SRS	085	0003				
60	1	SRS	195	0098				
61	1	SRS	173	0068				
62	1	SRS	082	0003				
63	1	SRS	083	0003				
64	1	SRS	088	0003				
65	1	PTM	051	<1				Plains Topminnow
66	1	SAS	067					Sand Shiner.
67	1	SAS	038	0053				Combined Wt
68	1	SAS	062					
69	1	SAS	058					
70	1	SAS	059					
71	1	SAS	060					
72	1	SAS	049					
73	1	SAS	047					
74	1	SAS	058					
75	1	SAS	059					
76	1	SAS	044					
77	1	SAS	047					
78	1	SAS	040					
79	1	SAS	055					
80	1	SAS	062					
81	1	SAS	051					
82	1	SAS	063					
83	1	SAS	044					
84	1	SAS	031					
85	1	SAS	045					
86	1	SAS	039					
87	1	SAS	057					
88	1	SAS	057					
89	1	SAS	057					
90	1	SAS	035					
91	1	SAS	034					
92	1	SAS	043					
93	1	SAS	046					
94	1	SAS	057					
95	1	SAS	049					
96	1	SAS	033					
97	1	SAS	050					
98	1	SAS	029					
99	1	SAS	043					
00	1	SAS	045					

SOUTH DAKOTA GAME FISH AND PARKS 3305 WEST SOUTH STREET RAPID CITY, SD 57702

Revised: 2JUL08

Stream Name Cheyenne River

Site Number CHR05

DATE dd-mmm-yy
15APR08

example 02MAY92

Fish ID #	Pass #	Species Code	Total Length (mm)	Weight (grams)	Sca.	Mor.	Sex	Comments	Fish ID #	Pass #	Species Code	Total Length (mm)	Weight (grams)	Sca.	Mor.	Sex	Comments
1	1	SAS	033					Sand Shiner	51	1							
2	1	SAS	032						52	1							
3	1	SAS	032						53	1							
4	1								54	1							
5	1								55	1							
6	1								56	1							
7	1								57	1							
8	1								58	1							
9	1								59	1							
10	1								60	1							
11	1								61	1							
12	1								62	1							
13	1								63	1							
14	1								64	1							
15	1								65	1							
16	1								66	1							
17	1								67	1							
18	1								68	1							
19	1								69	1							
20	1								70	1							
21	1								71	1							
22	1								72	1							
23	1								73	1							
24	1								74	1							
25	1								75	1							
26	1								76	1							
27	1								77	1							
28	1								78	1							
29	1								79	1							
30	1								80	1							
31	1								81	1							
32	1								82	1							
33	1								83	1							
34	1								84	1							
35	1								85	1							
36	1								86	1							
37	1								87	1							
38	1								88	1							
39	1								89	1							
40	1								90	1							
41	1								91	1							
42	1								92	1							
43	1								93	1							
44	1								94	1							
45	1								95	1							
46	1								96	1							
47	1								97	1							
48	1								98	1							
49	1								99	1							
50	1								00	1							

S. D. GAME FISH AND PARKS - STREAM SURVEY FIELD DATA SHEET

Stream Name: Beaver Creek

Site Number:

DATE (d d m m m y y): 1 0 J U L 0 8

Site Description: BVC01 - Beaver Creek downstream

Site Length (meters): 1 0 0 S 0 9 R 0 1 E T 0 7 S

pH: 7.9

Cond. (umhos/cm): 2141

Temp.(C) air: 25.5

Water: 23.4

Dist. below top net (meters)		Stream Widths (meters)					
0	00.		50	00.			
10	00.		60	00.			
20	00.		70	00.			
30	00.		80	00.			
40	00.		90	00.			
			100	00.			

Smith-Roots

Mode:			
Volts:			

Personnel: A. Wones, K. Shook, M. Winland

#1 Data		#2 Scales		#3 Lengths		#4 Weights	
#5		#6		#7		#8	

	Pass #1	Pass #2	Pass #3	Pass #4	Pass #5
Start time: (hhmm)					
End time: (hhmm)					
Smith-Root (seconds)					
Shocker #1					
Smith-Root (seconds)					
Shocker #2					
Smith-Root (seconds)					
Shocker #3					

Barge Shocker:

Range (H/L): Percent: Amps: . Pulse:

Pass	Start time (h h m m)	End time (h h m m)	Duration (seconds)	Anode #1	Anode #2	Anode #3
1						
2						
3						
4						
5						

Stream Name: Beaver Creek

Bulk Weights - (Record #5)

	(m m)			(m m)			Pass#	Species			Total Number			Total Weight		
Size Range:			to	1	7	1	1	C	A	P			1		7	3
Size Range:	4	8	to		6	3	1	P	T	M			6		1	2
Size Range:			to		7	3	1	P	L	M			1			3
Size Range:			to		5	9	1	L	N	D			1			2
Size Range:	4	4	to		5	6	1	S	A	S		1	0		1	0
Size Range:	5	0	to		7	1	1	P	L	K			5			9
Size Range:	4	1	to		6	7	1	F	H	M		3	3		5	2
Size Range:			to													
Size Range:			to													
Size Range:			to													

Digital Photos - Description

Top Blocking Net Looking Upstream 107

Top Blocking Net Looking Downstream 108

Bottom Blocking Net Looking Upstream 103

Bottom Blocking Net Looking Downstream 104

Upstream blocknet UTM: N 579656; E 4811179

Downstream blocknet UTM: E 579641; N 4811209

Video Camera

Tape #:

Begin:

End:

	(d d m m m y y)	Personnel
Photos labeled:		
Photos filed:		

Comments: FHM = fathead minnow, LND = Long-Nosed Dace, SAS = Sand Shiner.
PLK = Plains Killifish, CAP = Carp, PTM = Plains Topminnow.
Mid reach looking upstream = 107, looking downstream 108.

DATA ENTRY - RECORD 2

	(d d m m m y y)	Personnel
Data Entry		
Verification:		

Field Q.C. by: A. Wones

Batch Number:

DATA ENTRY - RECORD 3

	(d d m m m y y)	Personnel
Data Entry		
Verification:		

DATA ENTRY - RECORD 4

	(d d m m m y y)	Personnel
Data Entry		
Verification:		

DATA ENTRY - RECORD 5

	(d d m m m y y)	Personnel
Data Entry		
Verification:		

SOUTH DAKOTA GAME FISH AND PARKS 3305 WEST SOUTH STREET RAPID CITY, SD 57702

Stream Name Beaver Creek
Site Number BVC01

DATE dd-mmm-yy
1 0 J U L 0 8

example 0 2 M A Y 9 2

Fish ID #	Pass #	Species Code	Total Length (mm)	Weight (grams)	Sca.	Mor.	Sex	Comments	Fish ID #	Pass #	Species Code	Total Length (mm)	Weight (grams)	Sca.	Mor.	Sex	Comments
1	1	CAP	171	73				R	51	1	FHM	57					
2	1	PTM	61	12				R,C(#2-7)	52	1	FHM	48					
3	1	PTM	52					R	53	1	FHM	47					
4	1	PTM	48					R	54	1	FHM	44					
5	1	PTM	63					R	55	1	FHM	47					
6	1	PTM	62					V	56	1	FHM	42					
7	1	PTM	50					R	57	1	SAS	44		<1			
8	1	PLM	73	3				V	58	1							
9	1	LND	59	2				V	59	1							
10	1	SAS	62	7				R,(C#10-14)	60	1							
11	1	SAS	53					R	61	1							
12	1	SAS	53					R	62	1							
13	1	SAS	46					R	63	1							
14	1	SAS	56					R	64	1							
15	1	SAS	49	3				V,C(#15-18)	65	1							
16	1	SAS	58					V	66	1							
17	1	SAS	40					V	67	1							
18	1	SAS	43					V	68	1							
19	1	PLK	71	9				R,(C#19-23)	69	1							
20	1	PLK	60					R	70	1							
21	1	PLK	62					R	71	1							
22	1	PLK	57					R	72	1							
23	1	PLK	50					R	73	1							
24	1	FHM	48	5 2				C(#24-56)	74	1							
25	1	FHM	50						75	1							
26	1	FHM	48						76	1							
27	1	FHM	42						77	1							
28	1	FHM	43						78	1							
29	1	FHM	42						79	1							
30	1	FHM	59						80	1							
31	1	FHM	50						81	1							
32	1	FHM	48						82	1							
33	1	FHM	46						83	1							
34	1	FHM	58						84	1							
35	1	FHM	49						85	1							
36	1	FHM	54						86	1							
37	1	FHM	49						87	1							
38	1	FHM	60						88	1							
39	1	FHM	67						89	1							
40	1	FHM	57						90	1							
41	1	FHM	45						91	1							
42	1	FHM	53						92	1							
43	1	FHM	46						93	1							
44	1	FHM	44						94	1							
45	1	FHM	41						95	1							
46	1	FHM	58						96	1							
47	1	FHM	46						97	1							
48	1	FHM	56						98	1							
49	1	FHM	55						99	1							
50	1	FHM	50						00	1							

Comments: R = sample collected for radiological testing, V = voucher specimen, C = combined weight
5 voucher and 5 radiological samples taken from # 24-56

S. D. GAME FISH AND PARKS - STREAM SURVEY FIELD DATA SHEET

Stream Name: Beaver Creek

Site Number:

Site Description: BVC04 - Beaver Creek upstream

DATE (d d m m m y y): 10 JUL 08

Site Length (meters): 100 S R T

pH:

Cond. (umhos/cm):

Temp.(C) air: 35.0

Water: 28.0

Dist. below top net (meters)

0	0		.		5	0	0		.		
1	0	0		.		6	0	0		.	
2	0	0		.		7	0	0		.	
3	0	0		.		8	0	0		.	
4	0	0		.		9	0	0		.	
					1	0	0	0		.	

Stream Widths (meters)

Smith-Roots
Mode:
Volts:

Personnel: A. Wones, K. Shook, M. Winland

#1 Data | #2 Scales | #3 Lengths | #4 Weights

#5 | #6 | #7 | #8

	Pass #1	Pass #2	Pass #3	Pass #4	Pass #5
Start time: (hhmm)					
End time: (hhmm)					
Smith-Root (seconds)					
Shocker #1					
Smith-Root (seconds)					
Shocker #2					
Smith-Root (seconds)					
Shocker #3					

Barge Shocker:

Range (H/L): Percent: Amps: . Pulse:

Pass	Start time (h h m m)	End time (h h m m)	Duration (seconds)	Anode #1	Anode #2	Anode #3
1						
2						
3						
4						
5						

Stream Name: Beaver Creek

Bulk Weights - (Record #5)

	(m m)			(m m)			Pass#	Species			Total Number			Total Weight		
Size Range:			to	1	3	6	1	S	H	R			1	1	3	0
Size Range:			to	2	6	0	1	C	A	P			1	2	3	7
Size Range:	4	8	to		6	8	1	P	L	K			9		1	3
Size Range:	4	3	to		6	1	1	F	H	M		4	7		6	4
Size Range:	6	3	to		6	4	1	L	N	D			2			5
Size Range:	4	5	to		5	8	1	S	A	S		2	6		3	5
Size Range:			to													
Size Range:			to													
Size Range:			to													
Size Range:			to													

Digital Photos - Description

Top Blocking Net Looking Upstream 122

Top Blocking Net Looking Downstream 123

Bottom Blocking Net Looking Upstream 118

Bottom Blocking Net Looking Downstream 119

Upstream blocknet WGS84 UTM: E 5791444; N 4820573

Downstream blocknet WGS84 UTM: E 571373; N 4820623

Video Camera

Tape #:

Begin:

End:

	(d d m m m y y)	Personnel
Photos labeled:		
Photos filed:		

Comments: FHM = fathead minnow, LND = Long-Nosed Dace, SAS = Sand Shiner.
SHR = Shorthead Redhorse Sucker, CAP = Carp, PLK = Plains Killifish.
Photo of the middle of reach looking upstream: 120, looking downstream: 121

DATA ENTRY - RECORD 2

	(d d m m m y y)	Personnel
Data Entry		
Verification:		

Field Q.C. by: A. Wones

Batch Number:

DATA ENTRY - RECORD 3

	(d d m m m y y)	Personnel
Data Entry		
Verification:		

DATA ENTRY - RECORD 4

	(d d m m m y y)	Personnel
Data Entry		
Verification:		

DATA ENTRY - RECORD 5

	(d d m m m y y)	Personnel
Data Entry		
Verification:		

SOUTH DAKOTA GAME FISH AND PARKS 3305 WEST SOUTH STREET RAPID CITY, SD 57702

Stream Name Beaver Creek
Site Number BVC04

DATE dd-mmm-yy
10JUL08

example 02MAY92

Fish ID #	Pass #	Species Code	Total Length (mm)	Weight (grams)	Scar.	Mor.	Sex	Comments	Fish ID #	Pass #	Species Code	Total Length (mm)	Weight (grams)	Scar.	Mor.	Sex	Comments
1	1	SHR	136	130				R	51	1	FHM	45					
2	1	CAP	260	237				R	52	1	FHM	51					
3	1	PLK	56	13				C	53	1	FHM	57					
4	1	PLK	68						54	1	FHM	55					
5	1	PLK	58						55	1	FHM	47					
6	1	PLK	48						56	1	FHM	53					
7	1	PLK	48						57	1	FHM	42					
8	1	PLK	62						58	1	FHM	49					
9	1	PLK	54						59	1	LND	63	3				V
10	1	PLK	52						60	1	LND	64	2				V
11	1	PLK	50						61	1	SAS	45	35				C
12	1	FHM	50	64				c	62	1	SAS	50					
13	1	FHM	49						63	1	SAS	47					
14	1	FHM	47						64	1	SAS	48					
15	1	FHM	55						65	1	SAS	51					
16	1	FHM	47						66	1	SAS	56					
17	1	FHM	55						67	1	SAS	55					
18	1	FHM	57						68	1	SAS	52					
19	1	FHM	49						69	1	SAS	55					
20	1	FHM	43						70	1	SAS	58					
21	1	FHM	60						71	1	SAS	57					
22	1	FHM	50						72	1	SAS	52					
23	1	FHM	55						73	1	SAS	51					
24	1	FHM	46						74	1	SAS	54					
25	1	FHM	51						75	1	SAS	48					
26	1	FHM	50						76	1	SAS	51					
27	1	FHM	51						77	1	SAS	53					
28	1	FHM	51						78	1	SAS	48					
29	1	FHM	50						79	1	SAS	52					
30	1	FHM	47						80	1	SAS	54					
31	1	FHM	44						81	1	SAS	54					
32	1	FHM	54						82	1	SAS	57					
33	1	FHM	50						83	1	SAS	51					
34	1	FHM	46						84	1	SAS	52					
35	1	FHM	45						85	1	SAS	52					
36	1	FHM	49						86	1	SAS	52					
37	1	FHM	55						87	1							
38	1	FHM	49						88	1							
39	1	FHM	47						89	1							
40	1	FHM	49						90	1							
41	1	FHM	52						91	1							
42	1	FHM	49						92	1							
43	1	FHM	55						93	1							
44	1	FHM	53						94	1							
45	1	FHM	49						95	1							
46	1	FHM	50						96	1							
47	1	FHM	61						97	1							
48	1	FHM	45						98	1							
49	1	FHM	46						99	1							
50	1	FHM	49						00	1							

Comments: R = sample collected for radiological testing, V = voucher specimen, C = combined weight
5 voucher and 5 radiological samples taken from # 12-58 (FHM), and from #61-86(SAS)

S. D. GAME FISH AND PARKS - STREAM SURVEY FIELD DATA SHEET
REVISED 2JUL2008

Stream Name: Cheyenne River

Site Number:

DATE (d d m m m y y)

Site Description: Site CHR05 - Cheyenne River at Marietta — 15APR08

Site Length (meters): 100 S 06 R 02E T 39N

pH:
Cond. (umhos/cm):
Temp.(C) air:
Water: 15.0

Dist. below top net (meters)

0	
10	
20	
30	
40	

Stream Widths (meters)

50	
60	
70	
80	
90	
100	

Smith-Roots
Mode:
Volts:

Personnel:

#1		#2		#3		#4	
#5		#6		#7		#8	
Data		Scales		Lengths		Weights	

	Pass #1	Pass #2	Pass #3	Pass #4	Pass #5
Start time: (hhmm)					
End time: (hhmm)					
Smith-Root (seconds)					
Shocker #1					
Smith-Root (seconds)					
Shocker #2					
Smith-Root (seconds)					
Shocker #3					

Barge Shocker:
Range (H/L): Percent: Amps: . Pulse:

Pass	Start time (h h m m)	End time (h h m m)	Duration (seconds)	Anode #1	Anode #2	Anode #3
1						
2						
3						
4						
5						

REVISED 2JUL2008

Stream Name: Cheyenne River

Bulk Weights - (Record #5)

	(mm)			(mm)		Pass#	Species	Total Number	Total Weight
Size Range:	97	to	097				RIC	001	013
Size Range:	98	to	098				GRS	001	020
Size Range:	32	to	074				PLK	048	069
Size Range:	82	to	220				SRS	014	612
Size Range:	51	to	051				PTM	001	<1
Size Range:	31	to	067				SAS	038	053
Size Range:	25	to	088				CRC	100	091
Size Range:		to							
Size Range:		to							
Size Range:		to							

Digital Photos - Description

Top Blocking Net Looking Upstream

Top Blocking Net Looking Downstream

Bottom Blocking Net Looking Upstream

Bottom Blocking Net Looking Downstream

Upstream blocknet at UTM E0587455 N4804678

Downstream blocknet at UTM E0587538 N4804736

Video Camera

Tape #:

Begin:

End:

	(dd mm mm yy)	Personnel
Photos labeled:		
Photos filed:		

Comments: RIC= River Carpsucker; GRS = Green Sunfish; PLK = Plains killifish; SRS = Shorthead Redhorse Sucker; PTM = Plains Topminnow; SAS = Sand Shiner; CRC = Creek Chub.

DATA ENTRY - RECORD 2

	(dd mm mm yy)	Personnel
Data Entry		
Verification:		

Field Q.C. by: A. Wones

Batch Number:

DATA ENTRY - RECORD 3

	(dd mm mm yy)	Personnel
Data Entry		
Verification:		

DATA ENTRY - RECORD 4

	(dd mm mm yy)	Personnel
Data Entry		
Verification:		

DATA ENTRY - RECORD 5

	(dd mm mm yy)	Personnel
Data Entry		
Verification:		

APPENDIX 2.9-A

BASELINE RADIOLOGICAL REPORT

BASELINE RADIOLOGICAL INVESTIGATION REPORT

POWERTECH (USA) INC.
DEWEY-BURDOCK ISR LICENSING SUPPORT
KNIGHT PIESOLD PROJECT NO. DV10200279.01

January 29, 2009

Prepared By:

ERG

Environmental Restoration Group, Inc.
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BASELINE RADIOLOGICAL INVESTIGATION REPORT

POWERTECH (USA) INC.
BASELINE SOIL AND VEGETATION RADIOLOGICAL INVESTIGATION
KNIGHT PIESOLD PROJECT NO. DV10200279.01

Prepared for: **Knight Piesold, Inc.**
Denver, CO

Prepared by: **Environmental Restoration Group, Inc**
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Acronyms and Abbreviations

Acronym	Definition
AMS	Air Monitoring Station
CFR	Code of Federal Regulations
cm	centimeters
cpm	counts per minute
Powertech	Powertech Uranium (Corporation)
ERG	Environmental Restoration Group
EPA	U.S. Environmental Protection Agency
GIS	Geographic Information System
GPS	Global Positioning System
IQR	Interquartile Range
ISR	In Situ Recovery
LLD	Lower Limit of Detection
MDC	Minimum Detectable Concentration
mrem/yr	millirem per year
N	sample number
NaI	Sodium Iodide (detector)
NESHAPS	National Emissions Standards for Hazardous Air Pollutants
pCi/f, g, L, m^2-s	picocuries per filter, gram, liter, per meter square per second
PIC	pressurized ion chamber
QA/QC	Quality Assurance/Quality Control
QAPP	Quality Assurance Project Plan
RER	Relative Error Ratio
RPD	Relative Percent Difference
SOP	Standard Operating Procedure
TLD	Thermoluminescent Detector
µCi/g, kg, ml	microcuries per gram, kilogram, milliliter

Acronyms and Abbreviations (concluded)

Acronym	Definition
U-nat	Natural Uranium
µR/hr	microRoentgens per hour

1.0 INTRODUCTION

This report presents the results of a baseline radiological study conducted for the Dewey-Burdock uranium in situ recovery (ISR) Project site owned by Powertech (USA), Inc. The work was performed by Environmental Restoration Group (ERG) under contract to Knight Piesold and Company (Knight Piesold) in accordance with the Baseline Radiological Sampling Plan, herein referred to as the Sampling Plan (ERG, 2007). The work was performed between August 2007 and August 2008 to obtain a radioactive materials license from the U.S. Nuclear Regulatory Commission (NRC).

1.1 Description of the Project

The approximately 11,000-acre project site is a sparsely populated region of open rangeland north of the city of Edgemont, South Dakota as shown in Figure 1-1. It is located in Fall River and Custer Counties on the southwest flank of the Black Hills uplift. It is part of the northern extension of the Edgemont uranium district discovered in the 1950s. The eastern portion of the site includes historic open pit surface uranium mines that have not been reclaimed. This is area is referred to as the surface mine area in this report.

The general process of uranium in situ recovery will involve the oxidation of uranium from its reduced state within the rollfront using a leaching solution (lixiviant) such as gaseous oxygen, hydrogen peroxide and gaseous carbon dioxide to solubilize the uranium ion causing it to go into solution in the ore bearing aquifer. Once solubilized, the uranium will be pumped to the surface where it is complexed onto ion exchange resins, then eluted and precipitated before drying and packaging. Mining units will include wellfields consisting of injection, recovery and monitoring wells. A central processing plant will be constructed on the site to recover and package the final product.

Figure 1-2 shows the site, including the roll fronts near the towns of Dewey and Burdock, the main permit and surface mine areas, and an anomalous area of elevated radioactivity in the north portion of the main permit area.

1.2 Purpose and Scope

This report provides baseline radiological data for surface soils (0-5 and 0-15 centimeters [cm]), subsurface soils to a depth of 1 meter, vegetation, locally grazed livestock, direct radiation, radon-222 in air; and radon-222 flux rates representative of the Dewey-Burdock property.

Field investigations, sample collection, and other quality-related work performed were conducted in accordance with applicable ERG standard operating procedures (SOPs), listed below:

- SOP .010 Radon Flux Cannister Deployment
- SOP 1.22 Determining the Concentration of Airborne Radioactive Particles
- SOP 1.05 Calibration of Scaler, Ratemeters

- SOP 1.51 Correlation between Gamma-Ray Count Rate and Exposure Rate
- SOP 2.02 General Equipment Decontamination
- SOP 2.07 Function Check of Equipment
- SOP 2.09 Correlation between Gamma-Ray Measurements and Radium-226 in Soil
- SOP 3.02 Sample Control and Documentation
- SOP 5.01 Setup and Operation of Trimble Pro XRS GPS Receiver with Trimble TSCe Datalogger
- SOP 5.02 Download, Correction, and Export of GPS Survey Data
- SOP 5.06 Creating, Uploading, and Navigating to Waypoints
- SOP 7.08 Surface and Shallow Subsurface Soil Sampling
- SOP 7.09 Vegetation Sampling

2.0 SCOPE OF BASELINE FIELD INVESTIGATION

2.1 Overall Scope of Project

The baseline radiological field investigations consisted of the following activities:

- Performing a Global Positioning System (GPS)-based gamma survey at 100 to 500 meter transects spanning the permit area;
- Performing a second GPS-based gamma survey of two, collective land application areas at 100 meter transects;
- Collecting surface soil samples (0-15 cm) at 75 randomly selected and at 5 biased locations;
- Collecting subsurface soil samples at nine randomly selected locations taken at depth intervals of 15-30 cm and 30-100 cm;
- Collecting surface (0-15 cm) and subsurface samples at the same depth intervals at 17 randomly selected locations in the land application areas;
- Monitoring radionuclide concentrations in air at one background and seven additional Air Monitoring Stations (AMS) locations;

- Collecting shallow (0-5 cm) surface soil and vegetation samples at each AMS;
- Monitoring radon concentrations in ambient air;
- Taking radon flux measurements at nine locations coinciding with the subsurface samples;
- Monitoring exposure rates, using a High Pressurized Ion Chamber (PIC) and thermoluminescent detectors (TLDs); and
- Collecting three samples of locally grazed livestock.

Table 2-1 summarizes the scope of the field investigation. All soil, vegetation, and air particulate samples were shipped under chain-of-custody to a National Environmental Accreditation Conference-certified laboratory, Energy Laboratories in Casper, Wyoming.

The units reported in the body, tables, and figures of this document vary. NRC Regulatory Guide 4.14, *Radiological Effluent and Environmental Monitoring at Uranium Mills* has specific requirements for unit reporting in tables. For example, NRC Regulatory Guide 4.14 recommends that radionuclide soil concentrations be reported in units of microcuries per gram (μCi/g). Where applicable, the tables adopt this unit. The main body of the report, however, adopts the unit picocuries per gram (pCi/g) for this parameter, as this unit is used more generally and consistently by the uranium industry and public.

3.0 GPS-BASED GAMMA-RAY (DIRECT RADIATION) SURVEYS

This section documents the results of the baseline direct radiation (gamma-ray) survey of the Dewey-Burdock property conducted in September 2007. An introduction to the survey methods is followed by a discussion of the results.

3.1 GPS Survey Methods

A GPS-based gamma survey was conducted over the main permit and surface mine areas of the Dewey-Burdock Uranium Project from September 13-27, 2007 and completed on July 14, 2008. Unshielded 2"x 2" sodium iodide (NaI) detectors were coupled to a ratemeter/scaler (set in ratemeter mode) and a Trimble Pro XRS GPS Receiver with Trimble TSCe Datalogger. Survey transects were spaced at approximately 500-meter intervals in the main permit area and 100 meters in the surface mine area. The transect spacing was reduced in the surface mine area in anticipation of finding a greater variation in gamma-ray emissions, due to historical mining in the area. The survey speed was maintained between 2 and 5 feet per second with x- and y-coordinates and gamma-ray count rates recorded every second. The detector height was held relatively constant at approximately 18 inches above ground surface. Depending on the terrain, field personnel surveyed using ATVs or by walking with the equipment in backpacks.

A second GPS-based gamma survey was conducted over the land application areas from July 17-19, 2008, using the Ludlum gamma-ray detection system described above with the same response characteristics as used in the initial survey. The scanning speed and detection height were unchanged from the initial survey and the transect spacing was 100 meters.

The function of survey instruments was checked at the beginning and end of each work day using a National Institute of Standards and Technology-traceable cesium-137 source. Calibration Sheets and function check data are provided in Appendix A.

3.2 Observed Gamma-Ray Count Rates

The gamma-ray count rate data were first evaluated as an entire set and then subdivided into the main permit (the entire data set less the surface mine area) and surface mine areas.

The observed gamma-ray count rates are presented as colors representing ranges of counts in Figure 3-1. This figure was developed using ArcView Geographic Information System (GIS), Version 9.3. Table 3-1 presents summary statistics for each data set. The difference between the median and mean count rates is the first indication of skewness in each of the data set. The count rate data are presented as histograms in Figures 3-2a through 3-2f. Neither the entire data set nor the main permit and surface mine area data sets pass the Anderson-Darling Normality Test at a 95 percent level of significance. That is, the data sets are not normally distributed. Additional tests of the data sets indicated that none of them followed a lognormal or exponential distribution. Furthermore, normalizing data transformations were conducted and the transformed data did not follow standard distributions. For these reasons, data analysis and summaries were performed using non-parametric statistical methods, which are less sensitive to extreme observations typical of skewed data distributions.

The median and interquartile range (IQR) are non-parametric measures of central tendency and variability, respectively. The IQR is the difference between the first (Q1) and third (Q3) quartiles, i.e., 25 and 75 percent of the data area less than Q1 and Q3, respectively. Any datum that is outside the range of 1.5 times the IQR lower than Q1 and 1.5 times the IQR higher than Q3 is considered an outlier. Extreme outliers, or extremes, are those exceeding three times the IQR to the left and right from the first and third quartiles respectively (Ott and Longnecker, 2001).

3.2.1 Entire Data Set

The summary statistics of the GPS-based gamma-ray survey are listed in Table 3.-1. The median of the gamma-ray count rates for the overall data set was 12,687 counts per minute (cpm). Field personnel collected 157,075 readings ranging from 5,550 to 460,485 cpm.

3.2.2 Main Permit Area

As shown in Table 3-1, the median gamma-ray count rate for the main permit area data set was 12,664 cpm for 71,148 observations. The IQR was 2,539 cpm. The count rates ranged from 5,883 to 171,243 cpm.

Low outliers in the main permit area data set, count rates below 7,790 cpm, appear to be limited to two clusters. High outliers in the data set, count rates exceeding 17,946 cpm, appear to be limited to an approximately 600-acre located at the north end of the main permit area. The area is identified as an anomalous area on Figure 3-1.

Approximately 0.2 and 3 % of the gamma-ray count rates observed in the main permit area are comprised of low and high outliers, respectively.

The majority of high outliers are located in the north section of the main permit area. The source of these anomalous gamma-ray count rate data has not been characterized. The count rates ranged from to 8,863 to 22,130 cpm and the median was 15,503 cpm.

High outliers also occur in the southeast portion of the main permit area. The elevated count rates occur near an artesian well and associated localized discharge. This area is identified on Figure 3-1.

3.2.2 Surface Mine Area

In the surface mine area, the gamma-ray count rates ranged from 5,550 to 460,485 cpm and the median was 12,717 cpm. The IQR was 3,658. In general, clusters of higher readings are associated with open pits, waste rock, and drainages in the surface mine area. Low and high outliers in this area are gamma-ray count rates below 5,638 cpm and exceeding 20,270 cpm, respectively. Approximately 0.004 and 9 % of the gamma-ray count rates observed in the surface mine area are low and high outliers, respectively.

3.2.3 Discussion

Given the greater variability in the surface mine area data and the assumption that elevated areas of activity are indicative of statistically significant differences in the data sets, the variations in the main permit and surface mine area data sets were compared using Levene's Test for Equal Variance, a non-parametric statistical test. The Levene's Test was also used to compare the variances of the main permit and anomalous north area gamma-ray count rates.

The null hypothesis in this case is that the two variances are equal. The results of the Levene's Test indicate that the null hypothesis can be rejected at the level of 95 percent significance level. That is, there is sufficient evidence for the variances in the main permit and surface mine area gamma-ray count rates being distinct. The variances in the main permit anomalous area are also distinct.

Based on the above information, it is clear that the surface mine area in the eastern quarter of the site exhibits radiological impacts from historic and/or current anthropogenic activities within the area. In addition, gamma-ray count rates in the anomalous north area also are clearly distinct from those in the wider main permit area. The precise sources of the differences are not relevant in the context of this investigation since they are part of the baseline or background radiological characteristics of the site.

3.2.4 Land Application Areas

The summary statistics of the GPS-based gamma-ray survey of the Dewey and Burdock land application areas are listed in Table 3-2. The gamma-ray count rates obtained in the main permit area are listed in the table to facilitate comparison between the land application areas and the larger area in which they occur. The data are shown as ranges of count rates on Figure 3-3.

Gamma-ray count rates in the land application areas are similar to those obtained in the larger main permit area. In the Dewey land application area, the median of the gamma-ray count rates was 12,523 cpm. Field personnel collected 23,480 readings ranging from 6,798 to 20,422 cpm. In the Burdock land application area, the median of the gamma-ray count rates was 12,232 cpm. Field personnel collected 13,647 readings ranging from 8,498 to 24,248 cpm.

4.0 BASELINE RADIOLOGICAL INVESTIGATION SOIL SAMPLING

This section presents the results of the baseline soil sampling conducted in October 2007 and July 2008. Baseline soil sampling in the land application areas is included. Table 2-1 summarizes the Dewey-Burdock baseline soil sampling program.

4.1 Sampling Strategy and Methods

The soil sampling strategy for the Dewey-Burdock site consisted of biased and random sampling at the eight AMS (Figure 4-1), a set of 80 additional locations (Figure 4-2), and 17 locations in the land applications areas (Figure 4-3).

Shallow (0-5 cm) surface soil samples were collected at the eight AMS locations (the seven surrounding and one background locations shown on Figure 4.1). The offsite AMS is located approximately 3 miles west of the site.

Biased samples were collected at 5 of the set of 80 locations, the remainder was placed randomly, using Visual Sampling Plan, Version 5.0. The biased samples were obtained in the surface mine area and selected to bound the upper range of radionuclide concentrations. The five biased samples are not sufficient to characterize radium-226 concentrations in impacted areas.

The additional 80 surface soil samples were collected from 0 to 15 cm below ground surface. Seventy one of these samples were collected using a hand shovel. A hand auger was used to collect samples at 0 to 15, 15 to 30, and 30 to 100 cm at nine of the 80 locations.

The 17 land application soil samples were placed randomly, using Visual Sampling Plan, Version 5.0. With one exception, the samples were collected from 0 to 15, 15 to 30, and 30 to 100 cm below ground surface, using a hand auger. The exception occurred due to refusal encountered in one borehole.

All samples were analyzed for radium-226. Ten of the set of 80 samples were also analyzed for natural uranium, lead-210, and thorium-230. Thirteen duplicates were collected in the set of 80 samples: 11 with the surface set and two with the subsurface set. All duplicate samples in this set were analyzed for radium-226 while two were also analyzed for natural uranium, thorium-230, and lead-210.
All of the samples collected from the land application area were analyzed for radium-226, natural uranium, thorium-230 and lead-210. Duplicate samples were collected at one location for the three depth intervals and analyzed for the same radionuclides.

The analytes and corresponding analytical methods were:

- Radium-226 via gamma spectroscopy or radon emanation: U.S. Environmental Protection Agency (EPA) Methods 901.1 and 903.1, respectively. *Prescribed Procedures for Measurement of Radioactivity in Drinking Water* (EPA/600/4-80-032), August, 1980. The majority of radium-226 analyses were performed using EPA Method 901.1.

- Thorium-230: EPA 907.0 *Prescribed Procedures for Measurement of Radioactivity in Drinking Water* (EPA/600/4-80-032), August, 1980.

- Natural Uranium: EPA 6020 ICP-MS, *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (SW-846)*, June, 2007

- Lead-210: EPA 909.0M *Prescribed Procedures for Measurement of Radioactivity in Drinking Water* (EPA/600/4-80-032), August, 1980.

4.2 Analytical Results for Soil Samples

Table 4-1 presents the radionuclide concentrations in soil samples collected as part of the baseline radiological investigation. The radium-226 results described in this section are those determined using only EPA Method 901.1.

Samples are identified as follows, with duplicates labeled as "dup":

- AMS: air monitoring station

- SMA: surface mine area

- MPA: main permit area

- NEA: northeast area

- RFA: roll front area

- LAN: land application area north (Dewey)

- LAS: land application south (Burdock)

The laboratory analytical data reports are provided in Appendix B.

4.3 Analysis of Concentration of Radium in Soil

The purpose of the following analysis is to determine the baseline distributions of radium-226 concentrations in site soils.

4.3.1 Surface Soil Concentrations in Overall Data Set

In the set of 80 surface samples, the mean and median radium-226 concentrations are 2.9 and 1.3 pCi/g, respectively. Q1 and Q3 are 1.1 and 1.7 pCi/g, respectively (Table 4-1). The IQR is 0.6. The mode is 1.1 pCi/g (12 observations). One result (0.45 pCi/g, Sample Location SMA-18) was a low outlier. Thirteen values exceeded 2.3 pCi/g, the cutoff for high outliers.

The soil data were fitted to normal and lognormal distributions. The p-values for both distributions are less than 0.005, indicating that at a 95% confidence level ($p = 0.05$), the distributions are non-normal and non-lognormal.

Considering that the data do not fit normal or lognormal distributions, and clear differences in the gamma-ray count rates obtained in the surface mine and main permit areas are indicative of differences in the levels of gamma-emitting radionuclides therein, the set of surface soil data was divided into surface mine and main permit area subsets, as discussed in the following sections.

4.3.2 Surface Soil Concentrations in Surface Mine Area

Twenty-five surface soil samples were collected in the surface mine area. The mean and median radium-226 concentrations in the surface mine area are 5.9 and 1.4 pCi/g respectively. Q1 and Q3 are 1.0 and 2.75 pCi/g, respectively. The IQR is 1.75. The mode is 1.0 pCi/g (3 observations).

The data were compiled into a histogram and fitted to a normal distribution and a lognormal distribution. When tests for goodness of fit were applied to the distributions, the associated p-values were both less than 0.005 for the normal and lognormal distributions. These low p-values denote the hypotheses that the data came from a normal distribution or a lognormal distribution are rejected at a 95% confidence level.

There are five values exceeding 5.9 pCi/g, the cutoff for outliers. The outliers are the radium-226 concentrations in the five biased samples, all collected in the surface mine area. All of the other samples (75 of 80) were placed randomly in undisturbed areas. The five biased samples are not sufficient to characterize radium-226 concentrations in impacted areas.

With the outliers omitted from the surface mine area data set, the process of fitting its histogram was repeated. The resulting p-values were 0.006 (for normal distribution) and 0.418 (lognormal distribution). The p-value for the data being a lognormal distribution is greater than 0.05, thus the distribution is accepted as lognormal, with statistical significance.

The central tendency and variability of a lognormal distribution are best represented by the geometric mean and geometric standard deviation, each of which is 1.3 pCi/g radium-226 in the case of the surface mine area data set. The data lie within a population range of $1.3/1.3^2$ to $1.3*1.3^2$, or 0.76 to 2.2 pCi/g.

4.3.3 Surface Soil Concentrations in Main Permit Area

Fifty-five surface soil samples were collected in the main permit area. The data were compiled into a histogram and fitted to normal and lognormal distributions. When tests for goodness of fit were applied to the distributions, the associated p-values were both less than 0.005. These low p-values denote the hypotheses that the data came from a normal or lognormal distribution are both rejected at a 95% confidence level.

The mean and median radium-226 concentrations in the main permit area are 1.5 and 1.3 pCi/g respectively. Q1 and Q3 are 1.1 and 1.7 pCi/g, respectively. The IQR is 0.6 pCi/g. There are three values exceeding 2.6 pCi/g, the cutoff for outliers in the main permit area data set. With the outliers omitted from the main permit area data set, the process of fitting its histogram was repeated. The results of fitting the histogram without the possible outliers were p-values of less than 0.005 (normal distribution) and 0.068 (lognormal distribution). The p-value for the data being a lognormal distribution is greater than 0.05, thus the distribution is accepted as lognormal, with statistical significance.

The geometric mean and geometric standard deviation of the set of main permit area radium-226 concentrations are each 1.3 pCi/g. The data lie within a population range of $1.3/1.3^2$ to $1.3*1.3^2$, or 0.76 to 2.2 pCi/g.

4.3.3.1 North Section of Main Permit Area

It was stated above that elevated gamma-ray count rates were observed in an approximately 600-acre area located at the north end of the main permit area. Considering that the elevated levels are likely due to relatively higher increased levels of one or more gamma-emitting radionuclides, radium-226 concentrations in soil samples collected from this area were evaluated.

Eight surface soil samples were collected in this area (MPA-R01, NEA-R02, NEA-R03, NEA-R04, NEA-R05, RFA-03, RFA-06, and RFA-17). One of these samples was considered an outlier of the main permit area data set (NEA-R05).

There are too few soil samples collected in this area to characterize it statistically. However, the gamma-ray count rates therein differ from the main permit area, with statistical significance.

4.3.4 Surface Soil Concentrations in Land Application Area Soils

Radium-226 concentrations in surface soils in the land application areas are summarized as follows:

- In both areas, radium-226 concentrations ranged from 0.7 to 4.4 pCi/g, with a median of 0.9 and average of 1.1 pCi/g.
- The median radium-226 concentration in the Dewey land application area was 1.0 pCi/g.
- The median radium-226 concentration in the Burdock land application area was 0.8 pCi/g.

4.3.5 Discussion

Although the distributions of the main permit and surface mine area radium-226 concentration data sets are similar, the gamma-ray count rate distributions in these two areas differ, with statistical significance. The gamma-ray count rates observed in the anomalous portion of the main permit area also differ from the main permit area.

4.4 Subsurface Soil Sampling Results

Table 4-1 lists the subset of subsurface biased samples that were collected at depth in the Dewey and Burdock roll front areas: RFA-B01, RFA-B02 RFA-B13 RFA-B15, RFA-B17, RFA-B21, RFA-B30, RFA-B36, and RFA-B37. Subsurface radium-226 concentrations in these samples, ranging from 0.7 to 5.6 pCi/g, are comparable to those observed in the associated 0 to 15 cm surface samples in the samples. There is no apparent trend with depth.

Subsurface radium-226 concentrations in the land application areas can be summarized as follows:

- Radium-226 concentrations range from 0.4 to 4.1 pCi/g, with a median of 0.9 pCi/g.
- Radium-226 concentrations in the Dewey land application area have a median of 1.2 pCi/g.
- Radium-226 concentrations in the Burdock land application area have a median of 0.8 pCi/g.

The subsurface results in both land application areas are comparable to those observed in the 0 to 15 cm surface samples in the samples. There is no apparent trend with depth.

4.5 Other Radiological Parameters

Table 4-1 summarizes the analytical results for all samples analyzed for the extended suite of radiological parameters (all locations and depths combined). Table 4-2 summarizes the concentrations of all radionuclides by depth interval. Arithmetic and geometric means and standard deviations can be used to compare normal and lognormal distributions, respectively. Medians can be used to compare non-parametric distributions. A positive relationship between

radium-226 concentrations and concentrations of natural uranium, thorium-230, and lead-210 is apparent at all depths. At 0 to 15, 15 to 30, and 30 to 100 cm:

- Radium-226 concentrations are 1.0 (median), 1.0 (median) and 1.1 (geometric mean) pCi/g.
- Thorium-230 concentrations are 0.6 (mean), 0.5 (median) and 0.7 (mean) pCi/g.
- Natural uranium concentrations are 1.0 (mean), 1.0 (median) and 1.2 (geometric mean) pCi/g.
- Lead-210 concentrations are 1.2 (mean), 1.1 (median) and 0.9 (mean) pCi/g.

The concentrations of uranium, lead-210, and thorium-230 are consistently lower in the Burdock than in the Dewey Land Application Area, indicating that the lower radium-226 concentration in Burdock is not a laboratory artifact.

4.6 Soil Data Quality

4.6.1 Analysis of Duplicate Samples

This section briefly summarizes the results of the quality control (QC) samples collected for the baseline soil sampling program. The results of this QC effort are documented in Table 4-3, which lists the analytical results for each duplicate pair along with corresponding errors and lower limits of detection (LLDs). Table 4-3 documents associated comparisons, presenting the corresponding RPD (in the case of natural uranium) and/or Replicate Error Ratio (RER) for each QC pair. The calculation of RPDs and RERs is a standard technique used to evaluate laboratory precision.

The RPD is calculated as follows:

$$RPD = \frac{|A - B|}{\frac{A + B}{2}}$$

Where A and B are the sample and duplicate results, respectively.

The RER is calculated as follows:

$$RER = \frac{|S - R|}{\sqrt{(Sx0.15)^2 + (E_s)^2} + \sqrt{(Rx0.15)^2 + (E_R)^2}}$$

Where S and are the sample and duplicate concentrations, respectively. E_S and E_R are the sample (E_S) and duplicate errors (E_R). The factor of 0.15 accounts for any inherent systematic error which cannot be quantified.

The acceptance criteria are an RPD and RER of less than 40 and 1 percent for data above the minimal detectable concentration (MDC), respectively, as established in a Quality Assurance Project Plan (QAPP) (ERG 2006).

This data set shows four cases where the RER for lead-210 was greater than 1 and five cases where the RPD exceeded 40. There are three cases where the RER for radium-226 is exceeded.

The consequences of the few results exceeding the acceptance criteria are minimal since in each case the concentrations are low. In addition, lead-210 largely has no impact when addressing the impact of the baseline radiological characteristics of the site and potential impacts from site operations.

There is close agreement for all other analytical results reported for each duplicate pair collected for all parameters. Overall, duplicate results are generally comparable for the majority of QC samples collected. Considering the low level of radioactivity observed in most of the QC pairs, the laboratory performance on blind duplicates is satisfactory.

4.6.2 Limits of Detection

A summary of the results with respect to reporting limits and minimum detectable concentrations (MDCs) is as follows:

- The radium-226, lead-210, and thorium-230 LLDs (reported as MDCs or reporting limits) in the NEA, MPA, RFA, and SMA soil samples were all $1*10^{-7}$ µCi/g.
- The natural uranium LLDs in the NEA, MPA, RFA, and SMA samples ranged from $1.7*10^{-8}$ to $2.0*10^{-8}$ µCi/g.
- None of the results NEA, MPA, RFA, and SMA samples were below their respective LLDs.
- The lead-210 LLDs for the LAN and LAS samples ranged from $1.9*10^{-6}$ to $3.8*10^{-6}$ µCi/g. In all but one case, the lead-210 results were lower than their respective LLDs.
- The radium-226 LLDs for the LAN and LAS samples ranged from $4.0*10^{-8}$ to $1.0*10^{-7}$ µCi/g. All of the LAN and LAS results exceeded their respective LLDs.
- The thorium-230 LLD for the LAN and LAS samples was $1.0*10^{-7}$ µCi/g. Results for 17 of the 53 (surface and subsurface) samples were reported below $1.0*10^{-7}$ µCi/g.
- The natural uranium LLD for the LAN and LAS samples was $7.0*10^{-9}$ µCi/g. All of the results exceeded the LLD.

The LLD recommended in RG 4.14 for natural uranium, thorium-230, radium-226, and lead-210 in soils is $2*10^{-7}$ µCi/g. The only case for which the guidance values were not attained was the LLD for lead-210 in the LAN and LAS samples.

5.0 RADIUM-226 ESTIMATES BASED ON GAMMA-SOIL CORRELATION

To estimate site-wide radium-226 concentrations at each of the GPS-based gamma survey points, a gamma-soil radium correlation was established by performing a regression between the surface soil analytical results documented in Section 4 for the 80 surface (0 to 15 cm) soil samples and one-minute integrated direct radiation measurements collected at each of these locations prior to sample collection. The measurements were collected with the same Ludlum 44-10/2221 2-in by 2-in sodium iodide gamma detection systems used in the GPS-based gamma survey. The measurements are listed in Table 4-1.

Two linear correlation iterations were performed to derive the site-wide gamma-soil radium correlation used as the basis for the soil radium-226 values plotted in Figures 5-1 and 5-2. The first attempt included all 80 data points, followed by the use of a truncated data set that excluded outlying data.

Figure 5-1 displays a plot of concentrations of radium in soil over 1-minute counts of gamma radiation (all 80 points). Overlaid on the plot are a linear fit and its 95% predicted interval. The linear fit of the data resulted in an R^2 of 0.75, denoting that 75% of the variability of the data is accounted for by the linear fit. The equation of the linear fit is:

$$[Radium\text{-}226] = -0.87+0.0002 \times Gamma\ Count\ Rate$$

Where [Radium-226] is the predicted concentration based on the gamma-ray count rate in cpm.

While the R^2 determines that the linear fit is a fair model for all the data, it appears that outliers and large values of radium-226 are increasing the slope of the line, resulting in an over prediction of radium-226 concentrations. The regression analysis was repeated after removing the five outlying radium-226 results from the surface mine area data set. The data without the five outliers are shown in Figure 5-2 and the equation of the linear fit is:

$$[Radium\text{-}226] = -1.04+0.000187 \times Gamma\ Count\ Rate$$

This model has an R^2 of 0.43, denoting a poor fit, the model accounting for 43 percent of the variance in the data set.

The two equations predict slightly different radium-226 concentrations. Using an arbitrary gamma count rate of 10,000 cpm in both equations yields predicted radium-226 concentrations of 1.1 pCi/g in the first case and 0.83 pCi/g with the five outliers removed.

Using the latter equation, soil radium-226 concentrations were estimated for each discrete gamma survey measurement. These data were then interpolated as reflected in Figure 5-3, using

a grid block averaging method. The smallest sized grid block that fits within the survey transects without missing data coverage is 700x700 ft. Table 5-1 lists summary data for the predicted radium-226 concentrations in each of the major areas.

Of the 1,015 grid blocks covering the entire permit area, the majority (approximately 78 percent) of the interpolated surface radium-226 concentrations is less than 1.5 pCi/g. In the overall data set, the median predicted radium-226 concentration is 1.1 pCi/g and the range is 0.0 to 24.9 pCi/g. In the main permit area (excluding the anomalous area), the median predicted radium-226 concentration is 0.0 pCi/g and the range is 0.0 to 9.0 pCi/g. In the surface mine area, the median predicted radium-226 concentration is 1.5 pCi/g and the range is 0.0 to 24.9 pCi/g. In the anomalous portion of the main permit area, the median predicted radium-226 concentration is 1.4 pCi/g and the range is 0.0 to 2.3 pCi/g.

It is important to acknowledge that discrepancies between measured soil radium-226 concentrations reported by the laboratory and corresponding radium-226 concentrations estimated by gamma surveys are inevitable in a characterization survey of this nature and magnitude, given the heterogeneity of the site (at least in some areas) and differing detector-source geometry at various sample/survey locations.

At the same time, Figure 5-3 shows that without a gamma survey, reliance on a random soil sampling program alone would not have identified elevated areas of radioactivity at the site.

6.0 RADON FLUX MEASUREMENTS

This section documents the results of pre-operational radon-222 (radon) flux measurements and ambient air monitoring.

6.1 Radon Flux Measurements

The Sampling Plan specified that three rounds of radon flux measurements would be taken to characterize pre-operational conditions in accordance with NRC Regulatory Guide 4.14. The following documents the results of the three rounds of measurements taken in September 2007; and April and July 2008.

Radon flux rates were measured at nine locations on three occasions in the Dewey and Burdock roll front areas. The locations are shown on Figure 4-1. The locations coincide with the nine soil samples collected from 0 to 100 cm below ground surface (not in land application areas).

The first round of flux canisters was deployed on September 26, retrieved on September 27, and analyzed on September 28, 2007. The second round of flux canisters was deployed on April 20, retrieved on April 21, and analyzed on April 22, 2008. The third round of flux canisters was deployed on July 14, retrieved on July 15, and analyzed on July 16, 2008. The canisters were analyzed using EPA Test Method 115, *Monitoring for Radon-222 Emissions* (40 *Code of Federal Regulations* [CFR] 61, Appendix B) . Results are documented in the Table 6-1. Sampling for the three periods yielded average flux rates of 1.22, 0.74, and 1.5 picocuries per

meter squared second (pCi/m^2-s), respectively. Flux rates ranged between 0.68 and 1.77 pCi/m^2-s in Fall 2007, 0.28 and 1.33 pCi/m^2-s in Spring 2008 and 0.48 and 2.38 pCi/m^2-s in Summer 2008.

These values are one to two orders of magnitude below the National Emissions Standards for Hazardous Air Pollutants (NESHAPS) requirements of 20 pCi/m^2-s specified in 10 CFR 40, Appendix A, Criterion 6. Although the latter requirement applies to tailings and thus is not directly germane to this characterization, it is useful as a context to demonstrate the relatively low magnitude of baseline radon flux rates measured at the site.

Completed radon flux measurement forms are provided in Appendix C.

7.0 VEGETATION CHARACTERIZATION

This section documents the results of the first round of vegetation sampling conducted for the baseline radiological characterization.

7.1 Sampling Methods and Analytes

One vegetation sample was collected at each AMS in August, 2007; and April and July, 2008. The samples were collected using grass clippers and placed in large plastic lawn bags, labeled appropriately, and stored in a laboratory supplied cooler until transferred to the laboratory. The analytes and corresponding analytical methods were the same as those used for soil. Polonium-210, determined using a laboratory-specific digestion and alpha spectrometry method, was added to the analytical suite (Energy Laboratories, 2008).

7.2 Results

Table 7-1 presents the results of the vegetation sampling. There appear to be no temporal or spatial trends in the data. The following list is a summary of the averages for the set of samples:

- Radium-226 concentrations ranged from 0.02 to 0.09 pCi/g, averaging 0.05 pCi/g.
- Natural uranium concentrations ranged from 0.01 to 0.04 pCi/g, averaging 0.02 pCi/g.
- Thorium-230 concentrations ranged from 0.01 to 0.03 pCi/g, averaging 0.02 pCi/g.
- Lead-210 concentrations ranged from 0.6 to 1.7 pCi/g, averaging 1.2 pCi/g.
- Polonium-210 concentrations ranged from 0.08 to 0.23 pCi/g, averaging 0.15 pCi/g.

Analytical errors associated with the reported concentrations results are high, relative to the reported means.

With the exception of lead-210, radionuclide concentrations in the vegetation samples are one to orders of magnitude lower than those in the corresponding shallow (0 to 5 cm) soil samples. There are no apparent spatial or temporal patterns in the vegetation.

8.0 AIR MONITORING

This section documents the results of baseline radiological air monitoring, which was comprised of two tasks: high volume particulate and radon sampling.

Eight Hi-Q Model HVP-4200AFC high volume air samplers were established within and surrounding the proposed permit area. The samplers operated continuously from August 13, 2007 to August 13, 2008. The locations of the air samplers are shown on Figure 4-1.

Passive track etch detectors were placed at each of the eight AMS locations and an additional eight biased locations to measure radon-222 concentrations in air. For QC purposes, one duplicate detector was placed at each of two locations during each sampling event. The locations of the passive radon detectors are also shown on Figure 4-1.

8.1 Sampling Methods and Analytes

8.1.1 High Volume Air Sampling

Airborne particulates were collected using the Hi-Q high volume air samplers. The samplers operated nearly continuously from August 2007 to August 2008. The locations of the air samplers are shown on Figure 4-1.

Each high volume air sampler was equipped with an 8-in. by 10-in. 0.8 micron glass fiber filter paper. The air filters were collected approximately bi-weekly, prior to saturation, from each of the eight air samplers. Flow rate and total flow data were recorded at the same time. Over the course of 351 days, the filters were collected as follows:

- Period 1: August 13 to October 2, 2007
- Period 2: October 2, 2007 to January 4, 2008
- Period 3: January 4 to April 1, 2008.
- Period 4: April 1 to July 9, 2008
- Period 5: July 9 to August 13, 2008

The filters were composited and digested by the external analytical laboratory. The samples were analyzed for radium-226, thorium-230, natural uranium, and lead-210, using the same methods as listed for the soil samples.

The laboratory data were reported in units of picocuries per filter composite (pCi/f). The data were converted to units of micocuries per milliliter (μCi/ml), as follows:

$$Concentration, \mu Ci/ml = \frac{Filter\ Concentration}{Total\ Flow}(1*10^{-12})$$

The units of total flow and filter concentration in the equation are cubic meters and pCi/f, respectively. The resulting concentrations for each radionuclide and high volume sampler were compared to effluent concentration limits listed in Table 2 of 10 CFR 20 Appendix B and reported in Table 8-1 as percentages of the respective effluent limits. The most conservative effluent limits were applied to thorium-230 ($3*10^{-12}$ μCi/ml) and lead-210 ($6*10^{-13}$ μCi/ml). The Class D and W limits were applied to natural uranium ($3*10^{-12}$ μCi/ml) and radium-226 ($9*10^{-13}$ μCi/ml), respectively.

8.1.2 Ambient Radon

Radtrak passive radon-222 (track etch) detectors were used to determine ambient radon concentrations in air.

The detector measures average radon concentrations in air over the measurement period. The results are reported in picocuries per liter (pCi/L).

With an overlap in time across the group of detectors, but not on an individual location basis, the four quarterly measurement periods were: August 14 to September 27, 2007; September 27, 2007 to February 1 through 12, 2008; February 1 through 12, 2008 to May 17, 2008; and May 17 to July 17, 2008.

8.2 Results

8.2.1 High Volume Air Sampling

In general and relative to one another (e.g., natural uranium to radium-226), the average concentrations of radionuclides were consistent at each location from period to period. The radionuclide with the lowest average concentration was radium-226, followed by thorium-230, natural uranium, and lead-210. Average radium-226 concentrations were five orders of magnitude lower than lead-210 concentrations. The data are listed in Table 8-1, where they are also summarized as averages and ranges.

Site-wide, the data can be summarized as follows:

- Natural uranium concentrations ranged from $-3.0*10^{-17}$ to $9.1*10^{-15}$ μCi/ml and averaged $7.5*10^{-16}$ μCi/ml.
- Thorium-230 concentrations ranged from $-9.5*10^{-19}$ to $5.6*10^{-17}$ μCi/ml and averaged $1.2*10^{-17}$ μCi/ml.

- Radium-226 concentrations ranged from $-4.9*10^{-17}$ to $4.7*10^{-17}$ µCi/ml and averaged $8.9*10^{-19}$ µCi/ml.

- Lead-210 concentrations ranged from $-1.1*10^{-16}$ to $4.1*10^{-14}$ µCi/ml and averaged $1.4*10^{-14}$ µCi/ml.

There are no clear patterns in the radionuclide concentrations, when evaluating them spatially or temporally. Natural uranium concentrations at each location were on the order of 10^{-16} µCi/ml over the course of monitoring. Thorium-230 concentrations fluctuated between the orders of 10^{-17} and 10^{-18} µCi/ml. Radium-226 concentrations fluctuated between the orders of 10^{-17} and 10^{-19} µCi/ml. Finally, lead-210 concentrations at each location were all on the order of 10^{-14} µCi/ml over the course of monitoring.

With the exception of natural uranium, the values determined above are similar to U.S. background concentrations reported in the United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR) Report to the General Assembly, Sources and Effects of Ionizing Radiation, Annex B. The regional concentrations reported in this reference document are: uranium-238 ($2.4*10^{-17}$ to $1.4*10^{-16}$ µCi/ml), thorium-230 ($1.6*10^{-17}$ µCi/ml), radium-226 ($1.6*10^{-17}$ µCi/ml), and lead-210 ($2.7*10^{-15}$ to $2.7*10^{-14}$ µCi/ml).

In terms of comparison to 10 CFR 20 Appendix B effluent concentrations, the data can be summarized as follows:

- Natural uranium concentrations were 0.0 to 0.3 percent of its effluent concentration.

- Thorium-230 concentrations were 0.0 percent of its effluent concentration.

- Radium-226 concentrations were -0.01 to 0.01 percent of its effluent concentration.

- Lead-210 concentrations were -0.02 to 6.78 percent of its effluent concentration.

The LLDs, in pCi/f, reported by the laboratory for each radionuclide were converted to µCi/ml by multiplying pCi/f by $1*10^{-12}$. In no cases were the LLDs higher that their respective 10 CFR 20 effluent concentration limits. The LLDs reported in Period 2 by the laboratory for uranium exceeded the recommendation in NRC Regulatory Guide 4.14.

The LLDs for each of the radionuclides are listed in Table 8-1.

8.2.2 Ambient Radon

The ambient radon monitoring results are listed in Table 8-2. Quarter 1 ambient radon concentrations ranged from 1.0 to 9.8, averaging 2.4 pCi/L. Quarter 2 concentrations ranged from 0.4 to 1.8, averaging 1.2 pCi/L. Quarter 3 concentrations ranged from 0.4 to 3.3, averaging 1.8 pCi/L. Quarter 4 concentrations ranged from 0.5 to 0.8, averaging 0.5 pCi/L. Site-wide, annual radon concentrations ranged from to 0.6 to 3.9, and averaged 1.7 pCi/L.

Figure 8-1 presents the ambient radon concentrations in relation to the radium-226 concentrations predicted from the gamma-ray count rate data. One expects higher radon concentrations in the historically mined areas. However, there is only one case where this is true: the Quarter 1 observation at Rn-02, located adjacent to the edge of an open pit mine, is 9.8 pCi/l. There appear to be no spatial trends in the current data set, other than the levels are within the same order of magnitude across the site.

Duplicates were collected at AMS-01 and AMS-BKG in each of the monitoring periods. The QC summary for the radon monitoring is as follows:

- AMS-01: In Quarters 1 and 4, the RPD was 0. In Quarters 2 and 3, the RPD was 55.5.
- AMS-BKG: The RPDs were 30 (Quarter 1), 6.5 (Quarter 2), 12.5 (Quarter 3), and 0.7 (Quarter 4).

In terms of effluent concentrations, the measured values exceed the 10 CFR 20 limit of 0.1 pCi/L for radon-222 with daughters present. However, on average the measured values are within the range of reported worldwide ambient background radon concentrations, 0.027 to 2.7 pCi/L (United Nations Scientific Committee on the Effects of Atomic Radiation [UNSCEAR], 2000).

9.0 AMBIENT EXPOSURE RATES

9.1 Cross-Calibration of Sodium Iodide Detectors and High-Pressure Ion Chamber

Both the sodium iodide detector and PIC measure gamma radiation. The sodium iodide detection system measures the rate that the gamma rays interact with the detector in cpm, has a lower sensitivity than the PIC and is energy dependent. The PIC is a highly accurate ionization chamber for measuring exposure rate in micoRoentgens per hour (μR/h) but requires a longer count time. The PIC was used because it measures exposure rates directly and is considered a primary standard by NIST, when calibrated. The PIC measures gamma, X-rays, and cosmic radiation without discrimination. It is highly stable, relatively energy independent, and serves as an excellent tool to calibrate other survey equipment to measure exposure rates. Because of its portability and shorter measurement times, the sodium iodide detector is more efficient than the PIC for use in large area surveys. By performing the large area gamma surveys with sodium iodide detectors, then developing a correlation between the two instruments, exposure rates derived from the sodium iodide measurements can represent site wide gamma emissions from surface soils.

Powertech collected 12 co-located static gamma counts and exposure rate measurements to develop the correlation between gamma counts and exposure rates. The locations were biased towards areas where gamma shine was not relatively high; that is, where gamma count rates remained relatively constant at 18 in, 1 m, and 2 m above ground surface. In addition, locations were chosen to encompass most of the range of sodium iodide detector readings observed in the GPS-based gamma surveys. The sodium iodide measurements were taken using one of the 2-inch

by 2-inch sodium iodide detectors that was used in the baseline gamma survey. A 1-minute integrated count was taken at each of the 12 locations with the detector suspended at 18 in. above the ground surface. Exposure rate measurements were then collected at a 1-m height at each location, directly above the location where the sodium iodide detector was held. Exposure rates were determined after 20-minute integrated counts. The PIC and gross gamma measurements were performed on July 14 to 16, 2008 at the locations shown on Figure 9-1.

The linear equation representing the correlation between exposure rates and gamma-ray count rates, determined using the PIC and average of the two sodium iodide detectors is:

$$Exposure\ Rate = 0.0007 \times Gamma\ Count\ Rate + 2.02$$

where the exposure rate is in gross microRoentgens per hour (μR/hr) and the gamma count rate is in gross cpm.

The linear regression model for the average is a good fit, with an R^2 of 0.96. Nearly all of the data align along the slope of the line, as shown in Figure 9-2. The correlations are similar for the individual sodium iodide detectors and not discussed further.

The linear regression model predicts an average exposure rate of 10.9 μR/hr for the site. The range of predicted exposure rates is 5.9 to 324 μR/hr, based on the observed gamma-ray count rates at the site. The predicted site-wide exposure rates are shown as ranges of colors in 700 by 700 ft grid block averages on Figure 9-3.

9.2 Ambient Exposure Rates Determined using Thermoluminescent Detectors

Ambient exposure rates were determined for three periods, using TLDs supplied and analyzed by Landauer, Inc. The monitoring periods were: August 18, 2007 to February 4, 2008, February 4 to May 17, 2008, and May 17 to July 17, 2008.

The TLDs were deployed at each of the eight AMS locations. Duplicates were deployed at AMS-01 and the background location (AMS-BKG).

Five of the nine TLDs deployed in the August 2007 to February 2008 period were lost, presumably by way of cattle consumption and/or disturbance.

The ambient gamma dose rate monitoring results are listed in Table 9-1. The results for the TLDs reported in millirem per year (mrem/yr) ambient dose equivalents are as follows:

- AMS-01: 94.9 for 303 monitored days, projected to 114 mrem/yr
- AMS-02: 54.0 for 61 monitored days, projected to 323 mrem/yr
- AMS-03: 38.6 for 103 monitored days, projected to 137 mrem/yr
- AMS-04: 152.8 for 303 monitored days, projected to 184 mrem/yr

- AMS-05: 123.7 for 303 monitored days, projected to 149 mrem/yr
- AMS-06: 88.0, for 164 monitored days projected to 196 mrem/yr
- AMS-07: 145.3 for 303 monitored days, projected to 175 mrem/yr
- AMS-BKG: 167.8 for 303 monitored days, projected to 202 mrem/yr

Excluding the result at AMS-02, the range of exposure rates (114 to 202 mrem/yr) and average (165 mrem/yr) is similar to average worldwide exposures to natural radiation sources comprised of comic radiation, cosmogenic radionuclides, and external terrestrial radiation reported in the United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR) Report to the General Assembly, Sources and Effects of Ionizing Radiation, Annex. The typical ranges of average worldwide exposures reported in this reference document are to 60 to160 mrem/yr.

10.0 FOOD SAMPLING

To determine baseline radionuclide concentrations in local food, Powertech collected three tissue samples (one of liver [DBAT-03], two of meat [DBAT-01, DBAT-02]) from a locally grazing cow on June 25, 2008. The samples were analyzed for natural uranium, radium-226, lead-210, and polonium-210. The results are listed in Table 10-1.

For the majority of analytes, the reported concentrations are at or below LLDs that, in turn, exceed the LLDs recommended in RG 4.14. This is evident for all reported concentrations of natural uranium, radium-226 and polonium-210 in Sample DBAT-01, and lead-210 in all three samples. There are only three cases where radionuclide concentrations exceed LLDs. Radium-226 concentrations are 0.003 and 0.06 pCi/g in Samples DBAT-01 and DBAT-02. The concentration of polonium-210 in Sample DBAT-03 is 0.02 pCi/g.

11.0 SUMMARY AND CONCLUSIONS

The results of the Dewey-Burdock baseline field investigation documented herein indicate the following:

- Baseline gamma-ray count rates have been obtained across the permit area. Twenty-five percent of the count rates were lower than 11,395 cpm. Seventy-five percent of the count rates were below 14,437 cpm. Three distinct populations of gamma-ray count rates were observed: an anomalous 600-acre portion of the main permit area, the main permit area itself, and the surface mine area. Considered individually, each has non-parametric count-rate distributions.
- Elevated levels of radioactivity, as characterized by gamma readings greater than 17,945 cpm in the main permit area and 20,270 cpm in the surface mine area, occur in the

anomalous portion of the main permit area and legacy mine wastes and open pits in the surface mine area.

- The surface soil sampling results corroborate the findings discussed above regarding spatial trends of radioactivity at the site. The majority of the site is characterized by an average predicted surface radium-226 concentration of 0.9 pCi/g. One exception is in the north end of the main permit area where the average predicted radium-226 concentration is 1.1 pCi/g. Also, areas in the surface mine area exhibit higher levels of radioactivity which are indicative of anthropogenic or other impacts.

- Experience at other milling sites underscores the need for using detailed baseline radiological information that shows varying site wide radium-226 concentrations, as adherence to a single number (especially if a conservative estimator such as a mean is used) can result in unnecessary cleanup and/or habitat destruction.

- Average radon flux rates ranged between 0.60 and 1.57 pCi/m^2-s. The highest individual measurement was 2.38 pCi/m^2-s These values are one to two orders of magnitude below the NESHAPS limit of 20 pCi/m^2-s specified in 10 CFR 40, Appendix A, Criterion 6. Although the latter requirement applies to uranium mill tailings and thus is not directly germane to this characterization, it is informative to demonstrate the relatively low magnitude of baseline radon flux levels measured at the site.

- Analytical errors associated with the low radionuclide concentrations in vegetation samples do not allow for a correlation to radionuclide concentrations in soils at the same sample locations.

- Particulate radionuclide concentrations in air across the site have been consistently low and at levels at least 95 % below their respective 10 CFR 20 effluent levels.

- Site-wide, annual radon concentrations ranged from to 0.6 to 3.9, and averaged 1.7 pCi/L. There appear to be no temporal or spatial trends in the current data set other than the levels are within the same order of magnitude across the site.

- A linear regression model comparing PIC to gamma-ray count rate measurements predicts an average exposure rate of 10.9 µR/hr for the site. The range of predicted exposure rates is 5.9 to 324 µR/hr, based on the observed gamma-ray count rates at the site.

- Baseline ambient exposure rates, as determined using TLDs, range from 108.6 to 158.2 mrem/yr.

In summary, it is clear that portions of the surface mine area, in the eastern quarter of the site exhibits radiological impacts from historic and or current anthropogenic activities within the area. The precise sources of these impacts are not relevant in the context of this investigation since the apparent impacts are part of the baseline or background radiological characteristics of the site.

11.0 REFERENCES

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Tables

Table 2-1. Summary of Baseline Radiological Investigation Scope

Survey Method/Endpoint	Baseline Investigation Scope	Parameters Evaluated
A. GPS-based Gamma Surveys	18- inch high, unshielded gamma-ray readings coupled with x- and y- coordinates taken every second moving along 100 or 500 meter transects at ≤1.5 meters per second. Surveys were made over the entire site along 17 transects in the main permit area, 48 transects in the surface mine area, and along two roads. A second survey covered land application areas along 100 meter transects.	Serve as basis to estimate exposure rates, surface soil radium-226 concentrations, and to identify additional areas for biased sampling.
B. Biased Soil Sampling	Biased samples at 5 locations, all collected from 0 to 15 cm.	Radium-226 for all samples; Thorium-230, natural uranium, lead-210, for a subset (2 locations)
C. Random Soil Sampling	Random samples at 75 locations. Nine of the 75 locations were sampled at depth (15-30 cm and 30-100 cm). Ten duplicates at 0 to 15 cm. One duplicate at 15 to 30 cm. One duplicate at 30 to 100 cm.	Radium-226 for all samples; Thorium-230, natural uranium, lead-210 (8 from 0 to 15 cm and one each at 15 to 30 and 30 to 100 cm)
D. Soil sampling in land application areas	Random samples at 17 locations, all but one of which were sampled at 0 to 15, 15 to 30 and 30 to 100 cm. Refusal was encountered at 45 cm in the exceptional location. One duplicate each at 0 to 5, 15 to 30, and 30 to 100 cm.	Radium-226, thorium-230, natural uranium, and lead-210 for all samples
E. Exposure Rate Monitoring	Exposure rate determinations based on TLD and PIC measurements. TLD measurements collected for four quarters.	Exposure Rates
F. Soil and Vegetation Sampling at Air Monitoring Stations	Eight locations: seven onsite (AMS-01 through AMS-07) and one located approximately 1.9 miles west of the southwest corner of the permit area (AMS-BKG). Vegetation samples collected for four quarters. Given the diurnal nature of winds, at various times this station would be representative of downwind and upwind locations.	Vegetation: radium-226, thorium-230, natural uranium, lead-210, and polonium-210 Soil: All of above except polonium-210
G. Air Particulate Sampling	Eight locations: seven onsite (AMS-01 through AMS-07) and one located approximately 1.9 miles west of the southwest corner of the permit area (AMS-BKG). Air particulate samples collected for four quarters.	Air filters: radium-226, thorium-230, natural uranium, lead-210 and polonium-210

Table 2-1. Summary of Baseline Radiological Investigation Scope (concluded)

Survey Method/Endpoint	Baseline Investigation Scope	Parameters Evaluated
H. Radon in air	16 locations: eight AMS and eight additional locations. Radon in air measurements taken for four quarters.	Radon-222
I. Radon Flux Measurements	Radon flux measurements at nine locations (coinciding with biased soil samples collected at depth in Task C above). The first two of three rounds of measurements is documented herein.	Radon-222
J. Locally Grazed Livestock Sampling	Three samples collected from one locally grazing cow.	Radium-226, thorium-230, natural uranium, lead-210 and polonium-210

Table 3-1. Statistical Summary of Gamma-Ray Count Rates in Entire Data Set, Main Permit and Surface Mine Areas

	Gamma-Ray Count Rate (cpm)		
Statistic	**Entire Data Set**	**Main Permit Area**	**Surface Mine Area**
Mean	15,025	13,073	16,823
Standard Deviation	17,095	2,995	23,377
Median	12,687	12,664	12,717
Mode	12,487 (n=53)	12,585 (n=35)	12,138 (n=31)
Minimum	5,550	5,883	5,550
Maximum	460,485	171,243	460,485
Q1	11,395	11,598	11,125
Q3	14,437	14,137	14,783
IQR	3,042	2,539	3,658
No. of Counts	157,075	75,345	81,757

Notes:
Entire data set does not include gamma-ray counts obtained along the eastern haul road. In addition, the sum of the counts in the main permit and surface mine areas is 27 counts greater than the counts in the entire data set, due to an overlap in counts within the two shapes placed as a layer in ArcView GIS to select the data sets. .

Table 3-2. Statistical Summary of Gamma-Ray Count Rates in Land Application Areas

	Gamma-Ray Count Rate (cpm)		
		Land Application Area	
Statistic	**Main Permit Area**	**Dewey**	**Burdock**
Mean	13,073	12,815	12,308
Standard Deviation	2,995	1,940	1,318
Median	12,664	12,523	12,232
Mode	12,585 (n=35)	11,778 (n=15)	12,266 (n=16)
Minimum	5,883	6,798	8,498
Maximum	171,243	20,422	24,248
Q1	11,598	11,437	11,504
Q3	14,137	13,993	12,958
IQR	2,539	2,556	1,454
No. of Counts	75,345	23,480	13,647

Table 4-1. Radionuclide Concentrations in All Soil Samples

Sample ID	Date Collected	Depth (cm)	1-minute Gamma-Ray Count Rate (cpm)	U-nat (µCi/g)	Pb-210 (µCi/g)	Pb-210 Error (µCi/g)	Th-230 (µCi/g)	Th-230 Error (µCi/g)	Ra-226 (µCi/g)	Ra-226 Error (µCi/g)
AMS-1	9/27/2007	0-5	-	9.6E-07	2.0E-06	3.0E-07	4.0E-07	1.0E-07	1.4E-06	2.0E-07
AMS-2	9/27/2007	0-5	-	9.5E-07	3.0E-06	3.0E-07	5.0E-07	1.0E-07	1.1E-06	2.0E-07
AMS-3	9/27/2007	0-5	-	8.2E-07	2.0E-06	2.0E-07	4.0E-07	1.0E-07	1.5E-06	2.0E-07
AMS-4	9/27/2007	0-5	-	1.4E-06	2.0E-06	2.0E-07	8.0E-07	2.0E-07	1.5E-06	3.0E-07
AMS-5	9/27/2007	0-5	-	6.8E-07	2.0E-06	2.0E-07	6.0E-07	1.0E-07	1.3E-06	3.0E-07
AMS-6	9/27/2007	0-5	-	5.5E-07	1.0E-06	2.0E-07	4.0E-07	1.0E-07	8.0E-07	2.0E-07
AMS-7	9/27/2007	0-5	-	5.8E-07	2.0E-06	2.0E-07	3.0E-07	8.0E-08	1.1E-06	2.0E-07
AMS-BKG	9/27/2007	0-5	-	1.9E-06	2.0E-06	2.0E-07	9.0E-07	1.0E-07	2.4E-06	4.0E-07
MPA-B01	9/25/2007	0-15	13824	-	-	-	-	-	1.4E-06	3.0E-07
MPA-B02	9/25/2007	0-15	14176	-	-	-	-	-	1.1E-06	2.0E-07
MPA-B03	9/25/2007	0-15	13006	-	-	-	-	-	1.3E-06	3.0E-07
MPA-R01	9/24/2007	0-15	13749	-	-	-	-	-	1.4E-06	2.0E-07
MPA-R02	9/24/2007	0-15	16059	-	-	-	-	-	2.6E-06	3.0E-07
MPA-R03	9/24/2007	0-15	10796	7.5E-07	7.0E-07	1.0E-07	4.0E-07	1.0E-07	1.1E-06	2.0E-07
MPA-R04	9/24/2007	0-15	10810	-	-	-	-	-	9.0E-07	2.0E-07
MPA-R04-Dup	9/24/2007	0-15	-	-	-	-	-	-	8.0E-07	2.0E-07
MPA-R05	9/24/2007	0-15	11850	-	-	-	-	-	1.2E-06	2.0E-07
NEA-R01	9/24/2007	0-15	12302	9.1E-07	7.0E-07	2.0E-07	6.0E-07	1.0E-07	1.1E-06	2.0E-07
NEA-R02	9/24/2007	0-15	13176	-	-	-	-	-	1.3E-06	2.0E-07
NEA-R03	9/24/2007	0-15	16393	-	-	-	-	-	2.2E-06	3.0E-07
NEA-R04	9/24/2007	0-15	17356	-	-	-	-	-	2.3E-06	3.0E-07
NEA-R04-Dup	9/24/2007	0-15	-	-	-	-	-	-	2.5E-06	3.0E-07
NEA-R05	9/24/2007	0-15	17269	-	-	-	-	-	2.8E-06	3.0E-07
RFA-B01A	9/26/2007	0-15	13115	8.7E-07	1.0E-06	2.0E-07	7.0E-07	1.0E-07	1.2E-06	2.0E-07
RFA-B01A-Dup	9/26/2007	0-15	-	9.0E-07	8.0E-07	1.0E-07	7.0E-07	1.0E-07	1.1E-06	2.0E-07
RFA-B02A	9/26/2007	0-15	13360	-	-	-	-	-	1.1E-06	2.0E-07
RFA-B03	9/25/2007	0-15	14253	-	-	-	-	-	1.1E-06	2.0E-07
RFA-B04	9/25/2007	0-15	13963	-	-	-	-	-	1.5E-06	3.0E-07
RFA-B06	9/25/2007	0-15	13819	-	-	-	-	-	1.1E-06	2.0E-07
RFA-B07	9/25/2007	0-15	12700	-	-	-	-	-	1.7E-06	2.0E-07
RFA-B08	9/25/2007	0-15	13433	-	-	-	-	-	9.0E-07	2.0E-07
RFA-B08-Dup	9/25/2007	0-15	13528	-	-	-	-	-	1.1E-06	2.0E-07
RFA-B09	9/25/2007	0-15	14825	-	-	-	-	-	1.1E-06	2.0E-07
RFA-B10	9/25/2007	0-15	13366	-	-	-	-	-	1.0E-06	2.0E-07
RFA-B11	9/25/2007	0-15	14253	8.8E-07	1.0E-06	2.0E-07	5.0E-07	1.0E-07	1.8E-06	3.0E-07
RFA-B12	9/25/2007	0-15	13135	-	-	-	-	-	1.0E-06	2.0E-07
RFA-B13A	9/26/2007	0-15	13987	-	-	-	-	-	1.8E-06	3.0E-07
RFA-B14	9/25/2007	0-15	13872	-	-	-	-	-	1.7E-06	3.0E-07

Table 4-1. Radionuclide Concentrations in All Soil Samples (Continued)

Sample ID	Date Collected	Depth (cm)	1-minute Gamma-Ray Count Rate (cpm)	U-nat (µCi/g)	Pb-210 (µCi/g)	Pb-210 Error (µCi/g)	Th-230 (µCi/g)	Th-230 Error (µCi/g)	Ra-226 (µCi/g)	Ra-226 Error (µCi/g)
RFA-B15A	9/26/2007	0-15	13535	-	-	-	-	-	1.4E-06	3.0E-07
RFA-B16	9/25/2007	0-15	13675	-	-	-	-	-	9.0E-07	2.0E-07
RFA-B17A	9/26/2007	0-15	16283	-	-	-	-	-	2.0E-06	3.0E-07
RFA-B18	9/25/2007	0-15	13835	-	-	-	-	-	1.7E-06	3.0E-07
RFA-B19	9/25/2007	0-15	13689	-	-	-	-	-	1.2E-06	2.0E-07
RFA-B20	9/25/2007	0-15	13113	8.8E-07	1.0E-06	2.0E-07	5.0E-07	1.0E-07	1.3E-06	3.0E-07
RFA-B21A	9/26/2007	0-15	16641	-	-	-	-	-	5.6E-06	4.0E-07
RFA-B22	9/25/2007	0-15	14087	-	-	-	-	-	1.5E-06	2.0E-07
RFA-B23	9/25/2007	0-15	19674	-	-	-	-	-	3.6E-06	4.0E-07
RFA-B24	9/25/2007	0-15	12766	-	-	-	-	-	1.3E-06	2.0E-07
RFA-B25	9/25/2007	0-15	10300	6.7E-07	1.0E-06	2.0E-07	4.0E-07	1.0E-07	1.2E-06	2.0E-07
RFA-B26	9/25/2007	0-15	11791	-	-	-	-	-	1.1E-06	2.0E-07
RFA-B27	9/25/2007	0-15	13794	-	-	-	-	-	1.5E-06	2.0E-07
RFA-B28	9/25/2007	0-15	15246	-	-	-	-	-	2.4E-06	3.0E-07
RFA-B28-Dup	9/25/2007	0-15	-	-	-	-	-	-	1.8E-06	3.0E-07
RFA-B29	9/25/2007	0-15	14345	-	-	-	-	-	1.7E-06	3.0E-07
RFA-B30A	9/26/2007	0-15	12461	-	-	-	-	-	1.8E-06	2.0E-07
RFA-B31	9/25/2007	0-15	12221	-	-	-	-	-	1.3E-06	2.0E-07
RFA-B33	9/25/2007	0-15	13221	-	-	-	-	-	9.0E-07	2.0E-07
RFA-B34	9/25/2007	0-15	13408	-	-	-	-	-	1.0E-06	2.0E-07
RFA-B35	9/25/2007	0-15	12290	-	-	-	-	-	1.2E-06	2.0E-07
RFA-B36A	9/25/2007	0-15	12465	-	-	-	-	-	1.0E-06	2.0E-07
RFA-B37A	9/26/2007	0-15	11170	-	-	-	-	-	9.0E-07	2.0E-07
RFA-B38	9/25/2007	0-15	11852	-	-	-	-	-	1.0E-06	2.0E-07
RFA-B39	9/25/2007	0-15	11478	-	-	-	-	-	1.1E-06	2.0E-07
RFA-B40	9/25/2007	0-15	12629	5.6E-07	1.0E-06	2.0E-07	3.0E-07	1.0E-07	1.1E-06	2.0E-07
RFA-B41	9/25/2007	0-15	11806	-	-	-	-	-	1.2E-06	2.0E-07
RFA-B43	9/25/2007	0-15	13264	-	-	-	-	-	1.7E-06	3.0E-07
RFA-B44	9/25/2007	0-15	11436	-	-	-	-	-	1.4E-06	2.0E-07
RFA-B45	9/25/2007	0-15	12242	-	-	-	-	-	1.6E-06	3.0E-07
SMA-B01	9/24/2007	0-15	10459	1.2E-06	6.0E-07	1.0E-07	5.0E-07	1.0E-07	9.0E-07	2.0E-07
SMA-B01-Dup	9/24/2007	0-15	-	1.5E-06	2.0E-06	2.0E-07	6.0E-07	1.0E-07	1.4E-06	3.0E-07
SMA-B03	9/24/2007	0-15	22410	-	-	-	-	-	1.5E-06	2.0E-07
SMA-B04	9/24/2007	0-15	15263	-	-	-	-	-	1.0E-06	2.0E-07
SMA-B07	9/24/2007	0-15	22925	-	-	-	-	-	3.2E-06	3.0E-07

Table 4-1. Radionuclide Concentrations in All Soil Samples (Continued)

Sample ID	Date Collected	Depth (cm)	1-minute Gamma-Ray Count Rate (cpm)	U-nat (µCi/g)	Pb-210 (µCi/g)	Pb-210 Error (µCi/g)	Th-230 (µCi/g)	Th-230 Error (µCi/g)	Ra-226 (µCi/g)	Ra-226 Error (µCi/g)
SMA-B09	9/24/2007	0-15	12879	-	-	-	-	-	1.2E-06	2.0E-07
SMA-B09-Dup	9/24/2007	0-15	-	-	-	-	-	-	1.7E-06	2.0E-07
SMA-B10	9/25/2007	0-15	13184	-	-	-	-	-	1.4E-06	2.0E-07
SMA-B11	9/24/2007	0-15	17346	-	-	-	-	-	2.3E-06	3.0E-07
SMA-B13	9/25/2007	0-15	13252	-	-	-	-	-	1.7E-06	3.0E-07
SMA-B14	9/24/2007	0-15	14483	-	-	-	-	-	1.4E-06	3.0E-07
SMA-B14-Dup	9/24/2007	0-15	-	-	-	-	-	-	1.6E-06	2.0E-07
SMA-B15	9/24/2007	0-15	8474	-	-	-	-	-	8.0E-07	2.0E-07
SMA-B16	9/24/2007	0-15	10235	-	-	-	-	-	9.0E-07	2.0E-07
SMA-B17	9/24/2007	0-15	10139	-	-	-	-	-	1.0E-06	2.0E-07
SMA-B18	9/25/2007	0-15	8511	-	-	-	-	-	5.0E-07	1.0E-07
SMA-B18-Dup	9/25/2007	0-15	-	-	-	-	-	-	4.0E-07	1.0E-07
SMA-B19	9/24/2007	0-15	10074	-	-	-	-	-	1.2E-06	2.0E-07
SMA-B20	9/27/2007	0-15	10897	-	-	-	-	-	9.0E-07	2.0E-07
SMA-B21	9/24/2007	0-15	16712	-	-	-	-	-	1.4E-06	2.0E-07
SMA-B22	9/24/2007	0-15	10618	-	-	-	-	-	8.0E-07	2.0E-07
SMA-B23	9/24/2007	0-15	16233	-	-	-	-	-	2.7E-06	3.0E-07
SMA-B23-Dup	9/24/2007	0-15	-	-	-	-	-	-	2.8E-06	3.0E-07
SMA-B24	9/24/2007	0-15	12662	-	-	-	-	-	1.3E-06	2.0E-07
SMA-B25	9/24/2007	0-15	9991	-	-	-	-	-	1.0E-06	2.0E-07
SMA-B26	9/28/2007	0-15	73243	-	-	-	-	-	1.1E-05	5.0E-07
SMA-B27	9/28/2007	0-15	130293	6.7E-05	3.0E-05	8.0E-07	3.0E-05	8.0E-07	4.0E-05	1.1E-06
SMA-B28	9/29/2007	0-15	39061	-	-	-	-	-	6.4E-06	4.0E-07
SMA-B29	9/28/2007	0-15	231041	1.6E-05	2.0E-05	7.0E-07	2.0E-05	6.0E-07	2.9E-05	9.0E-07
SMA-B30	9/28/2007	0-15	89139	-	-	-	-	-	3.4E-05	9.0E-07
LAN 001A	7/18/2008	0-15	-	1.8E-06	2.4E-06	2.3E-06	1.2E-06	6.0E-07	8.0E-07	9.0E-08
LAN 002A	7/18/2008	0-15	-	8.6E-07	3.4E-06	2.3E-06	9.0E-07	5.0E-07	9.0E-07	1.0E-07
LAN 003A	7/18/2008	0-15	-	7.8E-07	8.0E-07	2.2E-06	7.0E-07	6.0E-07	1.2E-06	1.0E-07
LAN 004A	7/18/2008	0-15	-	6.9E-07	1.0E-06	1.4E-06	6.0E-07	6.0E-07	1.9E-06	2.0E-07
LAN 004A-DUP	7/18/2008	0-15	-	7.2E-07	5.0E-07	1.4E-06	4.0E-07	3.0E-07	7.0E-07	1.0E-07
LAN 005A	7/18/2008	0-15	-	8.4E-07	1.2E-06	1.4E-06	9.0E-07	5.0E-07	4.4E-06	3.0E-07
LAN 006A	7/18/2008	0-15	-	7.1E-07	-5.0E-09	1.4E-06	3.0E-07	5.0E-07	1.1E-06	1.0E-07
LAN 007A	7/18/2008	0-15	-	8.1E-07	6.0E-07	1.4E-06	3.0E-07	5.0E-07	7.0E-07	1.0E-07
LAN 008A	7/18/2008	0-15	-	2.1E-06	1.0E-06	1.4E-06	1.0E-06	7.0E-07	9.0E-07	1.0E-07
LAN 009A	7/18/2008	0-15	-	1.1E-06	-4.0E-07	1.4E-06	3.0E-07	6.0E-07	8.0E-07	1.0E-07
LAN 010A	7/18/2008	0-15	-	1.6E-06	1.8E-06	1.2E-06	1.2E-06	6.0E-07	1.2E-06	2.0E-07
LAS 001A	7/19/2008	0-15	-	1.2E-06	1.6E-06	1.2E-06	6.0E-07	5.0E-07	9.0E-07	1.0E-07
LAS 002A	7/19/2008	0-15	-	4.8E-07	1.4E-06	1.2E-06	1.0E-07	5.0E-07	7.0E-07	1.0E-07

Table 4-1. Radionuclide Concentrations in All Soil Samples (Continued)

Sample ID	Date Collected	Depth (cm)	1-minute Gamma-Ray Count Rate (cpm)	U-nat (µCi/g)	Pb-210 (µCi/g)	Pb-210 Error (µCi/g)	Th-230 (µCi/g)	Th-230 Error (µCi/g)	Ra-226 (µCi/g)	Ra-226 Error (µCi/g)
LAS 003A	7/19/2008	0-15	-	5.0E-07	1.4E-06	1.2E-06	3.0E-07	4.0E-07	7.0E-07	1.0E-07
LAS 004A	7/19/2008	0-15	-	1.1E-06	1.2E-06	1.2E-06	6.0E-07	5.0E-07	8.0E-07	1.0E-07
LAS 005A	7/19/2008	0-15	-	1.2E-06	1.6E-06	1.2E-06	4.0E-07	3.0E-07	9.0E-07	1.0E-07
LAS 006A	7/19/2008	0-15	-	3.7E-07	7.0E-07	1.1E-06	6.0E-07	6.0E-07	7.0E-07	1.0E-07
LAS 007A	7/19/2008	0-15	-	4.3E-07	6.0E-07	1.5E-06	6.0E-07	1.0E-07	8.0E-07	1.0E-07
RFA-B01B	9/26/2007	15-30	13115	1.1E-06	2.0E-06	2.0E-07	9.0E-01	2.0E-01	1.7E-06	2.0E-07
RFA-B01B-Dup	9/26/2007	15-30	-	9.9E-07	9.0E-07	2.0E-07	9.0E-01	2.0E-01	1.5E-06	2.0E-07
RFA-B02B	9/26/2007	15-30	-	-	-	-	-	-	9.0E-07	2.0E-07
RFA-B13B	9/26/2007	15-30	-	-	-	-	-	-	1.8E-06	2.0E-07
RFA-B15B	9/26/2007	15-30	-	-	-	-	-	-	1.5E-06	2.0E-07
RFA-B17B	9/26/2007	15-30	-	-	-	-	-	-	2.2E-06	3.0E-07
RFA-B21B	9/26/2007	15-30	-	-	-	-	-	-	1.3E-06	2.0E-07
RFA-B30B	9/26/2007	15-30	-	-	-	-	-	-	2.1E-06	3.0E-07
RFA-B36B	9/26/2007	15-30	-	-	-	-	-	-	1.1E-06	2.0E-07
RFA-B37B	9/26/2007	15-30	-	-	-	-	-	-	7.0E-07	2.0E-07
LAN 001B	7/18/2008	15-30	-	1.9E-06	4.6E-06	2.3E-06	1.4E-06	6.0E-07	8.0E-07	1.0E-07
LAN 002B	7/18/2008	15-30	-	7.5E-07	1.5E-06	2.3E-06	4.0E-07	4.0E-07	1.0E-06	1.0E-07
LAN 003B	7/18/2008	15-30	-	1.1E-06	2.4E-06	2.3E-06	8.0E-07	5.0E-07	1.2E-06	1.0E-07
LAN 004B	7/18/2008	15-30	-	7.9E-07	2.2E-06	1.4E-06	2.0E-07	5.0E-07	1.3E-06	2.0E-07
LAN 004B-DUP	7/18/2008	15-30	-	6.8E-07	-3.0E-07	1.4E-06	5.0E-07	4.0E-07	7.0E-07	1.0E-07
LAN 005B	7/18/2008	15-30	-	7.1E-07	9.0E-07	1.4E-06	6.0E-07	4.0E-07	1.6E-06	2.0E-07
LAN 006B	7/18/2008	15-30	-	7.5E-07	5.0E-07	1.4E-06	6.0E-07	4.0E-07	1.3E-06	1.0E-07
LAN 007B	7/18/2008	15-30	-	1.5E-06	6.0E-07	1.4E-06	4.0E-07	4.0E-07	7.0E-07	1.0E-07
LAN 008B	7/18/2008	15-30	-	3.5E-06	1.0E-07	1.4E-06	9.0E-07	7.0E-07	1.0E-06	1.0E-07
LAN 009B	7/18/2008	15-30	-	1.8E-06	-3.0E-07	1.4E-06	7.0E-07	5.0E-07	4.1E-06	3.0E-07
LAN 010B	7/18/2008	15-30	-	1.5E-06	1.1E-06	1.1E-06	7.9E-06	1.2E-06	1.4E-06	2.0E-07
LAS 001B	7/19/2008	15-30	-	8.6E-07	1.1E-06	1.2E-06	4.0E-07	5.0E-07	8.0E-07	1.0E-07
LAS 002B	7/19/2008	15-30	-	7.1E-07	7.0E-07	1.2E-06	4.0E-07	4.0E-07	7.0E-07	1.0E-07
LAS 003B	7/19/2008	15-30	-	1.2E-06	1.1E-06	1.1E-06	5.0E-07	4.0E-07	9.0E-07	1.0E-07
LAS 004B	7/19/2008	15-30	-	9.5E-07	1.3E-06	1.2E-06	5.0E-07	4.0E-07	8.0E-07	1.0E-07
LAS 005B	7/19/2008	15-30	-	1.6E-06	1.4E-06	1.1E-06	4.0E-07	4.0E-07	1.0E-06	2.0E-07
LAS 006B	7/19/2008	15-30	-	4.8E-07	1.4E-06	1.2E-06	3.0E-07	4.0E-07	7.0E-07	1.0E-07
LAS 007B	7/19/2008	15-30	-	4.5E-07	6.0E-07	1.5E-06	6.0E-07	1.0E-07	7.0E-07	1.0E-07
LAN 008B	7/18/2008	15-30	-	3.5E-06	1.0E-07	1.4E-06	9.0E-07	7.0E-07	1.0E-06	1.0E-07
LAN 009B	7/18/2008	15-30	-	1.8E-06	-3.0E-07	1.4E-06	7.0E-07	5.0E-07	4.1E-06	3.0E-07
LAN 010B	7/18/2008	15-30	-	1.5E-06	1.1E-06	1.1E-06	7.9E-06	1.2E-06	1.4E-06	2.0E-07
LAS 001B	7/19/2008	15-30	-	8.6E-07	1.1E-06	1.2E-06	4.0E-07	5.0E-07	8.0E-07	1.0E-07

Table 4-1. Radionuclide Concentrations in All Soil Samples (Concluded)

Sample ID	Date Collected	Depth (cm)	1-minute Gamma-Ray Count Rate (cpm)	U-nat (µCi/g)	Pb-210 (µCi/g)	Pb-210 Error (µCi/g)	Th-230 (µCi/g)	Th-230 Error (µCi/g)	Ra-226 (µCi/g)	Ra-226 Error (µCi/g)
LAS 002B	7/19/2008	15-30	-	7.1E-07	7.0E-07	1.2E-06	4.0E-07	4.0E-07	7.0E-07	1.0E-07
LAS 003B	7/19/2008	15-30	-	1.2E-06	1.1E-06	1.1E-06	5.0E-07	4.0E-07	9.0E-07	1.0E-07
LAS 004B	7/19/2008	15-30	-	9.5E-07	1.3E-06	1.2E-06	5.0E-07	4.0E-07	8.0E-07	1.0E-07
LAS 005B	7/19/2008	15-30	-	1.6E-06	1.4E-06	1.1E-06	4.0E-07	4.0E-07	1.0E-06	2.0E-07
LAS 006B	7/19/2008	15-30	-	4.8E-07	1.4E-06	1.2E-06	3.0E-07	4.0E-07	7.0E-07	1.0E-07
LAS 007B	7/19/2008	15-30	-	4.5E-07	6.0E-07	1.5E-06	6.0E-07	1.0E-07	7.0E-07	1.0E-07
RFA-B01C	9/26/2007	30-100	-	1.5E-06	6.0E-07	1.0E-07	8.0E-01	1.0E-01	1.2E-06	2.0E-07
RFA-B01C-Dup	9/29/2007	30-100	-	1.3E-06	1.0E-06	2.0E-07	1.0E+00	2.0E-01	1.7E-06	3.0E-07
RFA-B02C	9/26/2007	30-100	-	-	-	-	-	-	9.0E-07	2.0E-07
RFA-B13C	9/26/2007	30-100	-	-	-	-	-	-	1.6E-06	2.0E-07
RFA-B15C	9/26/2007	30-100	-	-	-	-	-	-	1.5E-06	3.0E-07
RFA-B17C	9/26/2007	30-100	-	-	-	-	-	-	2.5E-06	3.0E-07
RFA-B21C	9/26/2007	30-100	-	-	-	-	-	-	1.2E-06	2.0E-07
RFA-B30C	9/26/2007	30-100	-	-	-	-	-	-	1.7E-06	3.0E-07
RFA-B36C	9/26/2007	30-100	-	-	-	-	-	-	1.0E-06	2.0E-07
RFA-B37C	9/26/2007	30-100	-	-	-	-	-	-	1.1E-06	2.0E-07
LAN 001C	7/18/2008	30-100	-	1.9E-06	1.9E-06	2.2E-06	1.6E-06	7.0E-07	9.0E-07	1.0E-07
LAN 002C	7/18/2008	30-100	-	1.5E-06	1.1E-06	2.2E-06	3.0E-07	3.0E-07	1.2E-06	1.0E-07
LAN 003C	7/18/2008	30-100	-	2.0E-06	2.6E-06	2.3E-06	6.0E-07	3.0E-07	1.0E-06	1.0E-07
LAN 004C	7/18/2008	30-100	-	1.5E-06	8.0E-07	1.4E-06	7.0E-07	5.0E-07	1.0E-06	1.0E-07
LAN 004C-DUP	7/18/2008	30-100	-	1.3E-06	1.2E-06	1.4E-06	5.0E-07	4.0E-07	8.0E-07	1.0E-07
LAN 005C	7/18/2008	30-100	-	7.1E-07	6.0E-07	1.4E-06	5.0E-07	4.0E-07	1.5E-06	2.0E-07
LAN 006C	7/18/2008	30-100	-	1.1E-06	7.0E-07	1.4E-06	5.0E-07	3.0E-07	1.4E-06	2.0E-07
LAN 007C	7/18/2008	30-100	-	2.5E-06	1.0E-07	1.4E-06	8.0E-07	6.0E-07	4.0E-07	1.0E-07
LAN 009C	7/18/2008	30-100	-	1.6E-06	5.0E-07	1.4E-06	1.1E-06	6.0E-07	3.9E-06	3.0E-07
LAN 010C	7/18/2008	30-100	-	2.7E-06	1.9E-06	1.2E-06	1.9E-06	8.0E-07	1.5E-06	2.0E-07
LAS 001C	7/19/2008	30-100	-	6.1E-07	9.0E-07	1.1E-06	1.0E-07	3.0E-07	8.0E-07	1.0E-07
LAS 002C	7/19/2008	30-100	-	6.3E-07	4.0E-07	1.1E-06	4.0E-07	4.0E-07	7.0E-07	1.0E-07
LAS 003C	7/19/2008	30-100	-	9.3E-07	7.0E-07	1.2E-06	1.0E-06	5.0E-07	8.0E-07	1.0E-07
LAS 004C	7/19/2008	30-100	-	1.3E-06	1.2E-06	1.1E-06	5.0E-07	3.0E-07	9.0E-07	1.0E-07
LAS 005C	7/19/2008	30-100	-	9.8E-07	1.2E-06	1.1E-06	7.0E-07	5.0E-07	1.1E-06	2.0E-07
LAS 006C	7/19/2008	30-100	-	6.5E-07	-3.0E-07	1.5E-06	3.0E-07	9.0E-08	6.0E-07	1.0E-07
LAS 007C	7/19/2008	30-100	-	7.2E-07	-7.0E-07	1.5E-06	5.0E-07	1.0E-07	7.0E-07	1.0E-07

Notes:
All errors reported are ± 2σ.

Table 4-2. Statistical Summary of Radionuclide Concentrations by Depth Interval

Depth Interval (cm)	Statistic	Radium-226 (pCi/g)	Thorium-230 (pCi/g)	Natural Uranium (pCi/g)	Lead-210 (pCi/g)
0-15	Mean	1.4	0.6	1.0	1.2
	Median	1.0	0.6	0.9	1.1
	No.	26	18	18	18
	σ	1.1	0.3	0.5	0.9
	Range	0.7-5.6	0.1-1.2	0.4-2.1	-0.4-3.4
	Distribution	Non-parametric	Normal	Normal	Normal
15-30	Mean	1.3	1.1	1.2	1.1
	Median	1.0	0.5	1.0	1.1
	No.	36	27	28	28
	σ	0.8	2.0	0.8	0.9
	Range	0.7-4.1	0.3-7.9	0.5-3.5	-0.3-4.6
	Distribution	Non-parametric	Non-parametric	Non-parametric	Non-parametric
30-100	Mean	1.3	0.7	1.3	0.9
	Median	1.1	0.6	1.3	0.8
	No.	25	16	17	17
	σ	0.7	0.5	0.6	0.8
	Range	0.4-3.9	0.1-1.9	0.6-2.7	-0.7-2.6
	Distribution	Lognormal[a]	Normal	Lognormal[b]	Normal

Notes:

a. The geometric mean for radium-226 at 30 to 100 cm is 1.1 pCi/g.
b. The geometric mean for natural uranium at 30 to 100 cm is 1.2 pCi/g.

Table 4-3. Quality Control Summary for Soil Samples

		RPD	Replicate Error Ratio		
Sample ID	Depth (cm)	U-nat	Pb-210	Th-230	Ra-226
MPA-R04+Duplicate	0-15	-	-	-	0.2
NEA-R04+Duplicate	0-15	-	-	-	0.2
RFA-B01A+Duplicate	0-15	3.4	0.0	0.0	0.2
RFA-B01B+Duplicate	15-30	10.5	**1.8**	0.0	0.3
RFA-B01C+Duplicate	30-100	14.3	**1.0**	0.5	0.8
RFA-B08+Duplicate	0-15	-	-	-	0.0
RFA-B28+Duplicate	0-15	-	-	-	0.7
SMA-B01+Duplicate	0-15	22.2	**2.8**	0.4	0.8
SMA-B09+Duplicate	0-15	-	-	-	0.8
SMA-B14+Duplicate	0-15	-	-	-	0.3
SMA-B18+Duplicate	0-15	-	-	-	0.4
SMA-B23+Duplicate	0-15	-	-	-	0.1
LAN-004A+Duplicate	0-15	-4.3	0.5	0.6	**8.5**
LAN-004B+Duplicate	15-30	15.0	**2.5**	0.9	**4.2**
LAN-004C+Duplicate	30-100	14.3	0.4	0.6	**1.4**

Notes:
The radium-226, lead-210, and thorium-230 LLDs were all $1*10^{-7}$ µCi/g. All results are greater than 5 times their respective MDC, with the exception of radium-226 in Sample Location SMA-B18-Dup.
The natural uranium LLDs ranged from $1.7*10^{-8}$ to $2.0*10^{-8}$ µCi/g.
None of the results were below their respective LLDs.
Bolded values are anomalous QC results.

Table 5-1. Summary of Predicted Radium-226 Concentrations in Grid Blocks

		Predicted Radium-226 Concentration Based on Average of Counts Within Grid Block (pCi/g)					
Data Set	No. of Grid Blocks	Median	Minimum	Maximum	Q1	Q3	IQR
All Data	1,015	1.1	0	24.9	0	1.4	1.4
Surface Mine Area	171	1.5	0	24.9	1.1	1.8	0.7
Main Permit Area without Anomalous Area	791	1.0	0	9.0	0	1.3	1.3
Anomalous Area	53	1.4	0	2.3	0	1.8	1.8

Table 6-1. Baseline Radon Flux Measurements

Location	Date	Flux (pCi/m^{2}s)	Std. Dev. (pCi/m^{2}s)	LLD (pCi/m^{2}s)	Average Flux @ Location (pCi/m^{2}s)
RFA-B01	September 2007	1.68	0.06	0.18	1.57
	April 2008	0.64	0.05	0.15	
	July 2008	2.38	0.06	0.15	
RFA-B02	September 2007	0.89	0.05	0.15	0.86
	April 2008	0.76	0.05	0.16	
	July 2008	0.94	0.05	0.15	
RFA-B13	September 2007	1.77	0.06	0.17	1.53
	April 2008	0.56	0.05	0.16	
	July 2008	2.27	0.06	0.15	
RFA-B15	September 2007	1.22	0.05	0.15	1.35
	April 2008	1.12	0.06	0.16	
	July 2008	1.71	0.05	0.15	
RFA-B17	September 2007	1.25	0.06	0.16	1.05
	April 2008	0.61	0.05	0.16	
	July 2008	1.30	0.05	0.15	
RFA-B21	September 2007	0.97	0.05	0.14	0.71
	April 2008	0.28	0.05	0.16	
	July 2008	0.89	0.05	0.14	
RFA-B30	September 2007	1.73	0.06	0.17	1.49
	April 2008	0.70	0.05	0.16	
	July 2008	2.03	0.05	0.15	
RFA-B36	September 2007	0.68	0.05	0.16	0.60
	April 2008	0.64	0.05	0.16	
	July 2008	0.48	0.06	0.15	
RFA-B37	September 2007	0.80	0.05	0.14	1.13
	April 2008	1.33	0.06	0.16	
	July 2008	1.27	0.05	0.14	

Table 7-1. Baseline Radionuclide Concentrations in Vegetation

Location	Date Collected		8/14/2007	4/20/08	7/15/08	Average (µCi/kg)
AMS-01	U-nat (µCi/kg)	Concentration	1.4E-05	2.8E-02D	9.4E-06	1.4E-05
		Error ± 2σ	-	-	-	
		LLD	1.7E-06	2.4E-06	2.0E-07	
	Ra-226 (µCi/kg)	Concentration	5.5E-05	3.3E-05	8.1E-05	5.6E-05
		Error ± 2σ	3.2E-05	5.5E-06	1.2E-05	
		LLD	1.7E-06	3.7E-06	7.4E-06	
	Th-230 (µCi/kg)	Concentration	<1.7E-06	1.2E-05	1.2E-05	8.6E-06
		Error ± 2σ	<1.7E-06	5.2E-06	8.4E-06	
		LLD	1.7E-06	2.0E-07	8.4E-07	
	Pb-210 (µCi/kg)	Concentration	1.8E-03	2.9E-03	3.3E-04	1.7E-03
		Error ± 2σ	5.4E-04	1.1E-04	1.3E-04	
		LLD	8.6E-06	1.0E-06	2.1E-04	
	Po-210 (µCi/kg)	Concentration	1.3E-04	4.7E-04	1.7E-05	2.1E-04
		Error ± 2σ	9.8E-05	7.2E-05	1.5E-05	
		LLD	8.6E-06	1.0E-06	1.0E-06	
AMS-02	Date Collected		8/14/2007	4/20/08	7/14/08	Average (µCi/kg)
	U-nat (µCi/kg)	Concentration	1.0E-05	2.7E-02D	3.2E-06	6.6E-06
		Error ± 2σ	-	-	-	
		LLD	5.5E-07	2.0E-07	2.0E-07	
	Ra-226 (µCi/kg)	Concentration	2.2E-05	3.0E-05	9.3E-06	2.0E-05
		Error ± 2σ	1.1E-05	4.5E-06	3.6E-06	
		LLD	5.5E-07	2.8E-06	4.0E-06	
	Th-230 (µCi/kg)	Concentration	4.7E-06	1.4E-05	-9.5E-07U	5.9E-06
		Error ± 2σ	6.0E-06	4.9E-06	5.0E-06	
		LLD	5.5E-07	2.0E-07	4.7E-07	
	Pb-210 (µCi/kg)	Concentration	3.3E-04	1.3E-03	1.5E-04	5.9E-04
		Error ± 2σ	1.5E-04	6.9E-05	7.3E-05	
		LLD	2.7E-06	1.0E-06	1.2E-04	
	Po-210 (µCi/kg)	Concentration	1.8E-05	2.0E-04	9.1E-06U	7.6E-05
		Error ± 2σ	2.0E-05	4.2E-05	8.5E-06	
		LLD	2.7E-06	1.0E-06	1.0E-06	

Table 7-1. Baseline Radionuclide Concentrations in Vegetation (continued)

Location	Date Collected		8/14/2007	4/20/08	7/14/08	Average (µCi/kg)
AMS-03	U-nat (µCi/kg)	Concentration	9.8E-06	1.5E-01D	7.7E-06	9.8E-06
		Error ± 2σ	-	-	-	
		LLD	6.4E-07	2.4E-06	2.0E-07	
	Ra-226 (µCi/kg)	Concentration	7.4E-05	1.1E-04	7.5E-06	9.2E-05
		Error ± 2σ	2.2E-05	9.7E-06	4.9E-06	
		LLD	6.4E-07	3.7E-06	6.6E-06	
	Th-230 (µCi/kg)	Concentration	2.6E-06	4.1E-05	1.0E-05	2.2E-05
		Error ± 2σ	4.4E-06	1.1E-05	6.6E-06	
		LLD	6.4E-07	2.0E-07	7.7E-07	
	Pb-210 (µCi/kg)	Concentration	9.1E-04	1.4E-03	3.3E-04	8.8E-04
		Error ± 2σ	2.2E-04	8.2E-05	1.2E-04	
		LLD	3.2E-06	1.0E-06	1.9E-04	
	Po-210 (µCi/kg)	Concentration	7.8E-05	2.3E-04	9.6E-06U	1.5E-04
		Error ± 2σ	4.4E-05	4.4E-05	1.1E-05	
		LLD	3.2E-06	1.0E-06	1.0E-06	
AMS-04	Date Collected		8/14/2007	4/20/08	7/14/08	Average (µCi/kg)
	U-nat (µCi/kg)	Concentration	9.3E-06	2.1E-02D	8.4E-06	9.3E-06
		Error ± 2σ	-	-	-	
		LLD	8.1E-07	1.9E-06	2.0E-07	
	Ra-226 (µCi/kg)	Concentration	2.3E-05	3.1E-05	9.3E-06	2.7E-05
		Error ± 2σ	1.4E-05	4.6E-06	5.2E-06	
		LLD	8.0E-07	2.8E-06	6.7E-06	
	Th-230 (µCi/kg)	Concentration	3.6E-06	8.3E-06	-2.7E-06U	6.0E-06
		Error ± 2σ	5.6E-06	4.2E-06	4.2E-06	
		LLD	8.0E-07	2.0E-07	7.7E-07	
	Pb-210 (µCi/kg)	Concentration	1.5E-03	1.2E-03	2.1E-04	1.4E-03
		Error ± 2σ	3.0E-04	6.6E-05	1.2E-04	
		LLD	4.0E-06	1.0E-06	1.9E-04	
	Po-210 (µCi/kg)	Concentration	9.8E-05	1.7E-04	9.0E-06U	1.3E-04
		Error ± 2σ	6.4E-05	3.9E-05	9.6E-06	
		LLD	4.0E-06	1.0E-06	1.0E-06	

Table 7-1. Baseline Radionuclide Concentrations in Vegetation (continued)

Location	Date Collected		8/14/2007	4/20/08	7/14/08	Average (µCi/kg)
AMS-05	U-nat (µCi/kg)	Concentration	3.7E-05	2.3E-01D	1.4E-05	3.7E-05
		Error ± 2σ	-	-		
		LLD	1.3E-06	1.3E-06	2.0E-07	
	Ra-226 (µCi/kg)	Concentration	2.4E-05	7.9E-05	5.9E-06U	5.2E-05
		Error ± 2σ	1.8E-05	5.7E-06	5.3E-06	
		LLD	1.3E-06	1.8E-06	7.7E-06	
	Th-230 (µCi/kg)	Concentration	1.5E-05	4.8E-05	-8.8E-07U	3.2E-05
		Error ± 2σ	1.7E-05	8.1E-06	5.7E-06	
		LLD	1.3E-06	2.0E-07	8.8E-07	
	Pb-210 (µCi/kg)	Concentration	1.7E-03	3.3E-04	3.4E-04	1.0E-03
		Error ± 2σ	4.2E-04	3.0E-05	1.4E-04	
		LLD	6.5E-06	1.0E-06	2.2E-04	
	Po-210 (µCi/kg)	Concentration	6.6E-05	1.6E-04	2.1E-05	1.1E-04
		Error ± 2σ	6.0E-05	3.1E-05	1.6E-05	
		LLD	6.5E-06	1.0E-06	1.0E-06	
AMS-06	Date Collected		8/14/2007	4/20/08	7/14/08	Average (µCi/kg)
	U-nat (µCi/kg)	Concentration	3.8E-05	1.3E-01D	2.2E-05	3.8E-05
		Error ± 2σ	-	-		
		LLD	8.3E-07	3.2E-06	2.0E-07	
	Ra-226 (µCi/kg)	Concentration	3.2E-05	9.2E-05	1.8E-05	6.2E-05
		Error ± 2σ	1.6E-05	9.9E-06	5.0E-06	
		LLD	8.2E-07	4.6E-06	5.0E-06	
	Th-230 (µCi/kg)	Concentration	1.9E-05	3.9E-05	2.1E-05	2.9E-05
		Error ± 2σ	1.3E-05	1.1E-05	7.4E-06	
		LLD	8.2E-07	2.0E-07	5.7E-07	
	Pb-210 (µCi/kg)	Concentration	1.0E-03	1.8E-03	1.4E-04U	1.4E-03
		Error ± 2σ	2.6E-04	1.1E-04	8.7E-05	
		LLD	4.1E-06	1.0E-06	1.4E-04	
	Po-210 (µCi/kg)	Concentration	6.0E-05	4.0E-04	5.7E-06U	2.3E-04
		Error ± 2σ	4.4E-05	7.7E-05	5.7E-06	
		LLD	4.1E-06	1.0E-06	1.0E-06	

Table 7-1. Baseline Radionuclide Concentrations in Vegetation (concluded)

Location	Date Collected		8/14/2007	4/20/08	7/14/08	Average (µCi/kg)
AMS-07	U-nat (µCi/kg)	Concentration	1.8E-05	1.4E-01 D	2.7E-05	1.8E-05
		Error ± 2σ	-	-		
		LLD	9.7E-07	21E-06	2.0E-07	
	Ra-226 (µCi/kg)	Concentration	2.7E-05	7.6E-05	2.4E-05	5.2E-05
		Error ± 2σ	1.6E-05	7.2E-06	7.5E-06	
		LLD	9.7E-07	3.0E-06	7.7E-06	
	Th-230 (µCi/kg)	Concentration	1.6E-05	4.0E-05	2.0E-05	2.8E-05
		Error ± 2σ	1.8E-05	1.2E-05	8.6E-06	
		LLD	9.7E-07	2.0E-07	8.6E-07	
	Pb-210 (µCi/kg)	Concentration	2.1E-03	6.2E-04	-3.2E-05U	1.4E-03
		Error ± 2σ	3.6E-04	5.3E-05	1.3E-04	
		LLD	4.8E-06	1.0E-06	2.1E-04	
	Po-210 (µCi/kg)	Concentration	1.5E-04	2.3E-04	2.0E-05	1.9E-04
		Error ± 2σ	8.2E-05	4.7E-05	1.3E-05	
		LLD	4.8E-06	1.0E-06	1.0E-06	
AMS-BKG	Date Collected		8/14/2007	4/20/08	7/14/08	Average (µCi/kg)
	U-nat (µCi/kg)	Concentration	4.0E-05	9.0E-02D	1.0E-05	2.5E-05
		Error ± 2σ	-	-	-	
		LLD	9.7E-07	3.8E-06	2.0E-07	
	Ra-226 (µCi/kg)	Concentration	4.1E-05	8.3E-05	1.3E-05	6.2E-05
		Error ± 2σ	2.0E-05	1.1E-05	4.6E-06	
		LLD	9.7E-07	6.4E-06	5.1E-06	
	Th-230 (µCi/kg)	Concentration	1.0E-05	3.5E-05	7.3E-06	2.3E-05
		Error ± 2σ	1.3E-05	1.2E-05	4.2E-06	
		LLD	9.7E-07	2.0E-07	5.6E-07	
	Pb-210 (µCi/kg)	Concentration	6.9E-04	1.4E-03	1.3E-04U	1.0E-03
		Error ± 2σ	2.8E-04	1.0E-04	8.6E-05	
		LLD	4.8E-06	1.0E-06		
	Po-210 (µCi/kg)	Concentration	2.5E-05	2.2E-04	9.3E-06	1.2E-04
		Error ± 2σ	3.2E-05	5.1E-05	8.8E-06	
		LLD	4.8E-06	1.0E-06	1.0E-06	

Notes:
D = Lower limit of detection increased due to sample matrix interference. Average concentrations s do not include "D"-qualified results.

Table 8-1. Baseline Radionuclide Concentrations in Air

Location	Monitoring Period[a]	Concentration (µCi/ml)							% of Effluent Concentration				Lower Limit of Detection (µCi/ml)			
		U-nat	Th-230	Th-230 2σ Error	Ra-226	Ra-226 2σ Error	Pb-210	Pb-210 2σ Error	U-nat	Th-230	Ra-226	Pb-210	U-nat	Th-230	Ra-226	Pb-210
AMS-01	1	-1.3E-17	3.4E-18	1.0E-17	1.8E-17	1.7E-17	2.1E-14	2.4E-16	0.00%	0.00%	0.00%	3.54%	1.7E-18	1.7E-18	1.2E-17	2.1E-16
	2	2.4E-17	1.3E-17	9.8E-18	1.4E-17	9.7E-18	2.1E-14	4.9E-16	0.00%	0.00%	0.00%	3.51%	1.5E-18	1.5E-18	8.3E-18	4.2E-16
	3	3.7E-15	1.3E-17	4.2E-17	1.2E-17	5.7E-17	1.9E-14	9.8E-16	0.12%	0.00%	0.00%	3.13%	3.9E-15	2.3E-18	5.7E-17	3.7E-16
	4	0.0E+00	1.6E-18	1.1E-17	7.2E-18	9.1E-18	4.1E-14	6.9E-16	0.00%	0.00%	0.00%	6.78%	1.6E-16	1.6E-18	1.6E-18	7.9E-18
	5	-1.7E-17	6.5E-18	2.5E-17	-3.1E-17	2.7E-17	1.0E-14	6.5E-16	0.00%	0.00%	0.00%	1.74%	4.3E-18	4.3E-18	5.6E-17	6.7E-16
AMS-02	1	-2.0E-17	4.7E-18	1.1E-17	-8.6E-18	1.3E-17	8.9E-15	2.5E-16	0.00%	0.00%	0.00%	1.49%	1.6E-18	1.6E-18	1.1E-17	1.9E-16
	2	4.2E-18	0.0E+00	7.4E-18	-4.2E-18	7.4E-18	8.2E-15	4.2E-16	0.00%	0.00%	0.00%	1.37%	1.4E-18	1.4E-18	7.6E-18	3.9E-16
	3	2.9E-15	1.8E-18	2.5E-17	-2.6E-17	3.3E-17	1.2E-14	7.5E-16	0.10%	0.00%	0.00%	1.96%	3.1E-15	1.8E-18	4.1E-17	3.0E-16
	4	0.0E+00	1.6E-17	1.1E-17	-2.3E-18	7.0E-18	2.0E-14	4.7E-16	0.00%	0.00%	0.00%	3.26%	1.5E-16	1.5E-18	1.5E-18	7.6E-18
	5	-1.3E-17	0.0E+00	8.0E-18	-4.9E-17	2.3E-17	1.5E-14	6.5E-16	0.00%	0.00%	0.01%	2.44%	4.0E-18	4.0E-18	5.3E-17	6.2E-16
AMS-03	1	-3.0E-17	9.3E-18	1.2E-17	-1.4E-17	1.3E-17	9.2E-15	2.5E-16	0.00%	0.00%	0.00%	1.53%	1.5E-18	1.5E-18	1.2E-17	1.9E-16
	2	1.8E-17	8.9E-18	9.0E-18	9.6E-18	9.5E-18	8.0E-15	4.4E-16	0.00%	0.00%	0.00%	1.34%	1.5E-18	1.5E-18	8.9E-18	4.1E-16
	3	2.8E-15	6.9E-18	2.2E-17	-4.8E-18	3.7E-17	1.2E-14	7.5E-16	0.09%	0.00%	0.00%	1.98%	2.9E-15	1.7E-18	3.6E-17	2.8E-16
	4	0.0E+00	9.3E-18	1.0E-17	5.4E-18	8.8E-18	1.3E-14	3.9E-16	0.00%	0.00%	0.00%	2.16%	1.6E-16	1.6E-18	1.6E-18	7.8E-18
	5	-1.6E-17	1.9E-17	9.7E-18	-3.2E-18	3.1E-17	1.2E-14	6.5E-16	0.00%	0.00%	0.00%	1.99%	4.2E-18	4.2E-18	5.0E-17	6.6E-16
AMS-04	1	-2.6E-17	2.5E-18	1.1E-17	-2.8E-17	1.2E-17	8.5E-15	2.6E-16	0.00%	0.00%	0.00%	1.42%	1.7E-18	1.7E-18	9.9E-18	2.0E-16
	2	1.9E-17	6.6E-18	9.0E-18	1.2E-17	9.5E-18	1.0E-14	4.6E-16	0.00%	0.00%	0.00%	1.74%	1.5E-18	1.5E-18	8.1E-18	4.1E-16
	3	3.0E-15	-9.5E-19	3.0E-17	2.5E-17	4.7E-17	-1.1E-16	7.0E-16	0.10%	0.00%	0.00%	0.02%	3.2E-15	1.9E-18	4.4E-17	3.1E-16
	4	0.0E+00	9.4E-18	1.1E-17	2.3E-18	8.3E-18	2.2E-14	5.1E-16	0.00%	0.00%	0.00%	3.66%	1.6E-16	1.6E-18	1.6E-18	7.8E-18
	5	-1.0E-18	2.7E-17	9.7E-18	-5.2E-18	3.3E-17	1.3E-14	6.7E-16	0.00%	0.00%	0.00%	2.23%	4.2E-18	4.2E-18	5.5E-17	6.6E-16

Table 8-1. Radionuclide Concentrations in Air (concluded)

Location	Monitoring Period[a]	Concentration (µCi/ml)							% of Effluent Concentration				Lower Limit of Detection (µCi/ml)			
		U-nat	Th-230	Th-230 2σ Error	Ra-226	Ra-226 2σ Error	Pb-210	Pb-210 2σ Error	U-nat	Th-230	Ra-226	Pb-210	U-nat	Th-230	Ra-226	Pb-210
AMS-05	1	1.0E-18	4.7E-18	1.1E-17	1.1E-17	1.5E-17	1.0E-14	2.3E-16	0.00%	0.00%	0.00%	1.66%	1.6E-18	1.6E-18	1.1E-17	1.9E-16
	2	2.7E-17	1.5E-17	1.0E-17	1.5E-17	9.9E-18	1.1E-14	4.8E-16	0.00%	0.00%	0.00%	1.91%	1.5E-18	1.5E-18	8.5E-18	4.3E-16
	3	2.8E-15	3.6E-17	2.3E-17	-1.3E-17	4.0E-17	1.0E-14	7.2E-16	0.09%	0.00%	0.00%	1.68%	2.9E-15	1.7E-18	4.3E-17	2.8E-16
	4	0.0E+00	2.0E-17	1.4E-17	4.7E-17	1.3E-17	2.5E-14	5.3E-16	0.00%	0.00%	0.01%	4.09%	1.5E-16	1.5E-18	1.5E-18	7.7E-18
	5	2.4E-17	5.6E-17	9.5E-18	2.2E-17	3.4E-17	1.1E-14	6.3E-16	0.00%	0.00%	0.00%	1.85%	4.1E-18	4.1E-18	4.9E-17	6.4E-16
AMS-06	1	-1.4E-17	9.4E-18	1.2E-17	0.0E+00	1.4E-17	6.0E-15	2.2E-16	0.00%	0.00%	0.00%	1.00%	1.6E-18	1.6E-18	1.1E-17	1.9E-16
	2	1.7E-17	5.5E-18	1.0E-17	-5.5E-18	8.4E-18	1.1E-14	4.9E-16	0.00%	0.00%	0.00%	1.80%	1.6E-18	1.6E-18	9.5E-18	4.4E-16
	3	2.9E-15	1.0E-17	2.4E-17	-2.0E-17	3.9E-17	1.7E-14	8.2E-16	0.10%	0.00%	0.00%	2.89%	3.1E-15	1.8E-18	4.2E-17	2.9E-16
	4	0.0E+00	1.4E-17	1.2E-17	2.3E-17	1.0E-17	2.1E-14	4.8E-16	0.00%	0.00%	0.00%	3.56%	1.5E-16	1.5E-18	1.5E-18	7.3E-18
	5	-2.6E-18	2.0E-17	9.1E-18	6.9E-18	3.3E-17	1.9E-14	6.9E-16	0.00%	0.00%	0.00%	3.25%	4.0E-18	4.0E-18	4.9E-17	6.2E-16
[illegible]S-07	1	-1.1E-17	6.4E-18	9.1E-18	-1.3E-17	1.1E-17	7.2E-15	2.2E-16	0.00%	0.00%	0.00%	1.20%	1.4E-18	1.4E-18	9.2E-18	1.7E-16
	2	2.0E-17	7.9E-18	8.1E-18	-6.6E-19	7.5E-18	1.3E-14	4.4E-16	0.00%	0.00%	0.00%	2.13%	1.3E-18	1.3E-18	7.3E-18	3.7E-16
	3	9.1E-15	2.0E-17	2.6E-17	3.9E-18	4.2E-17	1.7E-14	7.8E-16	0.30%	0.00%	0.00%	2.85%	2.9E-15	1.7E-18	4.3E-17	2.8E-16
	4	0.0E+00	1.3E-17	1.2E-17	2.9E-17	1.0E-17	2.8E-14	5.4E-16	0.00%	0.00%	0.00%	4.66%	1.4E-16	1.4E-18	1.4E-18	7.0E-18
	5	-9.2E-19	1.7E-17	8.5E-18	1.4E-17	3.0E-17	1.3E-14	5.9E-16	0.00%	0.00%	0.00%	2.10%	3.7E-18	3.7E-18	4.6E-17	5.8E-16
AMS-BKG	1	1.6E-18	2.0E-17	1.3E-17	-5.6E-18	1.4E-17	8.3E-15	2.5E-16	0.00%	0.00%	0.00%	1.38%	1.6E-18	1.6E-18	1.2E-17	2.2E-16
	2	2.1E-17	2.0E-18	1.2E-17	3.0E-18	1.1E-17	1.8E-14	6.6E-16	0.00%	0.00%	0.00%	3.05%	2.0E-18	2.0E-18	1.2E-17	5.7E-16
	3	3.0E-15	2.8E-17	2.9E-17	-5.1E-18	4.0E-17	1.3E-14	7.7E-16	0.10%	0.00%	0.00%	2.18%	3.2E-15	1.9E-18	4.1E-17	2.5E-16
	4	0.0E+00	-7.8E-19	9.4E-18	1.2E-17	9.5E-18	2.0E-14	4.8E-16	0.00%	0.00%	0.00%	3.29%	1.6E-16	1.6E-18	1.6E-18	7.8E-18
	5	-8.1E-18	2.4E-17	9.3E-18	-1.7E-17	2.4E-17	1.2E-14	6.3E-16	0.00%	0.00%	0.00%	2.00%	4.0E-18	4.0E-18	4.0E-17	5.3E-16

Notes:

a. The laboratory reported no blank assay data for Period 5. Blank assays in the sample concentration calculation were assumed to be 50 percent of the values for blanks reported for the previous period. The assumption is based on the relative, approximate run-time of the air samplers in both periods.

NR = Not reported by the laboratory.

Table 8-2. Baseline Radon Ambient Air Monitoring Measurements

Location	Starting Date	Ending Date	Radon-222 Conc. (µCi/ml)	Error ± (µCi/ml)	LLD (µCi/ml)	Percent Effluent Conc.	Average Rn-222 Conc. (µCi/ml)	Standard Deviation of Average (µCi/ml)	Minimum Rn-222 Conc. (µCi/ml)	Maximum Rn-222 Conc. (µCi/ml)
AMS-1	8/14/07	9/27/07	1.00E-09	-	6.82E-10	1000	7.23E-10	2.09E-10	4.92E-10	1.00E-09
	9/27/07	2/1/08	7.00E-10	-	2.00E-10	700				
	2/1/08	5/17/08	7.00E-10	7.1E-11	2.83E-10	700				
	5/17/08	7/17/08	4.92E-10	-	4.92E-10	492				
AMS-1[a]	8/14/07	9/27/07	1.00E-09	-	6.82E-10	1000	5.73E-10	2.88E-10	4.00E-10	1.00E-09
	9/27/07	2/1/08	4.00E-10	-	2.00E-10	400				
	2/1/08	5/17/08	4.00E-10	5.2E-11	2.83E-10	400				
	5/17/08	7/17/08	4.92E-10	-	4.92E-10	492				
AMS-2	8/15/07	9/27/07	2.20E-09	-	6.98E-10	2200	1.70E-09	7.62E-10	4.92E-10	2.20E-09
	9/27/07	2/1/08	1.20E-09	-	2.00E-10	1200				
	2/1/08	5/17/08	7.00E-10	7.0E-11	2.83E-10	700				
	5/17/08	7/17/08	4.92E-10	-	4.92E-10	492				
AMS-3	8/14/07[b]	9/27/07[b]	1.20E-09	-	6.82E-10	1200	1.20E-09	9.30E-10	4.92E-10	2.70E-09
	9/27/07	2/4/08	1.20E-09	-	2.00E-10	1200				
	2/4/08	5/17/08	2.70E-09	7.9E-11	2.91E-10	2700				
	5/17/08	7/17/08	4.92E-10	-	4.92E-10	492				
AMS-4	8/14/07	9/24/07	1.20E-09	-	7.32E-10	1200	1.20E-09	9.98E-10	5.75E-10	2.90E-09
	9/27/07	2/4/08	1.20E-09	-	2.00E-10	1200				
	2/4/08	5/17/08	2.90E-09	7.8E-11	2.91E-10	2900				
	5/17/08	7/17/08	5.75E-10	-	4.92E-10	575				
AMS-5	8/15/07	9/27/07	2.20E-09	-	6.98E-10	2200	1.60E-09	7.16E-10	4.92E-10	2.20E-09
	9/27/07	2/1/08	1.00E-09	-	2.00E-10	1000				
	2/1/08	5/17/08	1.20E-09	7.9E-11	2.83E-10	1200				
	5/17/08	7/17/08	4.92E-10	-	4.92E-10	492				

Table 8-2. Baseline Radon Ambient Air Monitoring Measurements (concluded)

Location	Starting Date	Ending Date	Radon-222 Conc. (µCi/ml)	Error ± (µCi/ml)	LLD (µCi/ml)	Percent Effluent Conc.	Average Rn-222 Conc. (µCi/ml)	Standard Deviation of Average (µCi/ml)	Minimum Rn-222 Conc. (µCi/ml)	Maximum Rn-222 Conc. (µCi/ml)
AMS-6	8/17/07	9/27/07	2.60E-09	-	7.32E-10	2600	1.80E-09	8.40E-10	6.89E-10	2.60E-09
	9/27/07	2/1/08	1.00E-09	-	2.00E-10	1000				
	2/11/08	5/17/08	1.30E-09	7.6E-11	2.83E-10	1300				
	5/17/08	7/17/08	6.89E-10	-	4.92E-10	689				
AMS-7	8/14/07	9/27/07	1.10E-09	-	6.82E-10	1100	1.30E-09	4.15E-10	4.92E-10	1.50E-09
	9/27/07	2/1/08	1.50E-09	-	2.00E-10	1500				
	2/1/08	5/17/08	1.00E-09	7.2E-11	2.83E-10	1000				
	5/17/08	7/17/08	4.92E-10	-	4.92E-10	492				
AMS-BKG	8/14/07	9/24/07	2.00E-09	-	7.32E-10	2000	1.80E-09	6.58E-10	4.95E-10	2.00E-09
	9/27/07	2/1/08	1.60E-09	-	2.00E-10	1600				
	2/1/08	5/17/08	1.70E-09	8.1E-11	2.83E-10	1700				
	5/17/08	7/17/08	4.95E-10	-	4.92E-10	495				
AMS-BKG[a]	8/14/07	9/27/07	2.70E-09	-	6.82E-10	2700	2.10E-09	9.03E-10	4.92E-10	2.70E-09
	9/27/07	2/1/08	1.50E-09	-	2.00E-10	1500				
	2/1/08	5/17/08	1.50E-09	8.1E-11	2.83E-10	1500				
	5/17/08	7/17/08	4.92E-10	-	4.92E-10	492				
Rn 01	8/14/07	9/23/07	2.00E-09	-	7.50E-10	2000	1.65E-09	8.35E-10	5.00E-10	2.40E-09
	9/23/07	2/11/08	1.30E-09	-	2.00E-10	1300				
	2/11/08	5/17/08	2.40E-09	8.5E-11	3.13E-10	2400				
	5/17/08	7/17/08	5.00E-10	-	4.76E-10	500				
Rn 02	8/14/07	9/23/07	9.80E-09	-	7.50E-10	9800	3.86E-09	5.15E-09	5.75E-10	9.80E-09
	9/23/07	2/11/08	1.20E-09	-	2.00E-10	1200				
	no data	-	-	-	-	-				
	5/17/08	7/17/08	5.75E-10	1.5E-10	4.92E-10	575				

Table 8-2. Baseline Radon Ambient Air Monitoring Measurements (concluded)

Location	Starting Date	Ending Date	Radon-222 Conc. (µCi/ml)	Error ± (µCi/ml)	LLD (µCi/ml)	Percent Effluent Conc.	Average Rn-222 Conc. (µCi/ml)	Standard Deviation of Average (µCi/ml)	Minimum Rn-222 Conc. (µCi/ml)	Maximum Rn-222 Conc. (µCi/ml)
Rn 03	8/14/07	9/23/07	1.20E-09	-	7.50E-10	1200	1.05E-09	9.63E-10	4.92E-10	2.70E-09
	9/23/07	2/11/08	9.00E-10	-	2.00E-10	900				
	2/11/08	5/17/08	2.70E-09	8.6E-11	3.13E-10	2700				
	5/17/08	7/17/08	4.92E-10	-	4.92E-10	492				
Rn 04	8/14/07	9/23/07	2.00E-09	-	7.50E-10	2000	1.70E-09	6.34E-10	5.00E-10	2.00E-09
	9/23/07	2/1/08	1.40E-09	-	2.00E-10	1400				
	2/11/08	5/17/08	1.00E-09	7.7E-11	2.83E-10	1000				
	5/17/08	7/17/08	5.00E-10	-	4.92E-10	500				
Rn 05	8/14/07	9/23/07	1.50E-09	-	7.50E-10	1500	1.30E-09	7.82E-10	8.18E-10	2.60E-09
	9/23/07	2/12/08	1.10E-09	-	2.00E-10	1100				
	2/11/08	5/17/08	2.60E-09	8.6E-11	3.16E-10	2600				
	5/17/08	7/17/08	8.18E-10	-	4.92E-10	818				
Rn 06	8/19/07	9/23/07	3.30E-09	-	8.57E-10	3300	2.30E-09	1.35E-09	4.92E-10	3.30E-09
	9/23/07	2/11/08	1.30E-09	-	2.00E-10	1300				
	2/11/08	5/17/08	3.00E-09	8.5E-11	3.13E-10	3000				
	5/17/08	7/17/08	4.92E-10	-	4.92E-10	492				
Rn 07	8/15/07	9/23/07	3.00E-09	-	7.69E-10	3000	2.40E-09	1.18E-09	7.21E-10	3.30E-09
	9/23/07	2/12/08	1.80E-09	-	2.00E-10	1800				
	2/12/08	5/17/08	3.30E-09	8.3E-11	3.16E-10	3300				
	5/17/08	7/17/08	7.21E-10	-	4.92E-10	721				
Rn 08	8/14/07	9/23/07	1.50E-09	-	7.50E-10	1500	1.40E-09	4.39E-10	4.92E-10	1.50E-09
	9/23/07	2/1/08	1.30E-09	-	2.00E-10	1300				
	9/23/07	2/1/08	1.00E-09	7.2E-11	2.83E-10	1000				
	5/17/08	7/17/08	4.92E-10	-	4.92E-10	492				

Notes:
a. Duplicate track etch detector
b. Seal potentially compromised

Table 9-1. Ambient Gamma Dose Rates using TLDs

Location	Starting Date	End Date	Dose (mrem)	Projected Annual Dose (mrem)
AMS-01	9/18/07	2/4/08	-	114
	2/4/08	5/17/08	37.2[a]	
	5/17/08	7/17/08	57.7[a]	
AMS-02	9/18/07	2/4/08	-	323
	2/4/08	5/17/08	-	
	5/17/08	7/17/08	54.0	
AMS-03	9/18/07	2/4/08	-	137
	2/4/08	5/17/08	38.6	
	5/17/08	7/17/08		
AMS-04	9/18/07	2/4/08	62.4	184
	2/4/08	5/17/08	36.1	
	5/17/08	7/17/08	54.3	
AMS-05	9/18/07	2/4/08	50.6	149
	2/4/08	5/17/08	36.7	
	5/17/08	7/17/08	36.4	
AMS-06	9/18/07	2/4/08	-	196
	2/4/08	5/17/08	36.9	
	5/17/08	7/17/08	51.1	
AMS-07	9/18/07	2/4/08	73.7	175
	2/4/08	5/17/08	35.5	
	5/17/08	7/17/08	36.1	
AMS-BKG	9/18/07	2/4/08	68.8[a]	202
	2/4/08	5/17/08	40.5[a]	
	5/17/08	7/17/08	58.5[a]	

Notes:
a. Result is average of measurement plus duplicate.

Table 10-1. Baseline Radionuclide Concentrations in Local Food

Sample ID	Radionuclide	Parameter	Result
DBAT-01	**U-nat (µCi/kg)**	**Concentration**	<7.0E-06
		Error ± 2σ	-
		LLD	7.0E-06
	Ra-226 (µCi/kg)	Concentration	3.0E-06
		Error ± 2σ	2.0E-06
		LLD	3.0E-06
	Th-230 (µCi/kg)	Concentration	0.0
		Error ± 2σ	2.0E-05
		LLD	8.0E-06
	Pb-210 (µCi/kg)	Concentration	-7.0E-06
		Error ± 2σ	4.0E-05
		LLD	7.0E-06
	Po-210 (µCi/kg)	Concentration	8.0E-06
		Error ± 2σ	1.0E-04
		LLD	8.0E-06
DBAT-02	**U-nat (µCi/kg)**	Concentration	<7.0E-06
		Error ± 2σ	-
		LLD	7.0E-06
	Ra-226 (µCi/kg)	Concentration	6.0E-05
		Error ± 2σ	3.0E-05
		LLD	4.0E-05
	Th-230 (µCi/kg)	Concentration	0.0
		Error ± 2σ	1.4E-03
		LLD	1.0E-04
	Pb-210 (µCi/kg)	Concentration	2.0E-04
		Error ± 2σ	7.0E-04
		LLD	1.2E-03
	Po-210 (µCi/kg)	Concentration	0.0
		Error ± 2σ	1.2E-03
		LLD	1.0E-04
DBAT-03	**U-nat (µCi/kg)**	Concentration	<7.0E-06
		Error ± 2σ	-
		LLD	7.0E-06
	Ra-226 (µCi/kg)	Concentration	3.0E-06
		Error ± 2σ	1.0E-06
		LLD	2.0E-06
	Th-230 (µCi/kg)	Concentration	0.0
		Error ± 2σ	1.0E-04
		LLD	6.0E-06
	Pb-210 (µCi/kg)	Concentration	-7.0E-06
		Error ± 2σ	4.0E-05
		LLD	6.0E-05
	Po-210 (µCi/kg)	Concentration	2.0E-05
		Error ± 2σ	2.0E-04
		LLD	6.0E-06

Figures

Appendix A

GPS-Based Gamma-Ray Survey Calibration Sheets and Function Check Data

Reuter-Stokes

Calibration Certificate

Reuter-Stokes certifies that the Environmental Radiation Monitor, identified below, has been calibrated for output using the shadow shield technique*, and calibrated with radiation sources traceable to the National Institute of Standards and Technology.

Sensor Type: 100 R/Hr

Serial Number: 07J00KM1

Calibration Date: 6/19/08

Sensitivity: 10.21 mV/μR/h

Brandon Brady 6/23/08

Authorized Signature

*Calibration Procedure: RS-SOP 238.1

Reuter-Stokes

Calibration Data

Sensor Type:	100 R/Hr	Source (CS-137):	BB-400
Serial Number:	07J00KM1	Date of Certification:	12/1/94
Calibration Date:	6/19/08	Exposure Rate at 1 meter:	4.226 mR/h

Customer Name: ENVIRONMENTAL RESTORATION

Sensitivity (Ra-226): 10.21 mV/μR/h

Distance		Exposure Rate	P+S+A	S+A	P	k(CS-137)
Feet	cm	μR/h	V	V	V	mV/μR/h
11.8	359	235.064	3.692	1.264	2.428	10.33
13.8	420	171.114	3.202	1.435	1.768	10.33
15.8	481	129.972	3.173	1.832	1.341	10.31
17.8	542	101.968	3.335	2.283	1.052	10.32

k(CS-137) = 10.32 mv/μR/h

$\bar{k}$ = 10.32 mv/μR/h

k(Ra-226) = .9892 k(CS-137)

σ = .008 mv/μR/h

k(Ra-226) = 10.21 mv/μR/h

$V = \frac{\sigma}{k} =$ 0.074%

By: _____ Date: 6/19/08

Reuter-Stokes

RSS-131 FIRMWARE PARAMETERS

S/N 07J00KM1

RAC	2.210E-08
ZLN	0.000E-00
ZMN	4.324E-01
ZHN	-2.127E-03
ZLD	0.000E-00
ZMD	-2.414E-04
ZHD	-6.174E-07
RLN	4.619E+11
RMN	2.231E+09
RHN	1.001E+07
RLV	-1.524E+08
RMV	2.094E+04
RHV	-1.548E+02

Only change in constants is
In the RAC from 2.228E-08

By: _____
Level 2 Nuclear / Electrical Inspector

Date: 4/9/08

Reviewed By: Brandon Bradley 4/9/08
Product Engineer

EBERLINE SERVICES

CERTIFICATE OF CALIBRATION

Gamma Standard

S.O.# 3951
P.O.# N/A

Description of Standard:

Model No. CS-7AS Serial No. 4054-02 Isotope Cs-137

The source of gamma radiation is mounted on a 2.54 cm diameter PLASTIC disc, 3 mm thick and sealed in a PLASTIC RESIN.

Measurement Method:

The gamma ray emission rate was compared with a similar standard, which was calibrated by NIST S/N 2752-91. The comparison of relative gama ray emission rates was accomplished using a high resolution gamma-ray detector (nominal active volume 100 cm^3) and a multichannel pulse height analyzer.

Measurement Result:

The gamma ray activity of the standard on 10-03-2002 was 8.5 μCi. The uncertainty of the measurement is 5 %, which is the sum of the uncertainty assigned to the NIST reference (2.2 %), random counting error at the 99% confidence level, and the estimated upper limit of systematic errors.

Calibrated by: ART REUST Reviewed by:

Calibration Technician: Art Reust Q.A. Representative: Anthony W. Toth

Calibration Date: 10-03-2002 Reviewed Date: 10-4-02

Analytical Services
7021 Pan American Freeway NE
Albuquerque, New Mexico 87109-4238
(505) 345-3461 Fax (505) 761-5416
Toll Free (866) RAD-LABS (723-5227)
www.eberlineservices.com

Certificate of Calibration

Ratemeter / Scaler Certificate of Calibration

ERG
Environmental Restoration Group, Inc.
8809 Washington St. NE, Suite 150
Albuquerque, NM 87113
(505) 298-4224

Manufacturer: Ludlum Model: 2221r Serial No.: 190171

All Ranges Calibrated Electronically; Ludlum Pulser Generator Serial No.: ☐ 97743 ☑ 201932

This calibration conforms to the requirements and acceptable calibration conditions of ANSI N323A - 1997, NMRCB Registration No. 481-3 • Calibration of Radiation Detection Instruments & Devices

☑ Mechanical ck. ☑ Meter Zeroed ☑ Geotropism ck. ☑ F/S Response ck. ☑ Audio ck.

☑ THR/WIN ck. High Voltage ck.: ☑ 500v ☑ 1000v ☑ 1500v ☑ Battery ck. (min 4.4 vdc)

Threshold Setting: 10 mV

Instrument found within tolerance (+/- 10%) ☑ Yes ☐ No

Reference Calibration Point	Instrument "As Found Reading"	Instrument Meter Reading
400 Kcpm	+/- 10%	400 Kcpm
100 Kcpm	+/- 10%	100 Kcpm
40 Kcpm	+/- 10%	40 Kcpm
10 Kcpm	+/- 10%	10 Kcpm
4 Kcpm	+/- 10%	4 Kcpm
1 Kcpm	+/- 10%	1 Kcpm
400 cpm	+/- 10%	400 cpm
100 cpm	+/- 10%	100 cpm

Reference Calibration Point	Instrument "As Found Reading"	Log Scale Count Rate	Integrated Counts (1-minute count)
400 Kcpm	+/- 10%	400 Kcpm	3998866
40 Kcpm	+/- 10%	40 Kcpm	39888
4 Kcpm	+/- 10%	4 Kcpm	3988
400 cpm	+/- 10%	400 cpm	398

Calibrated By: [signature] Calibration Date: 10-9-07

Calibration Due: 10-9-08

Reviewed By: [signature] Date: 10/9/07

Certificate of Calibration

Ratemeter / Scaler Certificate of Calibration

ERG
Environmental Restoration Group, Inc.
8809 Washington St. NE, Suite 150
Albuquerque, NM 87113
(505) 298-4224

Manufacturer: Ludlum Model: 2221 Serial No.: 117634

All Ranges Calibrated Electronically; Ludlum Pulser Generator Serial No.: ☐ 97743 ☑ 201932

This calibration conforms to the requirements and acceptable calibration conditions of ANSI N323A - 1997.
NMRCB Registration No. 481-3 • Calibration of Radiation Detection Instruments & Devices

☑ Mechanical ck. ☑ Meter Zeroed ☑ Geotropism ck. ☑ F/S Response ck. ☑ Audio ck.

☑ THR/WIN ck. High Voltage ck.: ☑ 500v ☑ 1000v ☑ 1500v ☑ Battery ck. (min 4.4 vdc)

Threshold Setting: 10 mV

Instrument found within tolerance (+/- 10%) ☑ Yes ☐ No

Reference Calibration Point	Instrument "As Found Reading"	Instrument Meter Reading
400 Kcpm	+/- 10%	400 Kcpm
100 Kcpm	+/- 10%	100 Kcpm
40 Kcpm	+/- 10%	40 Kcpm
10 Kcpm	+/- 10%	10 Kcpm
4 Kcpm	+/- 10%	4 Kcpm
1 Kcpm	+/- 10%	1 Kcpm
400 cpm	+/- 10%	400 cpm
100 cpm	+/- 10%	100 cpm

Reference Calibration Point	Instrument "As Found Reading"	Log Scale Count Rate	Integrated Counts (1-minute count)
400 Kcpm	+/- 10%	400 Kcpm	398978
40 Kcpm	+/- 10%	40 Kcpm	39900
4 Kcpm	+/- 10%	4 Kcpm	3990
400 cpm	+/- 10%	400 cpm	399

Calibrated By: [signature] Calibration Date: 9-6-07

Calibration Due: 9-6-08

Reviewed By: [signature] Date: 9-6-07

Certificate of Calibration

Ratemeter / Scaler Certificate of Calibration

ERG
Environmental Restoration Group, Inc.
8809 Washington St. NE, Suite 150
Albuquerque, NM 87113
(505) 298-4224

Manufacturer: Ludlum Model: 2221 Serial No.: 117648

All Ranges Calibrated Electronically; Ludlum Pulser Generator Serial No.: ☐ 97743 ☑ 201932

This calibration conforms to the requirements and acceptable calibration conditions of ANSI N323A - 1997.
NMRCB Registration No. 481-3 • Calibration of Radiation Detection Instruments & Devices

☑ Mechanical ck. ☑ Meter Zeroed ☑ Geotropism ck. ☑ F/S Response ck. ☑ Audio ck.

☑ THR/WIN ck. High Voltage ck.: ☑ 500v ☑ 1000v ☑ 1500v ☑ Battery ck. (min 4.4 vdc)

Threshold Setting: 10 mV

Instrument found within tolerance (+/- 10%) ☑ Yes ☐ No

Reference Calibration Point	Instrument "As Found Reading"	Instrument Meter Reading
400 Kcpm	+/- 10%	400 Kcpm
100 Kcpm	+/- 10%	100 Kcpm
40 Kcpm	+/- 10%	40 Kcpm
10 Kcpm	+/- 10%	10 Kcpm
4 Kcpm	+/- 10%	4 Kcpm
1 Kcpm	+/- 10%	1 Kcpm
400 cpm	+/- 10%	400 cpm
100 cpm	+/- 10%	100 cpm

Reference Calibration Point	Instrument "As Found Reading"	Log Scale Count Rate	Integrated Counts (1-minute count)
400 Kcpm	+/- 10%	400 Kcpm	399233
40 Kcpm	+/- 10%	40 Kcpm	39924
4 Kcpm	+/- 10%	4 Kcpm	3992
400 cpm	+/- 10%	400 cpm	399

Calibrated By: [signature] Calibration Date: 9-5-07

Calibration Due: 9-5-08

Reviewed By: [signature] Date: 9-6-07

Certificate of Calibration

Ratemeter / Scaler Certificate of Calibration

ERG
Environmental Restoration Group, Inc.
8809 Washington St. NE, Suite 150
Albuquerque, NM 87113
(505) 298-4224

Manufacturer: Ludlum Model: 2221r Serial No.: 138377

All Ranges Calibrated Electronically; Ludlum Pulser Generator Serial No.: ☐ 97743 ☑ 201932

This calibration conforms to the requirements and acceptable calibration conditions of ANSI N323A - 1997.
NMRCB Registration No. 481-3 • Calibration of Radiation Detection Instruments & Devices

☑ Mechanical ck. ☑ Meter Zeroed ☑ Geotropism ck. ☑ F/S Response ck. ☑ Audio ck.

☑ THR/WIN ck. High Voltage ck.: ☑ 500v ☑ 1000v ☑ 1500v ☑ Battery ck. (min 4.4 vdc)

Threshold Setting: 10 mV

Instrument found within tolerance (+/- 10%) ☑ Yes ☐ No

Reference Calibration Point	Instrument "As Found Reading"	Instrument Meter Reading
400 Kcpm	400 Kcpm	400 Kcpm
100 Kcpm	100 Kcpm	100 Kcpm
40 Kcpm	40 Kcpm	40 Kcpm
10 Kcpm	10 Kcpm	10 Kcpm
4 Kcpm	4 Kcpm	4 Kcpm
1 Kcpm	1 Kcpm	1 Kcpm
400 cpm	400 cpm	400 cpm
100 cpm	100 cpm	102 cpm

Reference Calibration Point	Instrument "As Found Reading"	Log Scale Count Rate	Integrated Counts (1-minute count)
400 Kcpm	400 Kcpm	400 Kcpm	398495
40 Kcpm	40 Kcpm	40 Kcpm	39859
4 Kcpm	4 Kcpm	4 Kcpm	3987
400 cpm	400 cpm	400 cpm	399

Calibrated By: [signature] Calibration Date: 7-8-08

Calibration Due: 7-8-09

Reviewed By: [signature] Date: 7/9/08

Certificate of Calibration

Ratemeter / Scaler Certificate of Calibration

ERG
Environmental Restoration Group, Inc.
8809 Washington St. NE, Suite 150
Albuquerque, NM 87113
(505) 298-4224

Manufacturer: Ludlum Model: 2221r Serial No.: 149942

All Ranges Calibrated Electronically; Ludlum Pulser Generator Serial No.: ☐ 97743 ☑ 201932

This calibration conforms to the requirements and acceptable calibration conditions of ANSI N323A - 1997.
NMRCB Registration No. 481-3 • Calibration of Radiation Detection Instruments & Devices

☑ Mechanical ck. ☑ Meter Zeroed ☑ Geotropism ck. ☑ F/S Response ck. ☑ Audio ck.

☑ THR/WIN ck. High Voltage ck.: ☑ 500v ☑ 1000v ☑ 1500v ☑ Battery ck. (min 4.4 vdc)

Threshold Setting: 10 mV

Instrument found within tolerance (+/- 10%) ☑ Yes ☐ No

Reference Calibration Point	Instrument "As Found Reading"	Instrument Meter Reading
400 Kcpm	400 Kcpm	400 Kcpm
100 Kcpm	100 Kcpm	100 Kcpm
40 Kcpm	40 Kcpm	40 Kcpm
10 Kcpm	10 Kcpm	10 Kcpm
4 Kcpm	4 Kcpm	4 Kcpm
1 Kcpm	1 Kcpm	1 Kcpm
400 cpm	400 cpm	400 cpm
100 cpm	100 cpm	102 cpm

Reference Calibration Point	Instrument "As Found Reading"	Log Scale Count Rate	Integrated Counts (1-minute count)
400 Kcpm	400 Kcpm	400 Kcpm	397437
40 Kcpm	40 Kcpm	40 Kcpm	39749
4 Kcpm	4 Kcpm	4 Kcpm	3975
400 cpm	400 cpm	400 cpm	398

Calibrated By: [signature] Calibration Date: 7-8-08

Calibration Due: 7-8-09

Reviewed By: [signature] Date: 7/9/08

Certificate of Calibration

Voltage Plateau Form

ERG
Environmental Restoration Group, Inc.
8809 Washington St. NE, Suite 150
Albuquerque, NM 87113
(505) 298-4224

Detector Mfg.: Ludlum Model: 44-10 Serial No.: PR118372

Counter Mfg.: Ludlum Model: 2221r Serial No.: 149942

This calibration conforms to the requirements and acceptable calibration conditions of ANSI N323A - 1997, NMRCB Registration No. 481-3 • Calibration of Radiation Detection Instruments & Devices

Counter Threshold Setting: 10 mV Cable Length: ☐ 39 inch, ☐ 5 foot, ☑ Other: Curly

Detector geometry to source: ☐ Face, ☑ Side, ☐ Below, ☐ Other:

Distance to source: ☐ Contact, ☑ 6-Inches, ☐ Other:

Gamma Source: ☑ Cs-137 @ 5.7μCi (2/18/08) sn: 4097-03 ☐ Other:

Count Time: 1 Minute

High Voltage	Gross Source Counts	Background Counts
700	22785	
800	48024	
900	67222	
1000	74072	
1050	75152	
1100	77671	10353
→ 1150	78495	10558
1200	78943	

Comments: Recommended Operating High Voltage: 1150 volts

Calibrated By: [signature] Calibration Date: 7-8-08

Calibration Due: 7-8-09

Reviewed By: [signature] Date: 7/9/08

Certificate of Calibration

Voltage Plateau Form

ERG
Environmental Restoration Group, Inc.
8809 Washington St. NE, Suite 150
Albuquerque, NM 87113
(505) 298-4224

Detector Mfg.: Ludlum Model: 44-10 Serial No.: PR198936

Counter Mfg.: Ludlum Model: 2221 Serial No.: 117648

This calibration conforms to the requirements and acceptable calibration conditions of ANSI N323A - 1997.
NMRCB Registration No. 481-3 • Calibration of Radiation Detection Instruments & Devices

Counter Threshold Setting: 10 mV Cable Length: ☐ 39 inch, ☐ 5 foot, ☑ Other: Curly

Detector geometry to source: ☐ Face, ☑ Side, ☐ Below, ☐ Other: _____

Distance to source: ☐ Contact, ☑ 6-Inches, ☐ Other: _____

Gamma Source: ☑ Cs-137 @ 5.81µCi (3/07/07) sn: 4097-03 ☐ Other: _____

Count Time: 1 Minute

High Voltage	Gross Source Counts	Background Counts
700	34348	
800	62611	
900	75761	
1000	80115	
1100	81583	9258
1200	82568	

Comments: Recommended Operating High Voltage: 1100 volts

Calibrated By: _____ Calibration Date: 9-5-07

Calibration Due: 9-5-08

Reviewed By: _____ Date: 9-6-07

Certificate of Calibration

Voltage Plateau Form

ERG
Environmental Restoration Group, Inc.
8809 Washington St. NE, Suite 150
Albuquerque, NM 87113
(505) 298-4224

Detector Mfg.: Ludlum Model: 44-10 Serial No.: PR118372

Counter Mfg.: Ludlum Model: 2221 Serial No.: 117634

This calibration conforms to the requirements and acceptable calibration conditions of ANSI N323A - 1997, NMRCB Registration No. 481-3 • Calibration of Radiation Detection Instruments & Devices

Counter Threshold Setting: 10 mV Cable Length: ☐ 39 inch, ☐ 5 foot, ☑ Other: Curly

Detector geometry to source: ☐ Face, ☑ Side, ☐ Below, ☐ Other:

Distance to source: ☐ Contact, ☑ 6-Inches, ☐ Other:

Gamma Source: ☑ Cs-137 @ 5.81µCi (3/07/07) sn: 4097-03 ☐ Other:

Count Time: 1 Minute

High Voltage	Gross Source Counts	Background Counts
700	33013	
800	61587	
900	76444	
1000	81227	
1100	82653	9657
1200	83660	

Comments: Recommended Operating High Voltage: 1100 volts

Calibrated By: _____ Calibration Date: 9-6-07

Calibration Due: 9-6-08

Reviewed By: _____ Date: 9-6-07

Certificate of Calibration

Voltage Plateau Form

ERG
Environmental Restoration Group, Inc.
8809 Washington St. NE, Suite 150
Albuquerque, NM 87113
(505) 298-4224

Detector Mfg.: Ludlum Model: 44-10 Serial No.: PR198936

Counter Mfg.: Ludlum Model: 2221r Serial No.: 138377

This calibration conforms to the requirements and acceptable calibration conditions of ANSI N323A - 1997.
NMRCB Registration No: 481-3 • Calibration of Radiation Detection Instruments & Devices

Counter Threshold Setting: 10 mV Cable Length: ☐ 39 inch, ☐ 5 foot, ☑ Other: Curly

Detector geometry to source: ☐ Face, ☑ Side, ☐ Below, ☐ Other:

Distance to source: ☐ Contact, ☑ 6-Inches, ☐ Other:

Gamma Source :☑Cs-137 @ 5.7µCi (2/18/08) sn: 4097-03 ☐Other:

Count Time: 1 Minute

High Voltage	Gross Source Counts	Background Counts
700	27018	
800	52935	
900	70350	
1000	75558	
1050	76535	
1100	77714	10137
1150	77995	10243
1200	78417	

Comments: Recommended Operating High Voltage: 1150 volts

Calibrated By: [signature] Calibration Date: 7-8-08

Calibration Due: 7-8-09

Reviewed By: [signature] Date: 7/9/08

Certificate of Calibration

Voltage Plateau Form

ERG
Environmental Restoration Group, Inc.
8809 Washington St. NE, Suite 150
Albuquerque, NM 87113
(505) 298-4224

Detector Mfg.: Ludlum Model: 44-10 Serial No.: PR153990

Counter Mfg.: Ludlum Model: 2221 Serial No.: 190171

This calibration conforms to the requirements and acceptable calibration conditions of ANSI N323A - 1997.
NMRCB Registration No. 481-3 - Calibration of Radiation Detection Instruments & Devices

Counter Threshold Setting: 10 mV Cable Length: ☐ 39 inch, ☐ 5 foot, ☑ Other: Curly

Detector geometry to source: ☐ Face, ☑ Side, ☐ Below, ☐ Other: _____

Distance to source: ☐ Contact, ☑ 6-Inches, ☐ Other: _____

Gamma Source: ☑ Cs-137 @ 5.81µCi (3/07/07) sn: 4097-03 ☐ Other: _____

Count Time: 1 Minute

High Voltage	Gross Source Counts	Background Counts
700	1058	
800	24638	
900	47539	
1000	68923	
1100	77419	
1150	79281	9781
1200	80757	

Comments: Recommended Operating High Voltage: 1150 volts

Calibrated By: _____ Calibration Date: 10-9-07

Calibration Due: 10-9-08

Reviewed By: _____ Date: 10/9/07

Certificate of Calibration

Voltage Plateau Form

ERG
Environmental Restoration Group, Inc.
8809 Washington St. NE, Suite 150
Albuquerque, NM 87113
(505) 298-4224

Detector Mfg.: Ludlum Model: 44-10 Serial No.: PR153990

Counter Mfg.: Ludlum Model: 2221 Serial No.: 190171

This calibration conforms to the requirements and acceptable calibration conditions of ANSI N323A - 1997, NMRCB Registration No. 481-3 - Calibration of Radiation Detection Instruments & Devices

Counter Threshold Setting: 10 mV Cable Length: ☐ 39 inch, ☐ 5 foot, ☑ Other: Curly

Detector geometry to source: ☐ Face, ☑ Side, ☐ Below, ☐ Other: _____

Distance to source: ☐ Contact, ☑ 6-Inches, ☐ Other: _____

Gamma Source: ☑ Cs-137 @ 5.81μCi (3/07/07) sn: 4097-03 ☐ Other: _____

Count Time: 1 Minute

High Voltage	Gross Source Counts	Background Counts
700	1058	
800	24638	
900	47539	
1000	68923	
1100	77419	
1150	79281	9781
1200	80757	

Comments: Recommended Operating High Voltage: 1150 volts

Calibrated By: _____ Calibration Date: 10-9-07

Calibration Due: 10-9-08

Reviewed By: _____ Date: 10/9/07

(A)

Daily Function Check Form

Site: Pomortech, SD

Ratemeter: Ludlum 2221 Serial No. 117634 Cal. Due Date 9-6-08

Detector: Ludlum 44-10 Serial No. PR 118372 Cal. Due Date 9-6-08

Source: Cs-137 Activity: 8.5 µCi on 10-3-02 Serial No. 4059-02 Cs-7A-5

Distance to Source: 6-in. see note

Notes:

Date	Time	Battery	High Voltage	Threshold (mv)	Gross Counts (CPM)	Background (CPM)	Net Counts (CPM)	Efficiency (CPM/DPM)	Initials	Location
9/13/07	0700	5.9	1102	100	97668	7912	89756	0.5%	MW	Barn
9/13/07	1710	5.8	1092	98	84431	7860	76271	0.5%	MW	Barn
9/14/07	6:50am	5.9	1108	100	91644	7968	83676	0.5%	DRF	Barn
9/14/07	3:20pm	5.7	1100	100	55681*	8100	47581	0.3%	DRF	Barn
9/15/07	6:35am	5.7	1105	100	66837*	8325	58512	0.4%	DRF	Barn
9/15/07	5:00pm	5.5	1083	97	68549*	8210	60339	0.4%	DRF	Barn
9/17/07	~~7:45am~~ 8:30am DRF	5.7	1102	99	363089 **	8920**	354268	2%	DRF	Barn
9/17/07	4:20pm	5.5	1090	99	368305**	8838**	359467	2%	DRF	Barn
9/18/07	7:10am	5.6	1101	100	137052***	9060***	127992	0.7%	DRF	Barn
9/18/07	2:30pm	5.4	1100	99	130824***	8542***	122282	0.7%	DRF	Barn
9/19/07	5:45am	5.7	1106	100	134695	~~7805***~~ 8241 DRF 9/19/07	126454	0.7%	DRF	Barn
—	—	—	—	—	—	—	—	—	—	—

Reviewed By: MJ Date: 12/02/08

* Detector was raised by ~2" due to the mount on the ATV lifting during survey on 9/14/07.
** Function check jig used (source-detector distance of ~2")
*** Detector was placed on the ground (source-detector distance of 6" center-to-center)

(A)

Daily Function Check Form

Site: Powertech, SD

Ratemeter: Ludlum 2221 Serial No. PR118372 Cal. Due Date 9-6-08

Detector: Ludlum 44-10 Serial No. 117634 Cal. Due Date 9-6-08

Source: Cs-137 Activity: 8.5 μCi on 10-3-02 Seria No. 4059-02 Cs-7A5

Distance to Source 6-in. see note

Notes: _____

Date	Time	Battery	High Voltage	Threshold (mV)	Cross Counts CPM	Background (CPM)	Net Counts (CPM)	Efficiency (CPM/DPM)	Initials	Location
9/19/07	5:35pm	5.4	1096	98	136365	8394	127971	0.7%	DRF	Barn
9/20/07	6:15am	5.5	1103	100	136370	8382	127988	0.7%	DRF	barn
9/20/07	5:17pm	5.4	1078	97	131286	8210	123076	0.7%	DRF	Barn
9/21/07	7:10am	5.6	1102	99	136577	8422	128155	0.7%	DRF	Barn
9/21/07	4:20pm	5.3	1091	98	134782	8112	126670	0.7%	DRF	Barn
9/25/07	7:50am	5.5	1107	100	135603	8512	127091	0.7%	DRF	Barn
9/25/07	1745	5.4	1095	99	126887	8282	118605	0.7%	NW	Barn
9/26/07 NW 9/25/07	0700	5.5	1106	100	133522	8903	124619	0.7%	NW	Barn
9/26/07	4:40pm	5.4	1096	98	135688	8143	127545	0.7%	DRF	Barn
9/27/07	0616	5.5	1107	100	137172	9263	127909	0.7%	NW	Barn
9/27/07	3:15pm	5.3	1089	99	132525	8287	124258	0.7%	DRF	Barn
—	—	—	—	—	—	—	—	—	—	—

Reviewed By: _____ Date 12/08/

(B)

Daily Function Check Form

Site: Powertech, SD

Ratemeter: Ludlum 2221 Serial No. 117648 Cal. Due Date 9-6-08

Detector: Ludlum 44-10 Serial No. PR198936 Cal. Due Date 9-6-08

Source: Cs-137 Activity: 8.5 μCi on 10-3-02 Serial No. 4054-07 CS-7A1

Distance to Source: 6-in. seconds

Notes:

Date	Time	Battery	High Voltage	Threshold (mv)	Gross Counts (CPM)	Background (CPM)	Net Counts (CPM)	Efficiency (CPM/DPM)	Initials	Location
9/13/07	07:00	5.3	1104	102	105014	7486	97530	0.6%	NW	Barn
9/13/07	1710	5.3	1092	101	116576	7627	108949	0.7%		
9/14/07	6:50am	5.3	1108	101	116036	7785	108251	0.7%	DRF	Barn
9/14/07	8:20pm	5.3	1098	101	103725	7742	95983	0.6%	DRF	Barn
9/15/07	6:35am	5.3	1104	101	95925	8086	87839	0.5%	DRF	Barn
9/15/07	5:30pm	5.2	1088	100	102952	7904	94948	0.6%	DRF	Barn
9/17/07	5:15pm	5.3	1102	100	292273*	8350*	283923	2%	DRF	Barn
9/17/07	5:20pm	5.2	1092	100	302007*	8154*	293853	2%	DRF	Barn
9/18/07	6:45am	5.8	1101	100	133803**	8418**	125385	0.7%	DRF	Barn
9/18/07	2:30pm	5.6	1102	101	131147**	8147**	122995	0.7%	DRF	Barn
9/19/07	5:45am	5.6	1107	100	~~134695~~** DRF 9/19/07	~~8241~~** 7805 DRF 9/19/07	123954	0.7%	DRF	Barn
—	—	—	—	—	131759		—	—	—	—

Reviewed By: [signature] Date: 12/01/08

*Check done on function check jig (distance to source of 2½")

**Check done by setting detector on the ground (distance to source of 6" center-to-center)

(B)

Daily Function Check Form

Site: Powertech, SD

Ratemeter: 2221 (Ludlum) Serial No 117648 Cal Due Date 9-6-08

Detector: Ludlum 44-10 Serial No. PR198936 Cal Due Date 9-6-08

Source: Cs-137 Activity: 8.5 μCi on 10-3-02 Serial No 4054-02 CS-7AS

Distance to Source 6-in

Notes:

Date	Time	Battery	High Voltage	Threshold (mv)	Gross Counts (DRF 9/20/07 PM)	Background (CPM)	Net Counts (CPM)	Efficiency (CPM/DPM)	Initials	Location
9/19/07	5:35pm	5.4	1096	100	132023	7849	124174	0.7%	DRF	Barn
9/20/07	6:15am	5.5	1103	100	135383	7894	127489	0.7%	DRF	Barn
9/20/07	5:15pm	5.3	1088	99	131507	7677	123630	0.7%	DRF	Barn
9/21/07	7:10am	5.4	1104	100	137336	8011	129325	0.7%	DRF	Barn
9/21/07	1902	5.2	1097	100	126207	7676	118531	0.7%	NW	Barn
9/25/07	750am	5.4	1110	101	132611	8052	124559	0.7%	DRF	Barn
9/25/07	17:36	5.2	1099	100	127714 (NW 10076)	7914	123162	0.7%	NW	Barn
9/25/07	0705	5.3	1107	101	132784	8447	124337	0.7%	NW	Barn
9/27/07	0622	5.3	1107	100	133717	8681	125036	0.7%	NW	Barn
9/27/07	6:16pm	5.2	1098	100	134674	7814	126860	0.7%	DRF	Barn
9/28/07	0755	5.3	1106	101	130787	8242	122545	0.7%	NW	Barn
9/28/07	1027	5.2	1101	100	129316	8110	121206	0.7%	NW	Barn

Reviewed By: MJ Date: 12/01/08

#1

Daily Function Check Form

Site: Dewey Burdock

Ratemeter: Ludlum 2221
Detector: 44-10
Source: Cs-137
Distance to Source: 6-in (jig)

Serial No. 149942 Cal. Due Date 7-8-09
Serial No. ~~PR118372~~ ~~138377~~ NW Cal. Due Date 7-8-09
Activity: 8.5 mCi 03-02 Serial No. 4054-02
Acceptance Range 82660 to 84723

Notes:

Date	Time	Battery	High Voltage	Threshold	Gross Counts (CPM)	Background (CPM)	Net Counts (CPM)	Efficiency (CPM/DPM)	Initials	Location
7/14/08	1042	5.5	1142	101	92278	8055	84223	0.005	NW	Elbow Cage
					91566	8154	83412			
					91851	8211	83640			
					91751	8138	83613			
					91792	7882	83910			
					91184	8141	83043			
					91781	8017	83764			
					91595	8161	83434			
					91975	8167	83808			
↓	↓	↓	↓	↓	92129	8061	84068			
7/14/08	1712	5.3	1083	97	90998	7672	83326			
7/15/08	0753	5.5	1129	100	90010	7955	(82055)			
7/15/08	1423	5.3	1081	96	91301	7444	83857			
7/16/08	0736	5.7	1161	103	93043	~~7899~~	(85144)			
7/16/08	1524	5.3	1092	98	90511	7781	82730			
7/17/08	1202	5.5	1126	100	93565	7500	86065			
7/17/08	1946	5.4	1115	100	93121	7414	82707			
7/18/08	0838	5.6	1154	102	89584	7084	82500			

Reviewed By: [signature] Date: 12/02/08

ERG Form 2.07A

(#1)

Daily Function Check Form

Site: Dewey Burdock

Ratemeter: Ludlum 2221
Detector: 44-10
Source: Cs-137
Distance to Source: 6-in. (jig)

Serial No. 149942 / PR118372 Cal. Due Date 7-8-09
Serial No. ~~138377~~ NW Cal. Due Date 7-8-09
Activity: 8.5 μCi, 10-3-02 Serial No. _____
Acceptance Range 82660 to 84723

Notes: _____

Date	Time	Battery	High Voltage	Threshold	Gross Counts (CPM)	Background (CPM)	Net Counts (CPM)	Efficiency (CPM/DPM)	Initials	Location
7-19-08	0758	5.5	1153	102	96860	6592	90268	0.005	NW	Elbow Canyon #3
7-19-08	1441	5.4	1132	100	90159	7287	82872	↓	↓	↓

Reviewed By: _____ Date: 12/02/08

ERG Form 2.07A

#2

Daily Function Check Form

Site: Downey Burdock

Ratemeter: Ludlum 2221
Detector: 44-10
Source: Cs-137
Distance to Source: 6 in (jig)

Serial No. 138377 Cal. Due Date 7-8-09
Serial No. PR 198936 Cal. Due Date 7-6-09
Activity: 8.5 μCi, 10-3-02 Serial No. 4054-02
Acceptance Range 80 190 to 84083

Notes:

Date	Time	Battery	High Voltage	Threshold	Gross Counts (CPM)	Background (CPM)	Net Counts (CPM)	Efficiency (CPM/DPM)	Initials	Location
7/14/08	1035	5.8	1148	100	90546	7106	83490	0.005	NW	ELBOW CANYON RD
					89803	7021	82782			
					90015	7466	82549			
					89675	7456	82219			
					89520	7393	82127			
					89607	7697	81910			
					89010	7488	81522			
					89102	7522	81580			
					89350	7633	81717			
					89152	7685	81467			
	1712	5.7	1140	99	90957	7200	83757			
7/15/08	0751	5.7	1143	98	89384	7394	81990			
7/15/08	1423	5.7	1139	98	89870	7143	82727			
7/16/08	0737	5.7	1145	98	89462	7337	82125			
7/16/08	1526	5.5	1141	98	89532	7386	82146			
7/17/08	1203	5.6	1143	98	90804	6841	83963			
7/17/08	1946	5.4	1142	98	91557	6685	84872			
7/18/08	0841	5.6	1145	98	87936	6384	81552			

Reviewed By: [signature] Date: 12/02/08

ERG Form 2.07A

(#2)

Daily Function Check Form

Site: Dewey Burdock

Ratemeter: Ludlum 2221
Serial No. 138377 Cal. Due Date 7-8-09
Detector: Ludlum 44-10
Serial No. PR 198936 Cal. Due Date 7-8-09
Source: Cs-137
Activity: 8.5 μCi, 10-2-02 Serial No. 4054-02
Distance to Source: 6-in. (Jig)
Acceptance Range 80190 to 84083

Notes:

Date	Time	Battery	High Voltage	Threshold	Gross Counts (CPM)	Background (CPM)	Net Counts (CPM)	Efficiency (CPM/DPM)	Initials	Location
7/19/08	0758	5.4	1146	99	94840	8360	86480	0.005	NW	ELBOW CANYON RD
7/19/08	1440	5.4	1143	98	90961	6712	84249	0.005		

Reviewed By: [signature] Date: 12/02/08

ERG Form 2.07A

Appendix B

Laboratory Analytical Data

ENERGY LABORATORIES, INC. • 2821 Plant Street • Rapid City, SD 57702 • www.energylab.com
Toll Free 888.672.1225 • Voice 605.342.1225 • Fax 605.342.1397 • rapid_city@energylab.com

LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08030221-008
Client Sample ID: AMS-07

Report Date: 04/24/08
Collection Date: 10/02/07
Date Received: 03/19/08
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
METALS - TOTAL								
Uranium	1.6	mg/filter		0.5		10	SW6020	04/02/08 17:44/eli-c
RADIONUCLIDES - TOTAL								
Radium 226 MDC	2.4	pCi/Filter				1	E903.0	04/01/08 15:03/eli-c
Lead 210	1300	pCi/Filter		1.0		1	E909.0M	03/25/08 12:00/eli-c
Lead 210 precision (±)	28.9	pCi/Filter				1	E909.0M	03/25/08 12:00/eli-c
Radium 226	1.3	pCi/Filter	U			1	E903.0	04/01/08 15:03/eli-c
Radium 226 precision (±)	1.6	pCi/Filter				1	E903.0	04/01/08 15:03/eli-c
Thorium 230	2.8	pCi/Filter		0.2		1	E907.0	03/26/08 15:15/eli-c
Thorium 230 precision (±)	1.2	pCi/Filter				1	E907.0	03/26/08 15:15/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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ANALYTICAL SUMMARY REPORT

April 24, 2008

Michael Schierman
Environmental Restoration Group Inc
8809 Washington St NE
Albuquerque, NM 87113

Workorder No.: R08030221

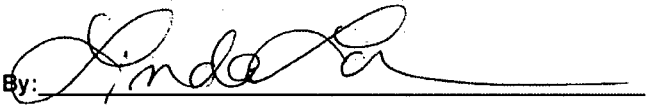
Project Name: Edgemont (Soils/Air filters)

Energy Laboratories Inc. received the following 8 samples from Environmental Restoration Group Inc on 3/19/2008 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
R08030221-001	AMS-BKG	10/02/07 0:00	03/19/08	Filter	Composite Fee Metals, Total Digestion, Total Metals For Radio Chemistry Lead 210 Radium 226 Thorium, Isotopic
R08030221-002	AMS-01	10/02/07 0:00	03/19/08	Filter	Same As Above
R08030221-003	AMS-02	10/02/07 0:00	03/19/08	Filter	Same As Above
R08030221-004	AMS-03	10/02/07 0:00	03/19/08	Filter	Same As Above
R08030221-005	AMS-04	10/02/07 0:00	03/19/08	Filter	Same As Above
R08030221-006	AMS-05	10/02/07 0:00	03/19/08	Filter	Same As Above
R08030221-007	AMS-06	10/02/07 0:00	03/19/08	Filter	Same As Above
R08030221-008	AMS-07	10/02/07 0:00	03/19/08	Filter	Composite Fee Metals, Total Digestion, Total Metals Lead 210 Radium 226 Thorium, Isotopic

As appropriate, any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

If you have any questions regarding these tests results, please call.

Report Approved By: 

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Toll Free 888.672.1225 • Voice 605.342.1225 • Fax 605.342.1397 • rapid_city@energylab.com

LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08030221-001
Client Sample ID: AMS-BKG

Report Date: 04/24/08
Collection Date: 10/02/07
Date Received: 03/19/08
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
METALS - TOTAL								
Uranium	ND	mg/filter		0.5		10	SW6020	04/02/08 16:59/eli-c
RADIONUCLIDES - TOTAL								
Radium 226 MDC	2.4	pCi/Filter				1	E903.0	04/01/08 13:23/eli-c
Lead 210	834	pCi/Filter		1.0		1	E909.0M	03/25/08 12:00/eli-c
Lead 210 precision (±)	23.1	pCi/Filter				1	E909.0M	03/25/08 12:00/eli-c
Radium 226	1.9	pCi/Filter	U			1	E903.0	04/01/08 13:23/eli-c
Radium 226 precision (±)	1.7	pCi/Filter				1	E903.0	04/01/08 13:23/eli-c
Thorium 230	3.2	pCi/Filter		0.2		1	E907.0	03/26/08 15:15/eli-c
Thorium 230 precision (±)	1.3	pCi/Filter				1	E907.0	03/26/08 15:15/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08030221-002
Client Sample ID: AMS-01

Report Date: 04/24/08
Collection Date: 10/02/07
Date Received: 03/19/08
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
METALS - TOTAL								
Uranium	ND	mg/filter		0.5		10	SW6020	04/02/08 17:03/eli-c
RADIONUCLIDES - TOTAL								
Radium 226 MDC	2.3	pCi/Filter				1	E903.0	04/01/08 13:23/eli-c
Lead 210	1160	pCi/Filter		1.0		1	E909.0M	03/25/08 12:00/eli-c
Lead 210 precision (±)	27.3	pCi/Filter				1	E909.0M	03/25/08 12:00/eli-c
Radium 226	4.1	pCi/Filter				1	E903.0	04/01/08 13:23/eli-c
Radium 226 precision (±)	1.9	pCi/Filter				1	E903.0	04/01/08 13:23/eli-c
Thorium 230	2.2	pCi/Filter		0.2		1	E907.0	03/26/08 15:15/eli-c
Thorium 230 precision (±)	1.0	pCi/Filter				1	E907.0	03/26/08 15:15/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08030221-003
Client Sample ID: AMS-02

Report Date: 04/24/08
Collection Date: 10/02/07
Date Received: 03/19/08
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
METALS - TOTAL								
Uranium	ND	mg/filter		0.5		10	SW6020	04/02/08 17:07/eli-c
RADIONUCLIDES - TOTAL								
Radium 226 MDC	1.8	pCi/Filter				1	E903.0	04/01/08 13:23/eli-c
Lead 210	560	pCi/Filter		1.0		1	E909.0M	03/25/08 12:00/eli-c
Lead 210 precision (±)	19.0	pCi/Filter				1	E909.0M	03/25/08 12:00/eli-c
Radium 226	1.2	pCi/Filter	U			1	E903.0	04/01/08 13:23/eli-c
Radium 226 precision (±)	1.2	pCi/Filter				1	E903.0	04/01/08 13:23/eli-c
Thorium 230	1.6	pCi/Filter		0.2		1	E907.0	03/26/08 15:15/eli-c
Thorium 230 precision (±)	1.0	pCi/Filter				1	E907.0	03/26/08 15:15/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08030221-004
Client Sample ID: AMS-03

Report Date: 04/24/08
Collection Date: 10/02/07
Date Received: 03/19/08
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
METALS - TOTAL								
Uranium	ND	mg/filter		0.5		10	SW6020	04/02/08 17:12/eli-c
RADIONUCLIDES - TOTAL								
Radium 226 MDC	1.8	pCi/Filter				1	E903.0	04/01/08 13:23/eli-c
Lead 210	821	pCi/Filter		1.0		1	E909.0M	03/25/08 12:00/eli-c
Lead 210 precision (±)	23.0	pCi/Filter				1	E909.0M	03/25/08 12:00/eli-c
Radium 226	1.2	pCi/Filter	U			1	E903.0	04/01/08 13:23/eli-c
Radium 226 precision (±)	1.2	pCi/Filter				1	E903.0	04/01/08 13:23/eli-c
Thorium 230	1.3	pCi/Filter		0.2		1	E907.0	03/26/08 15:15/eli-c
Thorium 230 precision (±)	1.0	pCi/Filter				1	E907.0	03/26/08 15:15/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08030221-005
Client Sample ID: AMS-04

Report Date: 04/24/08
Collection Date: 10/02/07
Date Received: 03/19/08
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
METALS - TOTAL								
Uranium	ND	mg/filter		0.5		10	SW6020	04/02/08 17:16/eli-c
RADIONUCLIDES - TOTAL								
Radium 226 MDC	2.0	pCi/Filter				1	E903.0	04/01/08 13:23/eli-c
Lead 210	790	pCi/Filter		1.0		1	E909.0M	03/25/08 12:00/eli-c
Lead 210 precision (±)	22.5	pCi/Filter				1	E909.0M	03/25/08 12:00/eli-c
Radium 226	4.7	pCi/Filter				1	E903.0	04/01/08 13:23/eli-c
Radium 226 precision (±)	1.8	pCi/Filter				1	E903.0	04/01/08 13:23/eli-c
Thorium 230	1.8	pCi/Filter		0.2		1	E907.0	04/10/08 15:00/eli-c
Thorium 230 precision (±)	1.4	pCi/Filter				1	E907.0	04/10/08 15:00/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08030221-006
Client Sample ID: AMS-05

Report Date: 04/24/08
Collection Date: 10/02/07
Date Received: 03/19/08
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
METALS - TOTAL								
Uranium	ND	mg/filter		0.5		10	SW6020	04/02/08 17:36/eli-c
RADIONUCLIDES - TOTAL								
Radium 226 MDC	2.6	pCi/Filter				1	E903.0	04/01/08 15:03/eli-c
Lead 210	654	pCi/Filter		1.0		1	E909.0M	03/25/08 12:00/eli-c
Lead 210 precision (±)	20.5	pCi/Filter				1	E909.0M	03/25/08 12:00/eli-c
Radium 226	-1	pCi/Filter	U			1	E903.0	04/01/08 15:03/eli-c
Radium 226 precision (±)	1.2	pCi/Filter				1	E903.0	04/01/08 15:03/eli-c
Thorium 230	2.9	pCi/Filter		0.2		1	E907.0	03/26/08 15:15/eli-c
Thorium 230 precision (±)	1.1	pCi/Filter				1	E907.0	03/26/08 15:15/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08030221-007
Client Sample ID: AMS-06

Report Date: 04/24/08
Collection Date: 10/02/07
Date Received: 03/19/08
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
METALS - TOTAL								
Uranium	ND	mg/filter		0.5		10	SW6020	04/02/08 17:40/eli-c
RADIONUCLIDES - TOTAL								
Radium 226 MDC	2.1	pCi/Filter				1	E903.0	04/01/08 15:03/eli-c
Lead 210	942	pCi/Filter		1.0		1	E909.0M	03/25/08 12:00/eli-c
Lead 210 precision (±)	24.6	pCi/Filter				1	E909.0M	03/25/08 12:00/eli-c
Radium 226	-1	pCi/Filter	U			1	E903.0	04/01/08 15:03/eli-c
Radium 226 precision (±)	1.0	pCi/Filter				1	E903.0	04/01/08 15:03/eli-c
Thorium 230	1.5	pCi/Filter		0.2		1	E907.0	03/26/08 15:15/eli-c
Thorium 230 precision (±)	1.0	pCi/Filter				1	E907.0	03/26/08 15:15/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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QA/QC Summary Report

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)

Report Date: 04/24/08
Work Order: R08030221

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0									Batch: C_RA226-2688
Sample ID: C08030621-004AMS	Sample Matrix Spike				Run: SUB-C98992				04/01/08 11:46
Radium 226	3.8	pCi/g		125	70	130			
Sample ID: C08030621-004AMSD	Sample Matrix Spike Duplicate				Run: SUB-C98992				04/01/08 11:46
Radium 226	4.1	pCi/g		135	70	130	7.9	26.2	S
- Spike response is outside of the acceptance range for this analysis. Since the LCS and the RPD for the MS MSD pair are acceptable, the high response is considered to b matrix related. The batch is approved.									
Sample ID: LCS-18083	Laboratory Control Sample				Run: SUB-C98992				04/01/08 15:03
Radium 226	11	pCi/L		82	70	130			
Sample ID: MB-18083	Method Blank				Run: SUB-C98992				04/01/08 15:03
Radium 226	-1	pCi/L							
Method: E907.0									Batch: C_18083
Sample ID: C08030720-001KMS	Sample Matrix Spike				Run: SUB-C99086				03/26/08 15:15
Thorium 230	23.1	pCi/L	0.20	94	70	130			
Sample ID: C08030720-001KMSD	Sample Matrix Spike Duplicate				Run: SUB-C99086				03/26/08 15:15
Thorium 230	23.8	pCi/L	0.20	97	70	130	2.8	30	
Sample ID: LCS-18083	Laboratory Control Sample				Run: SUB-C99086				03/26/08 15:15
Thorium 230	46.1	pCi/g-dry	0.10	98	70	130			
Sample ID: MB-18083	Method Blank				Run: SUB-C99086				03/26/08 15:15
Thorium 230	ND	pCi/g-dry							
Method: E907.0									Batch: C_R99819
Sample ID: C08040278-005DMS	Sample Matrix Spike				Run: SUB-C99819				04/10/08 15:00
Thorium 228	13.4	pCi/L	0.20	115	70	130			
Sample ID: C08040278-005DMSD	Sample Matrix Spike Duplicate				Run: SUB-C99819				04/10/08 15:00
Thorium 228	13.8	pCi/L	0.20	117	70	130	2.9	30	
Sample ID: MB-R99819	Method Blank				Run: SUB-C99819				04/10/08 15:00
Thorium 230	0.1	pCi/L							
Sample ID: LCS-R99819	Laboratory Control Sample				Run: SUB-C99819				04/10/08 15:00
Thorium 228	10.0	pCi/L	0.20	123	70	130			

Qualifiers:

RL - Analyte reporting limit.
ND - Not detected at the reporting limit.
S - Spike recovery outside of advisory limits.

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QA/QC Summary Report

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)

Report Date: 04/24/08
Work Order: R08030221

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E909.0M									Batch: C_18083
Sample ID: R08030221-004A	Sample Matrix Spike				Run: SUB-C98854				03/25/08 12:00
Lead 210	1540	pCi/Filter	1.0	121	70	130			
Sample ID: R08030221-004A	Sample Matrix Spike Duplicate				Run: SUB-C98854				03/25/08 12:00
Lead 210	1300	pCi/Filter	1.0	81	70	130	17	30	
Sample ID: MB-R98854	Method Blank				Run: SUB-C98854				03/25/08 12:00
Lead 210	5	pCi/Filter							
Sample ID: LCS-R98854	Laboratory Control Sample				Run: SUB-C98854				03/25/08 12:00
Lead 210	94.1	pCi/Filter	1.0	75	70	130			
Method: SW6020									Batch: C_18083
Sample ID: MB-18083	Method Blank				Run: SUB-C99006				04/02/08 16:51
Uranium	0.0001	mg/kg	6E-05						
Sample ID: LCS1-18083	Laboratory Control Sample				Run: SUB-C99006				04/02/08 16:55
Uranium	0.0470	mg/kg	0.015	89	75	125			
Sample ID: C08030621-004AMS	Sample Matrix Spike				Run: SUB-C99175				04/03/08 20:44
Uranium	24.4	mg/kg	0.028	102	75	125			
Sample ID: C08030621-004AMSD	Sample Matrix Spike Duplicate				Run: SUB-C99175				04/03/08 20:50
Uranium	24.1	mg/kg	0.029	100	75	125	1.6	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

Chain of Custody and Analytical Request Record

Page 1 of 1

PLEASE PRINT- Provide as much information as possible.

Company Name: Environmental Restoration Group	Project Name, PWS, Permit, Etc.: Dewey - Burdock	Sample Origin State: South Dakota	EPA/State Compliance: Yes ☐ No ☒
Report Mail Address: 8809 Washington St NE Suite 150 Albuquerque NM 87113	Contact Name: Michael Schierman Phone/Fax: 505-298-4224	Email: mikeschierman@energyfuelsinc.com	Sampler: (Please Print) NA
Invoice Address: Same as above	Invoice Contact & Phone: Michael Schierman	Purchase Order:	Quote/Bottle Order: NA

Special Report/Formats – ELI must be notified prior to sample submittal for the following:
Please Send 1 DD to Cory ~~Foreman~~ @ RESPEC

☐ DW ☐ A2LA
☐ GSA ☑ EDD/EDT (Electronic Data)
☐ POTW/WWTP Format: _____
☐ State: _____ ☐ LEVEL IV
☐ Other: _____ ☐ NELAC

Number of Containers
Sample Type: A Air W Water S Soils/Solids V Vegetation B Bioassay O Other

ANALYSIS REQUESTED: Natural Uranium; Ra-226; Th-230; Pb-210

SEE ATTACHED

Normal Turnaround (TAT)

RUSH

Contact ELI prior to RUSH sample submittal for charges and scheduling – See Instruction Page

Comments:

Shipped by: MJS
Cooler ID(s):
Receipt Temp: ____ °C
On Ice: Yes No
Custody Seal Intact Y N
Signature Match Y N

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX						LABORATORY USE ONLY
1	AMS-Bkg	9/28/07 10/02/07	NA	O	X	X	X	X	2	0803022-001A
2	AMS-01									002A
3	AMS-02									003A
4	AMS-03									004A
5	AMS-04									005A
6	AMS-05									006A
7	AMS-06									007A
8	AMS-07									008A
9										
10										

Please composite all filters

Custody Record MUST be Signed	Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
	Michael Schierman	3/18/08	Michael Schierman	Steve Fontana	3-19-08 1300	Steve Fontana
	Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
	Sample Disposal: Return to Client: _____ Lab Disposal: _____			Received by Laboratory:	Date/Time:	Signature:

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested.
This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report.
Visit our web site at www.energylab.com for additional information, downloadable fee schedule, forms, and links.

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ANALYTICAL SUMMARY REPORT

February 12, 2008

Michael Schierman
Environmental Restoration Group Inc
8809 Washington St NE
Albuquerque, NM 87113

Workorder No.: R08010193 Quote ID: R279

Project Name: Edgemont (Soils/Air filters)

Energy Laboratories Inc. received the following 9 samples from Environmental Restoration Group Inc on 1/17/2008 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
R08010193-001	BKG	10/09/07 0:00	01/17/08	Filter	Composite Fee Metals, Total Digestion, Total Metals For Radio Chemistry Lead 210 Radium 226 Thorium, Isotopic
R08010193-002	AMS-01	10/09/07 0:00	01/17/08	Filter	Same As Above
R08010193-003	AMS-02	10/09/07 0:00	01/17/08	Filter	Same As Above
R08010193-004	AMS-03	10/09/07 0:00	01/17/08	Filter	Same As Above
R08010193-005	AMS-04	10/09/07 0:00	01/17/08	Filter	Same As Above
R08010193-006	AMS-05	10/09/07 0:00	01/17/08	Filter	Same As Above
R08010193-007	AMS-06	10/09/07 0:00	01/17/08	Filter	Same As Above
R08010193-008	AMS-07	10/09/07 0:00	01/17/08	Filter	Same As Above
R08010193-009	AMS-08	10/09/07 0:00	01/17/08	Filter	Same As Above

Thank you for submitting your samples to Energy Laboratories, Inc. - Rapid City. The following pages contain the results of the sample tests listed above and applicable analytical notes.

The samples were analyzed in accordance with the methods specified on the analytical reports. All analyses were accompanied by appropriate quality control samples throughout the test. Where applicable, the results of these quality control samples will be included; following your analytical data.

If you have any questions regarding the analyses performed or the results of these analyses, please contact Energy Laboratories Inc. - Rapid City at (605) 342-1225, (888) 672-1225 or Rapid_City@energylab.com.

Report Approved By: Linda Larson

Linda Larson
Rapid City - Project Manager

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08010193-002
Client Sample ID: AMS-01

Report Date: 02/12/08
Collection Date: 10/09/07
Date Received: 01/17/08
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
METALS - TOTAL								
Uranium	ND	mg/filter	D	0.03		10	SW6020	02/05/08 20:59/eli-c
RADIONUCLIDES - TOTAL								
Lead 210	5140	pCi/Filter		1.0		1	E909.0M	02/01/08 08:30/eli-c
Lead 210 precision (±)	86.1	pCi/Filter				1	E909.0M	02/01/08 08:30/eli-c
Radium 226	2.5	pCi/Filter		0.2		1	E903.0	02/06/08 11:08/eli-c
Radium 226 precision (±)	0.9	pCi/Filter				1	E903.0	02/06/08 11:08/eli-c
Thorium 230	1.6	pCi/Filter		0.2		1	E907.0	01/28/08 15:30/eli-c
Thorium 230 precision (±)	1.0	pCi/Filter				1	E907.0	01/28/08 15:30/eli-c

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.

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08010193-003
Client Sample ID: AMS-02

Report Date: 02/12/08
Collection Date: 10/09/07
Date Received: 01/17/08
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
METALS - TOTAL								
Uranium	ND	mg/filter	D	0.03		10	SW6020	02/05/08 21:05/eli-c
RADIONUCLIDES - TOTAL								
Lead 210	2610	pCi/Filter		1.0		1	E909.0M	02/01/08 08:30/eli-c
Lead 210 precision (±)	61.4	pCi/Filter				1	E909.0M	02/01/08 08:30/eli-c
Radium 226	1.3	pCi/Filter		0.2		1	E903.0	02/06/08 11:08/eli-c
Radium 226 precision (±)	0.6	pCi/Filter				1	E903.0	02/06/08 11:08/eli-c
Thorium 230	3.5	pCi/Filter		0.2		1	E907.0	01/28/08 15:30/eli-c
Thorium 230 precision (±)	1.2	pCi/Filter				1	E907.0	01/28/08 15:30/eli-c

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.

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08010193-004
Client Sample ID: AMS-03

Report Date: 02/12/08
Collection Date: 10/09/07
Date Received: 01/17/08
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
METALS - TOTAL								
Uranium	ND	mg/filter	D	0.03		10	SW6020	02/05/08 21:12/eli-c
RADIONUCLIDES - TOTAL								
Lead 210	1690	pCi/Filter		1.0		1	E909.0M	02/01/08 08:30/eli-c
Lead 210 precision (±)	49.4	pCi/Filter				1	E909.0M	02/01/08 08:30/eli-c
Radium 226	2.3	pCi/Filter		0.2		1	E903.0	02/06/08 11:08/eli-c
Radium 226 precision (±)	0.9	pCi/Filter				1	E903.0	02/06/08 11:08/eli-c
Thorium 230	2.6	pCi/Filter		0.2		1	E907.0	01/28/08 15:30/eli-c
Thorium 230 precision (±)	1.0	pCi/Filter				1	E907.0	01/28/08 15:30/eli-c

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.

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08010193-005
Client Sample ID: AMS-04

Report Date: 02/12/08
Collection Date: 10/09/07
Date Received: 01/17/08
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
METALS - TOTAL								
Uranium	ND	mg/filter	D	0.03		10	SW6020	02/05/08 21:18/eli-c
RADIONUCLIDES - TOTAL								
Lead 210	2830	pCi/Filter		1.0		1	E909.0M	02/01/08 08:30/eli-c
Lead 210 precision (±)	63.8	pCi/Filter				1	E909.0M	02/01/08 08:30/eli-c
Radium 226	1.9	pCi/Filter		0.2		1	E903.0	02/06/08 11:08/eli-c
Radium 226 precision (±)	0.8	pCi/Filter				1	E903.0	02/06/08 11:08/eli-c
Thorium 230	2.6	pCi/Filter		0.2		1	E907.0	01/28/08 15:30/eli-c
Thorium 230 precision (±)	1.1	pCi/Filter				1	E907.0	01/28/08 15:30/eli-c

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.

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08010193-006
Client Sample ID: AMS-05

Report Date: 02/12/08
Collection Date: 10/09/07
Date Received: 01/17/08
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
METALS - TOTAL								
Uranium	ND	mg/filter	D	0.03		10	SW6020	02/01/08 21:14/eli-c
RADIONUCLIDES - TOTAL								
Lead 210	3200	pCi/Filter		1.0		1	E909.0M	02/01/08 08:30/eli-c
Lead 210 precision (±)	67.9	pCi/Filter				1	E909.0M	02/01/08 08:30/eli-c
Radium 226	7.7	pCi/Filter		0.2		1	E903.0	02/06/08 11:08/eli-c
Radium 226 precision (±)	1.5	pCi/Filter				1	E903.0	02/06/08 11:08/eli-c
Thorium 230	4.0	pCi/Filter		0.2		1	E907.0	01/28/08 15:30/eli-c
Thorium 230 precision (±)	1.5	pCi/Filter				1	E907.0	01/28/08 15:30/eli-c

Report Definitions: RL - Analyte reporting limit.
QCL - Quality control limits
D - RL increased due to sample matrix interference.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08010193-007
Client Sample ID: AMS-06

Report Date: 02/12/08
Collection Date: 10/09/07
Date Received: 01/17/08
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
METALS - TOTAL								
Uranium	ND	mg/filter	D	0.03		10	SW6020	02/05/08 21:25/eli-c
RADIONUCLIDES - TOTAL								
Lead 210	2940	pCi/Filter		1.0		1	E909.0M	02/01/08 08:30/eli-c
Lead 210 precision (±)	65.1	pCi/Filter				1	E909.0M	02/01/08 08:30/eli-c
Radium 226	4.8	pCi/Filter		0.2		1	E903.0	02/06/08 11:08/eli-c
Radium 226 precision (±)	1.2	pCi/Filter				1	E903.0	02/06/08 11:08/eli-c
Thorium 230	3.3	pCi/Filter		0.2		1	E907.0	01/28/08 15:30/eli-c
Thorium 230 precision (±)	1.4	pCi/Filter				1	E907.0	01/28/08 15:30/eli-c

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.

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08010193-008
Client Sample ID: AMS-07

Report Date: 02/12/08
Collection Date: 10/09/07
Date Received: 01/17/08
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
METALS - TOTAL								
Uranium	ND	mg/filter	D	0.03		10	SW6020	02/05/08 21:32/eli-c
RADIONUCLIDES - TOTAL								
Lead 210	4010	pCi/Filter		1.0		1	E909.0M	02/01/08 08:30/eli-c
Lead 210 precision (±)	76.0	pCi/Filter				1	E909.0M	02/01/08 08:30/eli-c
Radium 226	5.8	pCi/Filter		0.2		1	E903.0	02/06/08 11:08/eli-c
Radium 226 precision (±)	1.3	pCi/Filter				1	E903.0	02/06/08 11:08/eli-c
Thorium 230	3.3	pCi/Filter		0.2		1	E907.0	01/28/08 15:30/eli-c
Thorium 230 precision (±)	1.5	pCi/Filter				1	E907.0	01/28/08 15:30/eli-c

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.

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08010193-009
Client Sample ID: AMS-08

Report Date: 02/12/08
Collection Date: 10/09/07
Date Received: 01/17/08
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
METALS - TOTAL								
Uranium	ND	mg/filter	D	0.03		10	SW6020	02/05/08 21:38/eli-c
RADIONUCLIDES - TOTAL								
Lead 210	21.9	pCi/Filter		1.0		1	E909.0M	02/01/08 08:30/eli-c
Lead 210 precision (±)	10.4	pCi/Filter				1	E909.0M	02/01/08 08:30/eli-c
Radium 226	1.6	pCi/Filter		0.2		1	E903.0	02/06/08 12:12/eli-c
Radium 226 precision (±)	0.7	pCi/Filter				1	E903.0	02/06/08 12:12/eli-c
Thorium 230	1.4	pCi/Filter		0.2		1	E907.0	01/28/08 15:30/eli-c
Thorium 230 precision (±)	0.9	pCi/Filter				1	E907.0	01/28/08 15:30/eli-c

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.

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08010193-001
Client Sample ID: BKG

Report Date: 02/12/08
Collection Date: 10/09/07
Date Received: 01/17/08
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
METALS - TOTAL								
Uranium	ND	mg/filter	D	0.03		10	SW6020	02/05/08 20:52/eli-c
RADIONUCLIDES - TOTAL								
Lead 210	2550	pCi/Filter		1.0		1	E909.0M	02/01/08 08:30/eli-c
Lead 210 precision (±)	60.6	pCi/Filter				1	E909.0M	02/01/08 08:30/eli-c
Radium 226	3.2	pCi/Filter		0.2		1	E903.0	02/06/08 11:08/eli-c
Radium 226 precision (±)	1.0	pCi/Filter				1	E903.0	02/06/08 11:08/eli-c
Thorium 230	1.3	pCi/Filter		0.2		1	E907.0	01/28/08 15:30/eli-c
Thorium 230 precision (±)	0.8	pCi/Filter				1	E907.0	01/28/08 15:30/eli-c

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.

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QA/QC Summary Report

Client: Environmental Restoration Group Inc.
Project: Edgemont (Soils/Air filters)

Report Date: 02/12/08
Work Order: R08010193

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8									Batch: C_17568
Sample ID: MB-17568	Method Blank				Run: SUB-C96493				02/01/08 15:45
Uranium	2E-05	mg/L	1E-05						
Sample ID: LCS1-17568	Laboratory Control Sample				Run: SUB-C96493				02/01/08 15:49
Uranium	0.0487	mg/L	0.00030	97	80	120			
Sample ID: C08010900-005BMS4	Post Digestion Spike				Run: SUB-C96493				02/01/08 16:59
Uranium	0.0583	mg/L	0.00030	107	70	130			
Sample ID: C08010900-005BMSD4	Post Digestion Spike Duplicate				Run: SUB-C96493				02/01/08 17:03
Uranium	0.0582	mg/L	0.00030	107	70	130	0.2	20	
Method: E903.0									Batch: C_17568
Sample ID: R08010193-001A	Sample Duplicate				Run: SUB-C96642				02/06/08 11:08
Radium 226	1.66	pCi/Filter	0.20				65	78.7	
Sample ID: R08010193-008A	Sample Matrix Spike				Run: SUB-C96642				02/06/08 12:12
Radium 226	31.5	pCi/Filter	0.20	41	70	130			S
- Spike response is outside of the acceptance range for this analysis. Since the LCS and the RPD for the Duplicate are acceptable, the low response is considered to be matrix related. The batch is approved.									
Sample ID: LCS-17568	Laboratory Control Sample				Run: SUB-C96642				02/06/08 12:12
Radium 226	14.5	pCi/Filter	0.20	114	70	130			
Sample ID: MB-17568	Method Blank				Run: SUB-C96642				02/06/08 12:12
Radium 226	ND	pCi/Filter	0.2						
Method: E907.0									Batch: C_17568
Sample ID: R08010193-009A	Sample Matrix Spike				Run: SUB-C96487				01/28/08 15:30
Thorium 230	42.6	pCi/Filter	0.20	88	70	130			
Sample ID: R08010193-009A	Sample Matrix Spike Duplicate				Run: SUB-C96487				01/28/08 15:30
Thorium 230	44.7	pCi/Filter	0.20	93	70	130	4.8	30	
Sample ID: LCS-17568	Laboratory Control Sample				Run: SUB-C96487				01/28/08 15:30
Thorium 230	4.60	pCi/Filter	0.20	94	70	130			
Sample ID: MB-17568	Method Blank				Run: SUB-C96487				01/28/08 15:30
Thorium 230	ND	pCi/Filter	0.2						

Qualifiers:

RL - Analyte reporting limit.
ND - Not detected at the reporting limit.
S - Spike recovery outside of advisory limits.

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QA/QC Summary Report

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)

Report Date: 02/12/08
Work Order: R08010193

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E909.0M									Batch: C_R96680
Sample ID: R08010193-003A	Sample Matrix Spike				Run: SUB-C96680				02/01/08 08:30
Lead 210	3540	pCi/Filter	1.0	78	70	130			
Sample ID: R08010193-003A	Sample Matrix Spike Duplicate				Run: SUB-C96680				02/01/08 08:30
Lead 210	3490	pCi/Filter	1.0	74	70	130	1.3	30	
Sample ID: MB-R96680	Method Blank				Run: SUB-C96680				02/01/08 08:30
Lead 210	ND	pCi/Filter	1						
Sample ID: LCS-R96680	Laboratory Control Sample				Run: SUB-C96680				02/01/08 08:30
Lead 210	112	pCi/Filter	1.0	94	70	130			
Method: SW6020									Batch: C_17568
Sample ID: MB-17568	Method Blank				Run: SUB-C96602				02/05/08 19:17
Uranium	ND	mg/filter	0.003						
Sample ID: LCS1-17568	Laboratory Control Sample				Run: SUB-C96602				02/05/08 20:39
Uranium	0.0509	mg/kg	0.015	102	75	125			
Sample ID: R08010193-009A	Sample Matrix Spike				Run: SUB-C96602				02/05/08 22:05
Uranium	0.545	mg/filter	0.030	109	75	125			
Sample ID: R08010193-009A	Sample Matrix Spike Duplicate				Run: SUB-C96602				02/05/08 22:12
Uranium	0.558	mg/filter	0.030	112	75	125	2.4	20	

Qualifiers:
RL - Analyte reporting limit

ND - Not detected at the reporting limit

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ANALYTICAL SUMMARY REPORT

August 14, 2008

Michael Schierman
Environmental Restoration Group Inc
8809 Washington St NE
Albuquerque, NM 87113

Workorder No.: R08060209

Project Name: Edgemont (Soils/Air filters)

Energy Laboratories Inc. received the following 9 samples from Environmental Restoration Group Inc on 6/11/2008 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
R08060209-001	AMS-01	03/08/08 0:00	06/11/08	Filter	Composite Fee Metals, Total Digestion, Total Metals For Radio Chemistry Lead 210 Radium 226 Thorium, Isotopic
R08060209-002	AMS-02	03/08/08 0:00	06/11/08	Filter	Same As Above
R08060209-003	AMS-03	03/08/08 0:00	06/11/08	Filter	Same As Above
R08060209-004	AMS-04	03/08/08 0:00	06/11/08	Filter	Same As Above
R08060209-005	AMS-05	03/08/08 0:00	06/11/08	Filter	Same As Above
R08060209-006	AMS-06	03/08/08 0:00	06/11/08	Filter	Same As Above
R08060209-007	AMS-07	03/08/08 0:00	06/11/08	Filter	Same As Above
R08060209-008	AMS-08	03/08/08 0:00	06/11/08	Filter	Same As Above
R08060209-009	AMS-BKG	03/08/08 0:00	06/11/08	Filter	Same As Above

As appropriate, any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

If you have any questions regarding these tests results, please call.

Report Approved By: Linda Ro

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08060209-008
Client Sample ID: AMS-08

Report Date: 08/14/08
Collection Date: 03/08/08
Date Received: 06/11/08
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
Uranium	0.0094	mg/filter		0.00030		5	SW6020	06/28/08 19:59/eli-c
RADIONUCLIDES - TOTAL								
Lead 210	11.6	pCi/Filter	U			1	E909.0M	06/30/08 09:40/eli-c
Lead 210 MDC	24.6	pCi/Filter				1	E909.0M	06/30/08 09:40/eli-c
Lead 210 precision (±)	14.8	pCi/Filter				1	E909.0M	06/30/08 09:40/eli-c
Thorium 230	0.5	pCi/Filter		0.2		1	E907.0	07/01/08 13:03/eli-c
Thorium 230 precision (±)	0.8	pCi/Filter				1	E907.0	07/01/08 13:03/eli-c
Radium 226	2.5	pCi/Filter				1	E903.0	06/26/08 11:15/eli-c
Radium 226 precision (±)	1.3	pCi/Filter				1	E903.0	06/26/08 11:15/eli-c
Radium 226 MDC	1.5	pCi/Filter				1	E903.0	06/26/08 11:15/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08060209-001
Client Sample ID: AMS-01

Report Date: 08/14/08
Collection Date: 03/08/08
Date Received: 06/11/08
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
Uranium	0.0072	mg/filter		0.00030		5	SW6020	06/28/08 19:31/eli-c
RADIONUCLIDES - TOTAL								
Lead 210	2510	pCi/Filter				1	E909.0M	06/30/08 09:40/eli-c
Lead 210 MDC	24.6	pCi/Filter				1	E909.0M	06/30/08 09:40/eli-c
Lead 210 precision (±)	38.2	pCi/Filter				1	E909.0M	06/30/08 09:40/eli-c
Thorium 230	0.9	pCi/Filter		0.2		1	E907.0	06/30/08 21:30/eli-c
Thorium 230 precision (±)	0.9	pCi/Filter				1	E907.0	06/30/08 21:30/eli-c
Radium 226	4.6	pCi/Filter				1	E903.0	06/26/08 09:11/eli-c
Radium 226 precision (±)	1.5	pCi/Filter				1	E903.0	06/26/08 09:11/eli-c
Radium 226 MDC	1.4	pCi/Filter				1	E903.0	06/26/08 09:11/eli-c

Report Definitions: RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08060209-002
Client Sample ID: AMS-02

Report Date: 08/14/08
Collection Date: 03/08/08
Date Received: 06/11/08
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
Uranium	0.0057	mg/filter		0.00030		5	SW6020	06/28/08 19:35/eli-c
RADIONUCLIDES - TOTAL								
Lead 210	1160	pCi/Filter				1	E909.0M	06/30/08 09:40/eli-c
Lead 210 MDC	24.6	pCi/Filter				1	E909.0M	06/30/08 09:40/eli-c
Lead 210 precision (±)	28.1	pCi/Filter				1	E909.0M	06/30/08 09:40/eli-c
Thorium 230	1.1	pCi/Filter		0.2		1	E907.0	07/01/08 13:03/eli-c
Thorium 230 precision (±)	1.2	pCi/Filter				1	E907.0	07/01/08 13:03/eli-c
Radium 226	1.4	pCi/Filter				1	E903.0	06/26/08 09:11/eli-c
Radium 226 precision (±)	1.0	pCi/Filter				1	E903.0	06/26/08 09:11/eli-c
Radium 226 MDC	1.4	pCi/Filter				1	E903.0	06/26/08 09:11/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08060209-003
Client Sample ID: AMS-03

Report Date: 08/14/08
Collection Date: 03/08/08
Date Received: 06/11/08
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
Uranium	0.0036	mg/filter		0.00030		5	SW6020	06/28/08 19:39/eli-c
RADIONUCLIDES - TOTAL								
Lead 210	1200	pCi/Filter				1	E909.0M	06/30/08 09:40/eli-c
Lead 210 MDC	24.6	pCi/Filter				1	E909.0M	06/30/08 09:40/eli-c
Lead 210 precision (±)	28.4	pCi/Filter				1	E909.0M	06/30/08 09:40/eli-c
Thorium 230	1.7	pCi/Filter		0.2		1	E907.0	07/01/08 13:03/eli-c
Thorium 230 precision (±)	1.3	pCi/Filter				1	E907.0	07/01/08 13:03/eli-c
Radium 226	0.7	pCi/Filter	U			1	E903.0	06/26/08 11:15/eli-c
Radium 226 precision (±)	1	pCi/Filter				1	E903.0	06/26/08 11:15/eli-c
Radium 226 MDC	1.5	pCi/Filter				1	E903.0	06/26/08 11:15/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08060209-004
Client Sample ID: AMS-04

Report Date: 08/14/08
Collection Date: 03/08/08
Date Received: 06/11/08
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
Uranium	0.0048	mg/filter		0.00030		5	SW6020	06/28/08 19:43/eli-c
RADIONUCLIDES - TOTAL								
Lead 210	1040	pCi/Filter				1	E909.0M	06/30/08 09:40/eli-c
Lead 210 MDC	24.6	pCi/Filter				1	E909.0M	06/30/08 09:40/eli-c
Lead 210 precision (±)	27.1	pCi/Filter				1	E909.0M	06/30/08 09:40/eli-c
Thorium 230	0.8	pCi/Filter		0.2		1	E907.0	07/01/08 13:03/eli-c
Thorium 230 precision (±)	1.0	pCi/Filter				1	E907.0	07/01/08 13:03/eli-c
Radium 226	-0.9	pCi/Filter	U			1	E903.0	06/26/08 11:15/eli-c
Radium 226 precision (±)	0.6	pCi/Filter				1	E903.0	06/26/08 11:15/eli-c
Radium 226 MDC	1.2	pCi/Filter				1	E903.0	06/26/08 11:15/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08060209-005
Client Sample ID: AMS-05

Report Date: 08/14/08
Collection Date: 03/08/08
Date Received: 06/11/08
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
Uranium	0.0096	mg/filter		0.00030		5	SW6020	06/28/08 19:47/eli-c
RADIONUCLIDES - TOTAL								
Lead 210	1270	pCi/Filter				1	E909.0M	06/30/08 09:40/eli-c
Lead 210 MDC	24.6	pCi/Filter				1	E909.0M	06/30/08 09:40/eli-c
Lead 210 precision (±)	29.1	pCi/Filter				1	E909.0M	06/30/08 09:40/eli-c
Thorium 230	1.1	pCi/Filter		0.2		1	E907.0	07/01/08 13:03/eli-c
Thorium 230 precision (±)	1.1	pCi/Filter				1	E907.0	07/01/08 13:03/eli-c
Radium 226	3.9	pCi/Filter				1	E903.0	06/26/08 11:15/eli-c
Radium 226 precision (±)	1.4	pCi/Filter				1	E903.0	06/26/08 11:15/eli-c
Radium 226 MDC	1.4	pCi/Filter				1	E903.0	06/26/08 11:15/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08060209-006
Client Sample ID: AMS-06

Report Date: 08/14/08
Collection Date: 03/08/08
Date Received: 06/11/08
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
Uranium	0.0067	mg/filter		0.00030		5	SW6020	06/28/08 19:51/eli-c
RADIONUCLIDES - TOTAL								
Lead 210	775	pCi/Filter				1	E909.0M	06/30/08 09:40/eli-c
Lead 210 MDC	24.6	pCi/Filter				1	E909.0M	06/30/08 09:40/eli-c
Lead 210 precision (±)	24.5	pCi/Filter				1	E909.0M	06/30/08 09:40/eli-c
Thorium 230	1.7	pCi/Filter		0.2		1	E907.0	07/01/08 13:03/eli-c
Thorium 230 precision (±)	1.3	pCi/Filter				1	E907.0	07/01/08 13:03/eli-c
Radium 226	2.5	pCi/Filter				1	E903.0	06/26/08 11:15/eli-c
Radium 226 precision (±)	1.2	pCi/Filter				1	E903.0	06/26/08 11:15/eli-c
Radium 226 MDC	1.4	pCi/Filter				1	E903.0	06/26/08 11:15/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08060209-007
Client Sample ID: AMS-07

Report Date: 08/14/08
Collection Date: 03/08/08
Date Received: 06/11/08
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
Uranium	0.0071	mg/filter		0.00030		5	SW6020	06/28/08 19:55/eli-c
RADIONUCLIDES - TOTAL								
Lead 210	1030	pCi/Filter				1	E909.0M	06/30/08 09:40/eli-c
Lead 210 MDC	24.6	pCi/Filter				1	E909.0M	06/30/08 09:40/eli-c
Lead 210 precision (±)	26.9	pCi/Filter				1	E909.0M	06/30/08 09:40/eli-c
Thorium 230	1.4	pCi/Filter		0.2		1	E907.0	07/01/08 13:03/eli-c
Thorium 230 precision (±)	1.0	pCi/Filter				1	E907.0	07/01/08 13:03/eli-c
Radium 226	0.6	pCi/Filter	U			1	E903.0	06/26/08 11:15/eli-c
Radium 226 precision (±)	0.8	pCi/Filter				1	E903.0	06/26/08 11:15/eli-c
Radium 226 MDC	1.3	pCi/Filter				1	E903.0	06/26/08 11:15/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08060209-009
Client Sample ID: AMS-BKG

Report Date: 08/14/08
Collection Date: 03/08/08
Date Received: 06/11/08
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
Uranium	0.0097	mg/filter		0.00030		5	SW6020	06/28/08 20:03/eli-c
RADIONUCLIDES - TOTAL								
Lead 210	1040	pCi/Filter				1	E909.0M	06/30/08 09:40/eli-c
Lead 210 MDC	24.6	pCi/Filter				1	E909.0M	06/30/08 09:40/eli-c
Lead 210 precision (±)	27.1	pCi/Filter				1	E909.0M	06/30/08 09:40/eli-c
Thorium 230	3.0	pCi/Filter		0.2		1	E907.0	07/01/08 13:03/eli-c
Thorium 230 precision (±)	1.4	pCi/Filter				1	E907.0	07/01/08 13:03/eli-c
Radium 226	1.8	pCi/Filter				1	E903.0	06/26/08 11:15/eli-c
Radium 226 precision (±)	1.1	pCi/Filter				1	E903.0	06/26/08 11:15/eli-c
Radium 226 MDC	1.5	pCi/Filter				1	E903.0	06/26/08 11:15/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

Chain of Custody and Analytical Request Record

Page 1 of 1

PLEASE PRINT- Provide as much information as possible.

Company Name:	Project Name, PWS, Permit, Etc.	Sample Origin	EPA/State Compliance:
Environmental Restoration Group	Dewey - Burdock	State: S. Dakota	Yes ☐ No ☒
Report Mail Address:	**Contact Name:** Phone/Fax:	Email:	Sampler: (Please Print)
8809 Washington St NE, Suite 150	Michael Schierman 505-268-4824	mikeschierman@ergoffice.com	Mike Schierman
Invoice Address:	**Invoice Contact & Phone:**	Purchase Order:	Quote/Bottle Order:
Albuquerque NM 87113	Same as above	NA	NA

Special Report/Formats – ELI must be notified prior to sample submittal for the following:

☐ DW ☐ A2LA
☐ GSA ☒ EDD/EDT (Electronic Data)
☐ POTW/WWTP Format: Excel
☐ State: _____ ☐ LEVEL IV
☐ Other: _____ ☐ NELAC

Number of Containers
Sample Type: A W S V B O
Air Water Soils/Solids Vegetation Biossay Other

ANALYSIS REQUESTED

SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	Natural Uranium	Radium-226	Th-230	Lead-210	SEE ATTACHED	Normal Turnaround (TAT)	RUSH	Comments:	LABORATORY USE ONLY
1 AMS-01	1/08 - 7/08	NA	O						X		Please use entire filter composite	R0806020901A
2 AMS-02												002A
3 AMS-03												003A
4 AMS-04												004A
5 AMS-05												005A
6 AMS-06												006A
7 AMS-07												007A
8 AMS-08												008A
9 AMS-BKG	↓	↓	↓	↓	↓	↓	↓		↓		↓	009A
10												

Contact ELI prior to RUSH sample submittal for charges and scheduling – See Instruction Page

Shipped by: MJS
Cooler ID(s): N/A
Receipt Temp: Filters °C
On Ice: Yes No
Custody Seal Intact Y N
Signature Match Y N

Custody Record MUST be Signed

Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
Michael Schierman	6/10/08	Michael Schierman			
Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
			Received by Laboratory: Steve Fitzland	6-11-08 1100	Signature:

Sample Disposal: Return to Client: _____ Lab Disposal:

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested.
This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report.
Visit our web site at www.energylab.com for additional information, downloadable fee schedule, forms, and links.

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08080024-001
Client Sample ID: AMS-BKG

Report Date: 09/30/08
Collection Date: 07/09/08
Date Received: 08/04/08
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
Uranium	0.0065	mg/filter		0.00030		1	SW6020	08/13/08 01:25/eli-c
RADIONUCLIDES - TOTAL								
Lead 210	1840	pCi/Filter				1	E909.0M	08/22/08 10:14/eli-c
Lead 210 MDC	56.1	pCi/Filter				1	E909.0M	08/22/08 10:14/eli-c
Lead 210 precision (±)	56.1	pCi/Filter				1	E909.0M	08/22/08 10:14/eli-c
Thorium 230	1.2	pCi/Filter		0.2		1	E907.0	08/22/08 10:30/eli-c
Thorium 230 precision (±)	1.0	pCi/Filter				1	E907.0	08/22/08 10:30/eli-c
Radium 226	1.2	pCi/Filter				1	E903.0	08/26/08 16:58/eli-c
Radium 226 precision (±)	0.8	pCi/Filter				1	E903.0	08/26/08 16:58/eli-c
Radium 226 MDC	1.2	pCi/Filter				1	E903.0	08/26/08 16:58/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08080024-002
Client Sample ID: AMS-01

Report Date: 09/30/08
Collection Date: 07/09/08
Date Received: 08/04/08
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
Uranium	0.0081	mg/filter		0.00030		1	SW6020	08/13/08 01:29/eli-c
RADIONUCLIDES - TOTAL								
Lead 210	2820	pCi/Filter				1	E909.0M	08/22/08 10:14/eli-c
Lead 210 MDC	56.1	pCi/Filter				1	E909.0M	08/22/08 10:14/eli-c
Lead 210 precision (±)	65.1	pCi/Filter				1	E909.0M	08/22/08 10:14/eli-c
Thorium 230	2.7	pCi/Filter		0.2		1	E907.0	08/22/08 10:30/eli-c
Thorium 230 precision (±)	1.1	pCi/Filter				1	E907.0	08/22/08 10:30/eli-c
Radium 226	2.8	pCi/Filter				1	E903.0	08/26/08 16:58/eli-c
Radium 226 precision (±)	1.0	pCi/Filter				1	E903.0	08/26/08 16:58/eli-c
Radium 226 MDC	1.1	pCi/Filter				1	E903.0	08/26/08 16:58/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08080024-003
Client Sample ID: AMS-02

Report Date: 09/30/08
Collection Date: 07/09/08
Date Received: 08/04/08
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
Uranium	0.0043	mg/filter		0.00030		1	SW6020	08/13/08 01:33/eli-c
RADIONUCLIDES - TOTAL								
Lead 210	1210	pCi/Filter				1	E909.0M	08/22/08 10:14/eli-c
Lead 210 MDC	56.1	pCi/Filter				1	E909.0M	08/22/08 10:14/eli-c
Lead 210 precision (±)	49.5	pCi/Filter				1	E909.0M	08/22/08 10:14/eli-c
Thorium 230	1.0	pCi/Filter		0.2		1	E907.0	08/22/08 10:30/eli-c
Thorium 230 precision (±)	0.8	pCi/Filter				1	E907.0	08/22/08 10:30/eli-c
Radium 226	0.3	pCi/Filter	U			1	E903.0	08/27/08 09:21/eli-c
Radium 226 precision (±)	0.7	pCi/Filter				1	E903.0	08/27/08 09:21/eli-c
Radium 226 MDC	1.1	pCi/Filter				1	E903.0	08/27/08 09:21/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08080024-004
Client Sample ID: AMS-03

Report Date: 09/30/08
Collection Date: 07/09/08
Date Received: 08/04/08
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
Uranium	0.0071	mg/filter		0.00030		1	SW6020	08/13/08 01:53/eli-c
RADIONUCLIDES - TOTAL								
Lead 210	1110	pCi/Filter				1	E909.0M	08/22/08 10:14/eli-c
Lead 210 MDC	56.1	pCi/Filter				1	E909.0M	08/22/08 10:14/eli-c
Lead 210 precision (±)	48.4	pCi/Filter				1	E909.0M	08/22/08 10:14/eli-c
Thorium 230	2.2	pCi/Filter		0.2		1	E907.0	08/22/08 10:30/eli-c
Thorium 230 precision (±)	1.0	pCi/Filter				1	E907.0	08/22/08 10:30/eli-c
Radium 226	2.2	pCi/Filter				1	E903.0	08/27/08 09:21/eli-c
Radium 226 precision (±)	1	pCi/Filter				1	E903.0	08/27/08 09:21/eli-c
Radium 226 MDC	1.2	pCi/Filter				1	E903.0	08/27/08 09:21/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08080024-005
Client Sample ID: AMS-04

Report Date: 09/30/08
Collection Date: 07/09/08
Date Received: 08/04/08
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
Uranium	0.0073	mg/filter		0.00030		5	SW6020	08/13/08 01:57/eli-c
RADIONUCLIDES - TOTAL								
Lead 210	1440	pCi/Filter				1	E909.0M	08/22/08 10:14/eli-c
Lead 210 MDC	56.1	pCi/Filter				1	E909.0M	08/22/08 10:14/eli-c
Lead 210 precision (±)	52.1	pCi/Filter				1	E909.0M	08/22/08 10:14/eli-c
Thorium 230	1.9	pCi/Filter		0.2		1	E907.0	08/22/08 10:30/eli-c
Thorium 230 precision (±)	1.0	pCi/Filter				1	E907.0	08/22/08 10:30/eli-c
Radium 226	2.5	pCi/Filter				1	E903.0	08/27/08 09:21/eli-c
Radium 226 precision (±)	1	pCi/Filter				1	E903.0	08/27/08 09:21/eli-c
Radium 226 MDC	1.1	pCi/Filter				1	E903.0	08/27/08 09:21/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08080024-006
Client Sample ID: AMS-05

Report Date: 09/30/08
Collection Date: 07/09/08
Date Received: 08/04/08
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
Uranium	0.0086	mg/filter		0.00030		5	SW6020	08/13/08 02:02/eli-c
RADIONUCLIDES - TOTAL								
Lead 210	1510	pCi/Filter				1	E909.0M	08/22/08 10:14/eli-c
Lead 210 MDC	56.1	pCi/Filter				1	E909.0M	08/22/08 10:14/eli-c
Lead 210 precision (±)	52.7	pCi/Filter				1	E909.0M	08/22/08 10:14/eli-c
Thorium 230	2.9	pCi/Filter		0.2		1	E907.0	08/22/08 10:30/eli-c
Thorium 230 precision (±)	1.1	pCi/Filter				1	E907.0	08/22/08 10:30/eli-c
Radium 226	2.8	pCi/Filter				1	E903.0	08/27/08 09:21/eli-c
Radium 226 precision (±)	1.0	pCi/Filter				1	E903.0	08/27/08 09:21/eli-c
Radium 226 MDC	1.1	pCi/Filter				1	E903.0	08/27/08 09:21/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08080024-007
Client Sample ID: AMS-06

Report Date: 09/30/08
Collection Date: 07/09/08
Date Received: 08/04/08
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
Uranium	0.0067	mg/filter		0.00030		5	SW6020	08/13/08 02:06/eli-c
RADIONUCLIDES - TOTAL								
Lead 210	1390	pCi/Filter				1	E909.0M	08/22/08 10:14/eli-c
Lead 210 MDC	56.1	pCi/Filter				1	E909.0M	08/22/08 10:14/eli-c
Lead 210 precision (±)	51.5	pCi/Filter				1	E909.0M	08/22/08 10:14/eli-c
Thorium 230	1.7	pCi/Filter		0.2		1	E907.0	08/22/08 10:30/eli-c
Thorium 230 precision (±)	1.1	pCi/Filter				1	E907.0	08/22/08 10:30/eli-c
Radium 226	0.2	pCi/Filter	U			1	E903.0	08/27/08 09:21/eli-c
Radium 226 precision (±)	0.7	pCi/Filter				1	E903.0	08/27/08 09:21/eli-c
Radium 226 MDC	1.2	pCi/Filter				1	E903.0	08/27/08 09:21/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08080024-008
Client Sample ID: AMS-07

Report Date: 09/30/08
Collection Date: 07/09/08
Date Received: 08/04/08
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
Uranium	0.0080	mg/filter		0.00030		5	SW6020	08/13/08 02:10/eli-c
RADIONUCLIDES - TOTAL								
Lead 210	1960	pCi/Filter				1	E909.0M	08/22/08 10:14/eli-c
Lead 210 MDC	56.1	pCi/Filter				1	E909.0M	08/22/08 10:14/eli-c
Lead 210 precision (±)	57.3	pCi/Filter				1	E909.0M	08/22/08 10:14/eli-c
Thorium 230	2.2	pCi/Filter		0.2		1	E907.0	08/22/08 10:30/eli-c
Thorium 230 precision (±)	1.0	pCi/Filter				1	E907.0	08/22/08 10:30/eli-c
Radium 226	0.8	pCi/Filter	U			1	E903.0	08/27/08 09:21/eli-c
Radium 226 precision (±)	0.8	pCi/Filter				1	E903.0	08/27/08 09:21/eli-c
Radium 226 MDC	1.1	pCi/Filter				1	E903.0	08/27/08 09:21/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

ENERGY LABORATORIES, INC. * 2821 Plant St * Rapid City, SD 57702
Toll Free 888.672.1225 * 605.342.1225 * FAX 605.342.1397 * rapid_city@energylab.com

LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08080024-009
Client Sample ID: AMS-08

Report Date: 09/30/08
Collection Date: 07/09/08
Date Received: 08/04/08
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
Uranium	0.0034	mg/filter		0.00030		1	SW6020	08/13/08 02:14/eli-c
RADIONUCLIDES - TOTAL								
Lead 210	23.9	pCi/Filter	U			1	E909.0M	08/22/08 10:14/eli-c
Lead 210 MDC	56.1	pCi/Filter				1	E909.0M	08/22/08 10:14/eli-c
Lead 210 precision (±)	33.8	pCi/Filter				1	E909.0M	08/22/08 10:14/eli-c
Thorium 230	1.0	pCi/Filter		0.2		1	E907.0	08/22/08 10:30/eli-c
Thorium 230 precision (±)	0.7	pCi/Filter				1	E907.0	08/22/08 10:30/eli-c
Radium 226	0.9	pCi/Filter	U			1	E903.0	08/27/08 09:21/eli-c
Radium 226 precision (±)	0.8	pCi/Filter				1	E903.0	08/27/08 09:21/eli-c
Radium 226 MDC	1.1	pCi/Filter				1	E903.0	08/27/08 09:21/eli-c

Report Definitions:
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QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08090099-001
Client Sample ID: AMS-1

Report Date: 10/16/08
Collection Date: 08/13/08
Date Received: 09/08/08
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
Uranium	0.00056	mg/filter		0.00030		1	SW6020	09/30/08 20:13/eli-c
RADIONUCLIDES - TOTAL								
Lead 210	497	pCi/Filter				1	E909.0M	10/01/08 08:40/eli-c
Lead 210 MDC	31.3	pCi/Filter				1	E909.0M	10/01/08 08:40/eli-c
Lead 210 precision (±)	25.2	pCi/Filter				1	E909.0M	10/01/08 08:40/eli-c
Thorium 230	0.8	pCi/Filter	U	0.2		1	E907.0	10/12/08 13:45/eli-c
Thorium 230 precision (±)	1.1	pCi/Filter				1	E907.0	10/12/08 13:45/eli-c
Radium 226	-1	pCi/Filter	U			1	E903.0	10/07/08 17:20/eli-c
Radium 226 precision (±)	1.2	pCi/Filter				1	E903.0	10/07/08 17:20/eli-c
Radium 226 MDC	2.6	pCi/Filter				1	E903.0	10/07/08 17:20/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08090099-002
Client Sample ID: AMS-2

Report Date: 10/16/08
Collection Date: 08/13/08
Date Received: 09/08/08
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
Uranium	0.00078	mg/filter		0.00030		1	SW6020	09/30/08 20:17/eli-c
RADIONUCLIDES - TOTAL								
Lead 210	752	pCi/Filter				1	E909.0M	10/01/08 08:40/eli-c
Lead 210 MDC	31.3	pCi/Filter				1	E909.0M	10/01/08 08:40/eli-c
Lead 210 precision (±)	27.9	pCi/Filter				1	E909.0M	10/01/08 08:40/eli-c
Thorium 230	0.5	pCi/Filter		0.2		1	E907.0	09/30/08 16:00/eli-c
Thorium 230 precision (±)	0.2	pCi/Filter				1	E907.0	09/30/08 16:00/eli-c
Radium 226	-2	pCi/Filter	U			1	E903.0	10/07/08 17:20/eli-c
Radium 226 precision (±)	1.1	pCi/Filter				1	E903.0	10/07/08 17:20/eli-c
Radium 226 MDC	2.7	pCi/Filter				1	E903.0	10/07/08 17:20/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08090099-003
Client Sample ID: AMS-3

Report Date: 10/16/08
Collection Date: 08/13/08
Date Received: 09/08/08
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
Uranium	0.00056	mg/filter		0.00030		1	SW6020	09/30/08 20:21/eli-c
RADIONUCLIDES - TOTAL								
Lead 210	579	pCi/Filter				1	E909.0M	10/01/08 08:40/eli-c
Lead 210 MDC	31.3	pCi/Filter				1	E909.0M	10/01/08 08:40/eli-c
Lead 210 precision (±)	26.1	pCi/Filter				1	E909.0M	10/01/08 08:40/eli-c
Thorium 230	1.4	pCi/Filter		0.2		1	E907.0	09/30/08 16:00/eli-c
Thorium 230 precision (±)	0.3	pCi/Filter				1	E907.0	09/30/08 16:00/eli-c
Radium 226	0.3	pCi/Filter	U			1	E903.0	10/07/08 17:20/eli-c
Radium 226 precision (±)	1.4	pCi/Filter				1	E903.0	10/07/08 17:20/eli-c
Radium 226 MDC	2.4	pCi/Filter				1	E903.0	10/07/08 17:20/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08090099-004
Client Sample ID: AMS-4

Report Date: 10/16/08
Collection Date: 08/13/08
Date Received: 09/08/08
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
Uranium	0.0016	mg/filter		0.00030		1	SW6020	09/30/08 20:25/eli-c
RADIONUCLIDES - TOTAL								
Lead 210	650	pCi/Filter				1	E909.0M	10/01/08 08:40/eli-c
Lead 210 MDC	31.3	pCi/Filter				1	E909.0M	10/01/08 08:40/eli-c
Lead 210 precision (±)	26.9	pCi/Filter				1	E909.0M	10/01/08 08:40/eli-c
Thorium 230	1.8	pCi/Filter		0.2		1	E907.0	09/30/08 16:00/eli-c
Thorium 230 precision (±)	0.3	pCi/Filter				1	E907.0	09/30/08 16:00/eli-c
Radium 226	0.2	pCi/Filter	U			1	E903.0	10/07/08 17:20/eli-c
Radium 226 precision (±)	1.5	pCi/Filter				1	E903.0	10/07/08 17:20/eli-c
Radium 226 MDC	2.6	pCi/Filter				1	E903.0	10/07/08 17:20/eli-c

Report Definitions:
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QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08090099-005
Client Sample ID: AMS-5

Report Date: 10/16/08
Collection Date: 08/13/08
Date Received: 09/08/08
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
Uranium	0.0034	mg/filter		0.00030		1	SW6020	09/30/08 20:29/eli-c
RADIONUCLIDES - TOTAL								
Lead 210	552	pCi/Filter				1	E909.0M	10/01/08 08:40/eli-c
Lead 210 MDC	31.3	pCi/Filter				1	E909.0M	10/01/08 08:40/eli-c
Lead 210 precision (±)	25.7	pCi/Filter				1	E909.0M	10/01/08 08:40/eli-c
Thorium 230	3.2	pCi/Filter		0.2		1	E907.0	09/30/08 16:00/eli-c
Thorium 230 precision (±)	0.3	pCi/Filter				1	E907.0	09/30/08 16:00/eli-c
Radium 226	1.5	pCi/Filter	U			1	E903.0	10/07/08 17:20/eli-c
Radium 226 precision (±)	1.6	pCi/Filter				1	E903.0	10/07/08 17:20/eli-c
Radium 226 MDC	2.4	pCi/Filter				1	E903.0	10/07/08 17:20/eli-c

Report Definitions:
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QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08090099-006
Client Sample ID: AMS-6

Report Date: 10/16/08
Collection Date: 08/13/08
Date Received: 09/08/08
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
Uranium	0.0015	mg/filter		0.00030		1	SW6020	09/30/08 20:33/eli-c
RADIONUCLIDES - TOTAL								
Lead 210	998	pCi/Filter				1	E909.0M	10/01/08 08:40/eli-c
Lead 210 MDC	31.3	pCi/Filter				1	E909.0M	10/01/08 08:40/eli-c
Lead 210 precision (±)	30.4	pCi/Filter				1	E909.0M	10/01/08 08:40/eli-c
Thorium 230	.1.5	pCi/Filter		0.2		1	E907.0	09/30/08 16:00/eli-c
Thorium 230 precision (±)	0.3	pCi/Filter				1	E907.0	09/30/08 16:00/eli-c
Radium 226	0.8	pCi/Filter	U			1	E903.0	10/07/08 17:20/eli-c
Radium 226 precision (±)	1.6	pCi/Filter				1	E903.0	10/07/08 17:20/eli-c
Radium 226 MDC	2.5	pCi/Filter				1	E903.0	10/07/08 17:20/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08090099-007
Client Sample ID: AMS-7

Report Date: 10/16/08
Collection Date: 08/13/08
Date Received: 09/08/08
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
Uranium	0.0016	mg/filter		0.00030		1	SW6020	09/30/08 20:37/eli-c
RADIONUCLIDES - TOTAL								
Lead 210	696	pCi/Filter				1	E909.0M	10/01/08 08:40/eli-c
Lead 210 MDC	31.3	pCi/Filter				1	E909.0M	10/01/08 08:40/eli-c
Lead 210 precision (±)	27.4	pCi/Filter				1	E909.0M	10/01/08 08:40/eli-c
Thorium 230	1.4	pCi/Filter		0.2		1	E907.0	09/30/08 16:00/eli-c
Thorium 230 precision (±)	0.3	pCi/Filter				1	E907.0	09/30/08 16:00/eli-c
Radium 226	1.2	pCi/Filter	U			1	E903.0	10/07/08 17:20/eli-c
Radium 226 precision (±)	1.6	pCi/Filter				1	E903.0	10/07/08 17:20/eli-c
Radium 226 MDC	2.5	pCi/Filter				1	E903.0	10/07/08 17:20/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08090099-008
Client Sample ID: AMS-BKG

Report Date: 10/16/08
Collection Date: 08/13/08
Date Received: 09/08/08
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
Uranium	0.0011	mg/filter		0.00030		1	SW6020	09/30/08 20:41/eli-c
RADIONUCLIDES - TOTAL								
Lead 210	606	pCi/Filter				1	E909.0M	10/01/08 08:40/eli-c
Lead 210 MDC	31.3	pCi/Filter				1	E909.0M	10/01/08 08:40/eli-c
Lead 210 precision (±)	26.4	pCi/Filter				1	E909.0M	10/01/08 08:40/eli-c
Thorium 230	1.7	pCi/Filter		0.2		1	E907.0	09/30/08 16:00/eli-c
Thorium 230 precision (±)	0.3	pCi/Filter				1	E907.0	09/30/08 16:00/eli-c
Radium 226	-0.4	pCi/Filter	U			1	E903.0	10/07/08 18:55/eli-c
Radium 226 precision (±)	1.1	pCi/Filter				1	E903.0	10/07/08 18:55/eli-c
Radium 226 MDC	2.0	pCi/Filter				1	E903.0	10/07/08 18:55/eli-c

Report Definitions:
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QCL - Quality control limit.
MDC - Minimum detectable concentration
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U - Not detected at minimum detectable concentration

ANALYTICAL SUMMARY REPORT

December 14, 2007

Michael Schierrman
Environmental Restoration Group Inc
8809 Washington St NE
Albuquerque, NM 87113

Workorder No.: R07100004

Project Name: Dewey Burdock Baseline Soil Sampling

Energy Laboratories Inc. received the following 118 samples from Environmental Restoration Group Inc on 9/29/2007 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
R07100004-001	SMA-B01	09/24/07 0:00	09/29/07	Soil	Metals, Total Digestion, Total Metals For Radio Chemistry Gross Gamma Lead 210 Radium 226 Thorium, Isotopic
R07100004-002	SMA-B01Dup	09/24/07 0:00	09/29/07	Soil	Same As Above
R07100004-003	SMA-B03	09/24/07 0:00	09/29/07	Soil	Gross Gamma
R07100004-004	SMA-B04	09/24/07 0:00	09/29/07	Soil	Same As Above
R07100004-005	SMA-B07	09/24/07 0:00	09/29/07	Soil	Same As Above
R07100004-006	SMA-B09	09/24/07 0:00	09/29/07	Soil	Same As Above
R07100004-007	SMA-B09Dup	09/24/07 0:00	09/29/07	Soil	Same As Above
R07100004-008	SMA-B10	09/25/07 0:00	09/29/07	Soil	Same As Above
R07100004-009	SMA-B11	09/24/07 0:00	09/29/07	Soil	Same As Above
R07100004-010	SMA-B13	09/25/07 0:00	09/29/07	Soil	Same As Above
R07100004-011	SMA-B14	09/24/07 0:00	09/29/07	Soil	Same As Above
R07100004-012	SMA-B14Dup	09/24/07 0:00	09/29/07	Soil	Same As Above
R07100004-013	SMA-B15	09/24/07 0:00	09/29/07	Soil	Same As Above
R07100004-014	SMA-B16	09/24/07 0:00	09/29/07	Soil	Same As Above
R07100004-015	SMA-B17	09/24/07 0:00	09/29/07	Soil	Same As Above
R07100004-016	SMA-B18	09/25/07 0:00	09/29/07	Soil	Same As Above
R07100004-017	SMA-B18Dup	09/25/07 0:00	09/29/07	Soil	Same As Above
R07100004-018	SMA-B19	09/24/07 0:00	09/29/07	Soil	Same As Above
R07100004-019	SMA-B20	09/27/07 0:00	09/29/07	Soil	Same As Above
R07100004-020	SMA-B21	09/24/07 0:00	09/29/07	Soil	Same As Above
R07100004-021	SMA-B22	09/24/07 0:00	09/29/07	Soil	Same As Above
R07100004-022	SMA-B23	09/24/07 0:00	09/29/07	Soil	Same As Above
R07100004-023	SMA-B23Dup	09/24/07 0:00	09/29/07	Soil	Same As Above

R07100004-024	SMA-B24	09/24/07 0:00	09/29/07	Soil	Same As Above
R07100004-025	SMA-B25	09/24/07 0:00	09/29/07	Soil	Same As Above
R07100004-026	SMA-B26	09/28/07 0:00	09/29/07	Soil	Same As Above
R07100004-027	SMA-B27	09/28/07 0:00	09/29/07	Soil	Metals, Total Digestion, Total Metals For Radio Chemistry Gross Gamma Lead 210 Radium 226 Thorium, Isotopic
R07100004-028	SMA-B28	09/28/07 0:00	09/29/07	Soil	Gross Gamma
R07100004-029	SMA-B29	09/28/07 0:00	09/29/07	Soil	Metals, Total Digestion, Total Metals For Radio Chemistry Gross Gamma Lead 210 Radium 226 Thorium, Isotopic
R07100004-030	SMA-B30	09/28/07 0:00	09/29/07	Soil	Gross Gamma
R07100004-031	MPA-R01	09/24/07 0:00	09/29/07	Soil	Same As Above
R07100004-032	MPA-R02	09/24/07 0:00	09/29/07	Soil	Same As Above
R07100004-033	MPA-R03	09/24/07 0:00	09/29/07	Soil	Metals, Total Digestion, Total Metals For Radio Chemistry Gross Gamma Lead 210 Radium 226 Thorium, Isotopic
R07100004-034	MPA-R04	09/24/07 0:00	09/29/07	Soil	Gross Gamma
R07100004-035	MPA-R04Dup	09/24/07 0:00	09/29/07	Soil	Same As Above
R07100004-036	MPA-R05	09/24/07 0:00	09/29/07	Soil	Same As Above
R07100004-037	NEA-R01	09/24/07 0:00	09/29/07	Soil	Metals, Total Digestion, Total Metals For Radio Chemistry Gross Gamma Lead 210 Radium 226 Thorium, Isotopic
R07100004-038	NEA-R02	09/24/07 0:00	09/29/07	Soil	Gross Gamma
R07100004-039	NEA-R03	09/24/07 0:00	09/29/07	Soil	Same As Above
R07100004-040	NEA-R04	09/24/07 0:00	09/29/07	Soil	Same As Above
R07100004-041	NEA-R04Dup	09/24/07 0:00	09/29/07	Soil	Same As Above
R07100004-042	NEA-R05	09/24/07 0:00	09/29/07	Soil	Same As Above
R07100004-043	AMS-1	09/27/07 0:00	09/29/07	Soil	Metals, Total Digestion, Total Metals For Radio Chemistry Gross Gamma Lead 210 Radium 226 Thorium, Isotopic
R07100004-044	AMS-2	09/27/07 0:00	09/29/07	Soil	Same As Above
R07100004-045	AMS-3	09/27/07 0:00	09/29/07	Soil	Same As Above
R07100004-046	AMS-4	09/27/07 0:00	09/29/07	Soil	Same As Above

R07100004-047	AMS-5	09/27/07 0:00	09/29/07	Soil	Same As Above
R07100004-048	AMS-6	09/27/07 0:00	09/29/07	Soil	Same As Above
R07100004-049	AMS-7	09/27/07 0:00	09/29/07	Soil	Same As Above
R07100004-050	AMS-BKG	09/27/07 0:00	09/29/07	Soil	Same As Above
R07100004-051	MPA-B01	09/25/07 0:00	09/29/07	Soil	Gross Gamma
R07100004-052	MPA-B02	09/25/07 0:00	09/29/07	Soil	Same As Above
R07100004-053	MPA-B03	09/25/07 0:00	09/29/07	Soil	Same As Above
R07100004-054	RFA-B01A	09/26/07 0:00	09/29/07	Soil	Metals, Total Digestion, Total Metals For Radio Chemistry Gross Gamma Lead 210 Radium 226 Thorium, Isotopic
R07100004-055	RFA-B01B	09/26/07 0:00	09/29/07	Soil	Same As Above
R07100004-056	RFA-B01C	09/26/07 0:00	09/29/07	Soil	Same As Above
R07100004-057	RFA-B01ADup	09/26/07 0:00	09/29/07	Soil	Same As Above
R07100004-058	RFA-B01BDup	09/26/07 0:00	09/29/07	Soil	Same As Above
R07100004-059	RFA-B01CDup	09/26/07 0:00	09/29/07	Soil	Same As Above
R07100004-060	RFA-B02A	09/26/07 0:00	09/29/07	Soil	Gross Gamma
R07100004-061	RFA-B02B	09/26/07 0:00	09/29/07	Soil	Same As Above
R07100004-062	RFA-B02C	09/26/07 0:00	09/29/07	Soil	Same As Above
R07100004-063	RFA-B03	09/25/07 0:00	09/29/07	Soil	Same As Above
R07100004-064	RFA-B04	09/25/07 0:00	09/29/07	Soil	Same As Above
R07100004-065	RFA-B06	09/25/07 0:00	09/29/07	Soil	Same As Above
R07100004-066	RFA-B07	09/25/07 0:00	09/29/07	Soil	Same As Above
R07100004-067	RFA-B08	09/25/07 0:00	09/29/07	Soil	Same As Above
R07100004-068	RFA-B08Dup	09/25/07 0:00	09/29/07	Soil	Same As Above
R07100004-069	RFA-B09	09/25/07 0:00	09/29/07	Soil	Same As Above
R07100004-070	RFA-B10	09/25/07 0:00	09/29/07	Soil	Same As Above
R07100004-071	RFA-B11	09/25/07 0:00	09/29/07	Soil	Metals, Total Digestion, Total Metals For Radio Chemistry Gross Gamma Lead 210 Radium 226 Thorium, Isotopic
R07100004-072	RFA-B12	09/25/07 0:00	09/29/07	Soil	Gross Gamma
R07100004-073	RFA-B13A	09/26/07 0:00	09/29/07	Soil	Same As Above
R07100004-074	RFA-B13B	09/26/07 0:00	09/29/07	Soil	Same As Above
R07100004-075	RFA-B13C	09/26/07 0:00	09/29/07	Soil	Same As Above
R07100004-076	RFA-B14	09/25/07 0:00	09/29/07	Soil	Same As Above
R07100004-077	RFA-B15A	09/26/07 0:00	09/29/07	Soil	Same As Above
R07100004-078	RFA-B15B	09/26/07 0:00	09/29/07	Soil	Same As Above

R07100004-079	RFA-B15C	09/26/07 0:00	09/29/07	Soil	Same As Above
R07100004-080	RFA-B16	09/25/07 0:00	09/29/07	Soil	Same As Above
R07100004-081	RFA-B17A	09/26/07 0:00	09/29/07	Soil	Same As Above
R07100004-082	RFA-B17B	09/26/07 0:00	09/29/07	Soil	Same As Above
R07100004-083	RFA-B17C	09/26/07 0:00	09/29/07	Soil	Same As Above
R07100004-084	RFA-B18	09/25/07 0:00	09/29/07	Soil	Same As Above
R07100004-085	RFA-B19	09/25/07 0:00	09/29/07	Soil	Same As Above
R07100004-086	RFA-B20	09/25/07 0:00	09/29/07	Soil	Metals, Total Digestion, Total Metals For Radio Chemistry Gross Gamma Lead 210 Radium 226 Thorium, Isotopic
R07100004-087	RFA-B21A	09/26/07 0:00	09/29/07	Soil	Gross Gamma
R07100004-088	RFA-B21B	09/26/07 0:00	09/29/07	Soil	Same As Above
R07100004-089	RFA-B21C	09/26/07 0:00	09/29/07	Soil	Same As Above
R07100004-090	RFA-B22	09/25/07 0:00	09/29/07	Soil	Same As Above
R07100004-091	RFA-B23	09/25/07 0:00	09/29/07	Soil	Same As Above
R07100004-092	RFA-B24	09/25/07 0:00	09/29/07	Soil	Same As Above
R07100004-093	RFA-B25	09/25/07 0:00	09/29/07	Soil	Metals, Total Digestion, Total Metals For Radio Chemistry Gross Gamma Lead 210 Radium 226 Thorium, Isotopic
R07100004-094	RFA-B26	09/25/07 0:00	09/29/07	Soil	Gross Gamma
R07100004-095	RFA-B27	09/25/07 0:00	09/29/07	Soil	Same As Above
R07100004-096	RFA-B28	09/25/07 0:00	09/29/07	Soil	Same As Above
R07100004-097	RFA-B28Dup	09/25/07 0:00	09/29/07	Soil	Same As Above
R07100004-098	RFA-B29	09/25/07 0:00	09/29/07	Soil	Same As Above
R07100004-099	RFA-B30A	09/26/07 0:00	09/29/07	Soil	Same As Above
R07100004-100	RFA-B30B	09/26/07 0:00	09/29/07	Soil	Same As Above
R07100004-101	RFA-B30C	09/26/07 0:00	09/29/07	Soil	Same As Above
R07100004-102	RFA-B31	09/25/07 0:00	09/29/07	Soil	Same As Above
R07100004-103	RFA-B33	09/25/07 0:00	09/29/07	Soil	Same As Above
R07100004-104	RFA-B34	09/25/07 0:00	09/29/07	Soil	Same As Above
R07100004-105	RFA-B35	09/25/07 0:00	09/29/07	Soil	Same As Above
R07100004-106	RFA-B36A	09/26/07 0:00	09/29/07	Soil	Same As Above
R07100004-107	RFA-B36B	09/26/07 0:00	09/29/07	Soil	Same As Above
R07100004-108	RFA-B36C	09/26/07 0:00	09/29/07	Soil	Same As Above
R07100004-109	RFA-B37A	09/26/07 0:00	09/29/07	Soil	Same As Above
R07100004-110	RFA-B37B	09/26/07 0:00	09/29/07	Soil	Same As Above

R07100004-111	RFA-B37C	09/26/07 0:00	09/29/07	Soil	Same As Above
R07100004-112	RFA-B38	09/25/07 0:00	09/29/07	Soil	Same As Above
R07100004-113	RFA-B39	09/25/07 0:00	09/29/07	Soil	Same As Above
R07100004-114	RFA-B40	09/25/07 0:00	09/29/07	Soil	Metals, Total Digestion, Total Metals For Radio Chemistry Gross Gamma Lead 210 Radium 226 Thorium, Isotopic
R07100004-115	RFA-B41	09/25/07 0:00	09/29/07	Soil	Gross Gamma
R07100004-116	RFA-B43	09/25/07 0:00	09/29/07	Soil	Same As Above
R07100004-117	RFA-B44	09/25/07 0:00	09/29/07	Soil	Same As Above
R07100004-118	RFA-B45	09/25/07 0:00	09/29/07	Soil	Same As Above

Thank you for submitting your samples to Energy Laboratories, Inc. - Rapid City. The following pages contain the results of the sample tests listed above and applicable analytical notes.

The samples were analyzed in accordance with the methods specified on the analytical reports. All analyses were accompanied by appropriate quality control samples throughout the test. Where applicable, the results of these quality control samples will be included, following your analytical data.

If you have any questions regarding the analyses performed or the results of these analyses, please contact Energy Laboratories Inc. - Rapid City at (605) 342-1225, (888) 672-1225 or Rapid_City@energylab.com.

Report Approved By: _____

Linda Larson

Rapid City - Project Manager

LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline Soil Sampling
Workorder: R07100004

Report Date: 12/14/07
Date Received: 09/29/07

	Analysis	Uranium Activity	Pb210	Pb210 ±	Ra226 Chemical	Ra226 ± Chemical	Th230	Th230 ±	Ra226 Gamma	Ra226 ± Gamma
	Units	uCi/g-dry	uCi/g-dry	uCi/g-dry	uCi/g-dry	uCi/g-dry	uCi/g-dry	uCi/g-dry	uCi/g-dry	uCi/g-dry
Sample ID	Client Sample ID	Results	Results	Results	Results	Results	Results	Results	Results	Results
R07100004-001	SMA-B01	1.2E-06	6.0E-07	1.0E-07	9.0E-07	2.0E-07	5.0E-07	1.0E-07	9.0E-07	2.0E-07
R07100004-002	SMA-B01Dup	1.5E-06	2.0E-06	2.0E-07	1.0E-06	2.0E-07	6.0E-07	1.0E-07	1.4E-06	3.0E-07
R07100004-003	SMA-B03								1.5E-06	2.0E-07
R07100004-004	SMA-B04								1.0E-06	2.0E-07
R07100004-005	SMA-B07								3.2E-06	3.0E-07
R07100004-006	SMA-B09								1.2E-06	2.0E-07
R07100004-007	SMA-B09Dup								1.7E-06	2.0E-07
R07100004-008	SMA-B10								1.4E-06	2.0E-07
R07100004-009	SMA-B11								2.3E-06	3.0E-07
R07100004-010	SMA-B13								1.7E-06	3.0E-07
R07100004-011	SMA-B14								1.4E-06	3.0E-07
R07100004-012	SMA-B14Dup								1.6E-06	2.0E-07
R07100004-013	SMA-B15								8.0E-07	2.0E-07
R07100004-014	SMA-B16								9.0E-07	2.0E-07
R07100004-015	SMA-B17								1.0E-06	2.0E-07
R07100004-016	SMA-B18								5.0E-07	1.0E-07
R07100004-017	SMA-B18Dup								4.0E-07	1.0E-07
R07100004-018	SMA-B19								1.2E-06	2.0E-07
R07100004-019	SMA-B20								9.0E-07	2.0E-07
R07100004-020	SMA-B21								1.4E-06	2.0E-07
R07100004-021	SMA-B22								8.0E-07	2.0E-07
R07100004-022	SMA-B23								2.7E-06	3.0E-07
R07100004-023	SMA-B23Dup								2.6E-06	3.0E-07
R07100004-024	SMA-B24								1.3E-06	2.0E-07
R07100004-025	SMA-B25								1.0E-06	2.0E-07
R07100004-026	SMA-B26								1.1E-05	5.0E-07
R07100004-027	SMA-B27	6.7E-05	3.0E-05	8.0E-07	3.0E-05	1.0E-06	3.0E-05	8.0E-07	4.0E-05	1.1E-06
R07100004-028	SMA-B28								6.4E-06	4.0E-07
R07100004-029	SMA-B29	1.6E-05	2.0E-05	7.0E-07	2.0E-05	8.0E-07	2.0E-05	6.0E-07	2.9E-05	9.0E-07
R07100004-030	SMA-B30								3.4E-05	9.0E-07
R07100004-031	MPA-R01								1.4E-06	2.0E-07
R07100004-032	MPA-R02								2.6E-06	3.0E-07
R07100004-033	MPA-R03	7.5E-07	7.0E-07	1.0E-07	8.0E-07	2.0E-07	4.0E-07	1.0E-07	1.1E-06	2.0E-07
R07100004-034	MPA-R04								9.0E-07	2.0E-07
R07100004-035	MPA-R04Dup								8.0E-07	2.0E-07
R07100004-036	MPA-R05								1.2E-06	2.0E-07
R07100004-037	NEA-R01	9.1E-07	7.0E-07	2.0E-07	9.0E-07	2.0E-07	6.0E-07	1.0E-07	1.1E-06	2.0E-07
R07100004-038	NEA-R02								1.3E-06	2.0E-07
R07100004-039	NEA-R03								2.2E-06	3.0E-07
R07100004-040	NEA-R04								2.3E-06	3.0E-07
R07100004-041	NEA-R04Dup								2.5E-06	3.0E-07

LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline Soil Sampling
Workorder: R07100004

Report Date: 12/14/07
Date Received: 09/29/07

	Analysis	Uranium, Activity	Pb210	Pb210 ±	Ra226 Chemical	Ra226 ± Chemical	Th230	Th230 ±	Ra226 Gamma	Ra226 ± Gamma
	Units	uCi/g-dry	uCi/g-dry	uCi/g-dry	uCi/g-dry	uCi/g-dry	uCi/g-dry	uCi/g-dry	uCi/g-dry	uCi/g-dry
Sample ID	Client Sample ID	Results	Results	Results	Results	Results	Results	Results	Results	Results
R07100004-042	NEA-R05								2.8E-06	3.0E-07
R07100004-043	AMS-1	9.6E-07	2.0E-06	3.0E-07	7.0E-07	2.0E-07	4.0E-07	1.0E-07	1.4E-06	2.0E-07
R07100004-044	AMS-2	9.5E-07	3.0E-06	3.0E-07	1.0E-06	2.0E-07	5.0E-07	1.0E-07	1.1E-06	2.0E-07
R07100004-045	AMS-3	8.2E-07	2.0E-06	2.0E-07	1.0E-06	2.0E-07	4.0E-07	1.0E-07	1.5E-06	2.0E-07
R07100004-046	AMS-4	1.4E-06	2.0E-06	2.0E-07	7.0E-07	1.0E-07	8.0E-07	2.0E-07	1.5E-06	3.0E-07
R07100004-047	AMS-5	6.8E-07	2.0E-06	2.0E-07	8.0E-07	2.0E-07	6.0E-07	1.0E-07	1.3E-06	3.0E-07
R07100004-048	AMS-6	5.5E-07	1.0E-06	2.0E-07	3.0E-07	1.0E-07	4.0E-07	1.0E-07	8.0E-07	2.0E-07
R07100004-049	AMS-7	5.8E-07	2.0E-06	2.0E-07	3.0E-07	1.0E-07	3.0E-07	8.0E-08	1.1E-06	2.0E-07
R07100004-050	AMS-BK0	1.9E-06	2.0E-06	2.0E-07	1.0E-06	2.0E-07	9.0E-07	1.0E-07	2.4E-06	4.0E-07
R07100004-051	MPA-B01								1.4E-06	3.0E-07
R07100004-052	MPA-B02								1.1E-06	2.0E-07
R07100004-053	MPA-B03								1.3E-06	3.0E-07
R07100004-054	RFA-B01A	8.7E-07	1.0E-06	2.0E-07	7.0E-07	1.0E-07	7.0E-07	1.0E-07	1.2E-06	2.0E-07
R07100004-055	RFA-B01B	1.1E-06	2.0E-06	2.0E-07	1.0E-06	2.0E-07	9.0E-07	2.0E-07	1.7E-06	2.0E-07
R07100004-056	RFA-B01C	1.5E-06	6.0E-07	1.0E-07	1.0E-06	2.0E-07	8.0E-07	1.0E-07	1.2E-06	2.0E-07
R07100004-057	RFA-B01ADup	9.0E-07	8.0E-07	1.0E-07	1.0E-06	2.0E-07	7.0E-07	1.0E-07	1.1E-06	2.0E-07
R07100004-058	RFA-B01BDup	9.9E-07	9.0E-07	2.0E-07	1.0E-06	2.0E-07	9.0E-07	2.0E-07	1.5E-06	2.0E-07
R07100004-059	RFA-B01CDup	1.3E-06	1.0E-06	2.0E-07	1.0E-06	2.0E-07	1.0E-06	2.0E-07	1.7E-06	3.0E-07
R07100004-060	RFA-B02A								1.1E-06	2.0E-07
R07100004-061	RFA-B02B								9.0E-07	2.0E-07
R07100004-062	RFA-B02C								9.0E-07	2.0E-07
R07100004-063	RFA-B03								1.5E-06	3.0E-07
R07100004-064	RFA-B04								1.1E-06	2.0E-07
R07100004-065	RFA-B06								1.7E-06	2.0E-07
R07100004-066	RFA-B07								9.0E-07	2.0E-07
R07100004-067	RFA-B08								1.1E-06	2.0E-07
R07100004-068	RFA-B08Dup								1.1E-06	2.0E-07
R07100004-069	RFA-B09								1.0E-06	2.0E-07
R07100004-070	RFA-B10								1.8E-06	3.0E-07
R07100004-071	RFA-B11	8.8E-07	1.0E-06	2.0E-07	9.0E-07	2.0E-07	5.0E-07	1.0E-07	1.0E-06	2.0E-07
R07100004-072	RFA-B12								1.8E-06	3.0E-07
R07100004-073	RFA-B13A								1.6E-06	2.0E-07
R07100004-074	RFA-B13B								1.8E-06	2.0E-07
R07100004-075	RFA-B13C								1.6E-06	2.0E-07
R07100004-076	RFA-B14								1.7E-06	3.0E-07
R07100004-077	RFA-B15A								1.4E-06	3.0E-07
R07100004-078	RFA-B15B								1.5E-06	2.0E-07
R07100004-079	RFA-B15C								1.5E-06	3.0E-07
R07100004-080	RFA-B16								9.0E-07	2.0E-07
R07100004-081	RFA-B17A								2.0E-06	3.0E-07
R07100004-082	RFA-B17B								2.2E-06	3.0E-07

LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline Soil Sampling
Workorder: R07100004

Report Date: 12/14/07
Date Received: 09/29/07

	Analysis	Uranium Activity	Pb210	Pb210 ±	Ra226 Chemical	Ra226 ± Chemical	Th230	Th230 ±	Ra226 Gamma	Ra226 ± Gamma
	Units	uCi/g-dry	uCi/g-dry	uCi/g-dry	uCi/g-dry	uCi/g-dry	uCi/g-dry	uCi/g-dry	uCi/g-dry	uCi/g-dry
Sample ID	Client Sample ID	Results	Results	Results	Results	Results	Results	Results	Results	Results
R07100004-083	RFA-B17C								2.5E-06	3.0E-07
R07100004-084	RFA-B18								1.7E-06	3.0E-07
R07100004-085	RFA-B19								1.2E-06	2.0E-07
R07100004-086	RFA-B20	8.8E-07	1.0E-06	2.0E-07	6.0E-07	1.0E-07	5.0E-07	1.0E-07	1.3E-06	3.0E-07
R07100004-087	RFA-B21A								5.3E-06	4.0E-07
R07100004-088	RFA-B21B								1.3E-06	2.0E-07
R07100004-089	RFA-B21C								1.2E-06	2.0E-07
R07100004-090	RFA-B22								1.5E-06	2.0E-07
R07100004-091	RFA-B23								3.8E-06	4.0E-07
R07100004-092	RFA-B24								1.3E-06	2.0E-07
R07100004-093	RFA-B25	6.7E-07	1.0E-06	2.0E-07	6.0E-07	1.0E-07	4.0E-07	1.0E-07	1.2E-06	2.0E-07
R07100004-094	RFA-B26								1.1E-06	2.0E-07
R07100004-095	RFA-B27								1.5E-06	2.0E-07
R07100004-096	RFA-B28								2.4E-06	3.0E-07
R07100004-097	RFA-B28Dup								1.6E-06	3.0E-07
R07100004-098	RFA-B29								1.7E-06	3.0E-07
R07100004-099	RFA-B30A								1.8E-06	2.0E-07
R07100004-100	RFA-B30B								2.1E-06	3.0E-07
R07100004-101	RFA-B30C								1.7E-06	3.0E-07
R07100004-102	RFA-B31								1.3E-06	2.0E-07
R07100004-103	RFA-B33								9.0E-07	2.0E-07
R07100004-104	RFA-B34								1.0E-06	2.0E-07
R07100004-105	RFA-B35								1.2E-06	2.0E-07
R07100004-106	RFA-B36A								1.0E-06	2.0E-07
R07100004-107	RFA-B36B								1.1E-06	2.0E-07
R07100004-108	RFA-B36C								1.0E-06	2.0E-07
R07100004-109	RFA-B37A								9.0E-07	2.0E-07
R07100004-110	RFA-B37B								7.0E-07	2.0E-07
R07100004-111	RFA-B37C								1.1E-06	2.0E-07
R07100004-112	RFA-B38								1.0E-06	2.0E-07
R07100004-113	RFA-B39								1.1E-06	2.0E-07
R07100004-114	RFA-B40	5.6E-07	1.0E-06	2.0E-07	6.0E-07	1.0E-07	3.0E-07	1.0E-07	1.1E-06	2.0E-07
R07100004-115	RFA-B41								1.2E-06	2.0E-07
R07100004-116	RFA-B43								1.7E-06	3.0E-07
R07100004-117	RFA-B44								1.4E-06	2.0E-07
R07100004-118	RFA-B45								1.6E-06	3.0E-07

QA/QC Summary Report

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline Soil Sampling

Report Date: 12/14/07
Work Order: R07100004

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E901.1									Batch: C_16378
Sample ID: MB-R92021	Method Blank				Run: SUB-C92021				10/22/07 12:00
Bismuth 214	ND	pCi/g-dry	0.05						
Radium 226	ND	pCi/g-dry	0.05						
Sample ID: LCS-R92021	Laboratory Control Sample				Run: SUB-C92021				10/22/07 12:00
Bismuth 214	50.3	pCi/g-dry	0.10	106	70	130			
Sample ID: R07100004-103A	Sample Duplicate				Run: SUB-C94009				11/30/07 12:35
Radium 226	1.00	pCi/g-dry	0.10				11	30	
Radium 226 precision (±)	0.200	pCi/g-dry							
Sample ID: R07100004-105A	Sample Duplicate				Run: SUB-C94009				11/30/07 12:35
Radium 226	1.40	pCi/g-dry	0.10				15	30	
Radium 226 precision (±)	0.200	pCi/g-dry							
Sample ID: R07100004-107A	Sample Duplicate				Run: SUB-C94009				11/30/07 12:35
Radium 226	0.900	pCi/g-dry	0.10				20	30	
Radium 226 precision (±)	0.200	pCi/g-dry							
Sample ID: R07100004-109A	Sample Duplicate				Run: SUB-C94009				11/30/07 12:35
Radium 226	0.800	pCi/g-dry	0.10				12	30	
Radium 226 precision (±)	0.200	pCi/g-dry							
Sample ID: R07100004-111A	Sample Duplicate				Run: SUB-C94009				11/30/07 12:35
Radium 226	1.00	pCi/g-dry	0.10				9.5	30	
Radium 226 precision (±)	0.200	pCi/g-dry							
Sample ID: R07100004-113A	Sample Duplicate				Run: SUB-C94009				11/30/07 12:35
Radium 226	1.10	pCi/g-dry	0.10				0.0	30	
Radium 226 precision (±)	0.200	pCi/g-dry							
Sample ID: R07100004-115A	Sample Duplicate				Run: SUB-C94009				11/30/07 12:35
Radium 226	1.20	pCi/g-dry	0.10				0.0	30	
Radium 226 precision (±)	0.300	pCi/g-dry							
Sample ID: R07100004-117A	Sample Duplicate				Run: SUB-C94009				11/30/07 12:35
Radium 226	1.30	pCi/g-dry	0.10				7.4	30	
Radium 226 precision (±)	0.200	pCi/g-dry							

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline Soil Sampling

Report Date: 12/14/07
Work Order: R07100004

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0									Batch: C_16379
Sample ID: R07100004-047A	Sample Matrix Spike				Run: SUB-C91456				10/18/07 12:11
Radium 226	3.2	pCi/g-dry	0.10	75	70	130			
MSD failed and was not imported to Omega.									
Sample ID: LCS-16379	Laboratory Control Sample				Run: SUB-C91456				10/18/07 12:11
Radium 226	0.059	pCi/g-dry	0.10	92	70	130			
Sample ID: MB-16379	Method Blank				Run: SUB-C91456				10/18/07 12:11
Radium 226	ND	pCi/g-dry	0.0002						
Method: E903.0									Batch: C_16398
Sample ID: LCS-16398	Laboratory Control Sample				Run: SUB-C91630				10/22/07 12:54
Radium 226	34	pCi/g-dry	0.10	108	70	130			
Sample ID: R07100004-086A	Sample Matrix Spike				Run: SUB-C91980				10/29/07 13:32
Radium 226	3.7	pCi/g-dry	0.50	101	70	130			
Sample ID: R07100004-086A	Sample Matrix Spike Duplicate				Run: SUB-C91980				10/29/07 13:32
Radium 226	3.7	pCi/g-dry	0.50	98	70	130	1.6	27.5	
Method: E907.0									Batch: C_16379
Sample ID: R07100004-047A	Sample Matrix Spike				Run: SUB-C91536				10/09/07 15:00
Thorium 230	2.97	pCi/g-dry	0.10	103	70	130			
Sample ID: LCS-16379	Laboratory Control Sample				Run: SUB-C91536				10/09/07 15:00
Thorium 230	5.20	pCi/g-dry	0.10	106	70	130			
Sample ID: MB-16379	Method Blank				Run: SUB-C91536				10/09/07 15:00
Thorium 230	ND	pCi/g-dry	0.0002						
Method: E907.0									Batch: C_16398
Sample ID: R07100004-048A	Sample Matrix Spike				Run: SUB-C91708				10/18/07 00:00
Thorium 230	3.19	pCi/g-dry	0.10	98	70	130			
Sample ID: R07100004-048A	Sample Matrix Spike Duplicate				Run: SUB-C91708				10/18/07 00:00
Thorium 230	3.22	pCi/g-dry	0.10	100	70	130	1.1	30	
Sample ID: LCS-R91708	Laboratory Control Sample				Run: SUB-C91708				10/18/07 00:00
Thorium 230	5.50	pCi/g-dry	0.10	93	70	130			
Sample ID: MB-R91708	Method Blank				Run: SUB-C91708				10/18/07 00:00
Thorium 230	ND	pCi/g-dry	0.01						

Qualifiers:

L - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline Soil Sampling

Report Date: 12/14/07
Work Order: R07100004

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E907.0									Batch: C_R91728
Sample ID: C07061601-002AMSD	Sample Matrix Spike Duplicate				Run: SUB-C91728			10/17/07 15:00	
Thorium 230	58.5	pCi/L	1.0	100	70	130	3.0	30	
Sample ID: C07070262-015AMS	Sample Matrix Spike				Run: SUB-C91728			10/17/07 15:00	
Thorium 230	63.7	pCi/L	0.20	101	70	130			
Sample ID: LCS-15162	Laboratory Control Sample				Run: SUB-C91728			10/17/07 15:00	
Thorium 230	5.40	pCi/L	0.20	92	70	130			
Sample ID: MB-R91728	Method Blank				Run: SUB-C91728			10/17/07 15:00	
Thorium 230	ND	pCi/L	0.2						
Method: E909.0M									Batch: C_16379
Sample ID: R07100004-047A	Sample Matrix Spike Duplicate				Run: SUB-C92688			11/06/07 08:10	
Lead 210	497	pCi/g-dry	0.10	123	70	130	88	30	R
Sample ID: MB-R92688	Method Blank				Run: SUB-C92688			11/06/07 08:10	
Lead 210	ND	pCi/g-dry	0.05						
Sample ID: LCS-R92688	Laboratory Control Sample				Run: SUB-C92688			11/06/07 08:10	
Lead 210	90.0	pCi/g-dry	0.10	112	70	130			
Method: E909.0M									Batch: C_16398
Sample ID: R07100004-114A	Sample Matrix Spike				Run: SUB-C92976			11/08/07 09:20	
Lead 210	485	pCi/g-dry	0.10	120	70	130			
Sample ID: R07100004-114A	Sample Matrix Spike Duplicate				Run: SUB-C92976			11/08/07 09:20	
Lead 210	458	pCi/g-dry	0.10	114	70	130	5.8	30	

Qualifiers:

- Analyte reporting limit.
R - RPD exceeds advisory limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline Soil Sampling

Report Date: 12/14/07
Work Order: R07100004

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6020									Batch: C_16405
Sample ID: MB-16405	Method Blank				Run: SUB-C91124				10/11/07 23:38
Uranium	9E-05	mg/kg-dry	6E-05						
Uranium, Activity	6E-05	pCi/g-dry	4E-05						
Sample ID: LCS1-16405	Laboratory Control Sample				Run: SUB-C91124				10/11/07 23:50
Uranium	0.0203	mg/kg-dry	0.015	101	75	125			
Uranium, Activity	0.0137	pCi/g-dry	0.010	101	75	125			
Sample ID: LCS-16405	Laboratory Control Sample				Run: SUB-C91124				10/11/07 23:54
Uranium	1.02	mg/kg-dry	0.015	101	75	125			
Uranium, Activity	0.687	pCi/g-dry	0.010	101000	75	125			S
Sample ID: R07100004-033A	Sample Matrix Spike				Run: SUB-C91124				10/12/07 00:23
Uranium	26.1	mg/kg-dry	0.029	104	75	125			
Uranium, Activity	17.7	pCi/g-dry	0.019	104	75	125			
Sample ID: R07100004-033A	Sample Matrix Spike Duplicate				Run: SUB-C91124				10/12/07 00:27
Uranium	25.8	mg/kg-dry	0.029	103	75	125	1.1	20	
Uranium, Activity	17.5	pCi/g-dry	0.019	5140	75	125	1.1	20	S
Method: SW6020									Batch: C_16406
Sample ID: MB-16406	Method Blank				Run: SUB-C91124				10/12/07 00:52
Uranium	ND	mg/kg-dry	6E-05						
Uranium, Activity	ND	pCi/g-dry	4E-05						
Sample ID: LCS1-16406	Laboratory Control Sample				Run: SUB-C91124				10/12/07 00:56
Uranium	0.0212	mg/kg-dry	0.015	106	75	125			
Uranium, Activity	0.0144	pCi/g-dry	0.010	106	75	125			
Sample ID: LCS-16406	Laboratory Control Sample				Run: SUB-C91124				10/12/07 01:00
Uranium	1.00	mg/kg-dry	0.015	100	75	125			
Uranium, Activity	0.679	pCi/g-dry	0.010	100000	75	125			S
Sample ID: R07100004-114A	Sample Matrix Spike				Run: SUB-C91124				10/12/07 02:39
Uranium	22.7	mg/kg-dry	0.026	101	75	125			
Uranium, Activity	15.4	pCi/g-dry	0.017	101	75	125			
Sample ID: R07100004-114A	Sample Matrix Spike Duplicate				Run: SUB-C91124				10/12/07 02:43
Uranium	23.1	mg/kg-dry	0.026	103	75	125	1.7	20	
Uranium, Activity	15.6	pCi/g-dry	0.017	5160	75	125	1.7	20	S

Qualifiers:

RL - Analyte reporting limit.
ND - Not detected at the reporting limit.
S - Spike recovery outside of advisory limits.

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-001
Client Sample ID: LAN 001A

Report Date: 09/30/08
Collection Date: 07/18/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	2.4	pCi/g-dry	U			1	E909.0M	08/14/08 09:53/eli-c
Lead 210 precision (±)	2.3	pCi/g-dry				1	E909.0M	08/14/08 09:53/eli-c
Lead 210 MDC	3.8	pCi/g-dry				1	E909.0M	08/14/08 09:53/eli-c
Radium 226	0.8	pCi/g-dry				1	E903.0	08/28/08 17:12/eli-c
Radium 226 precision (±)	0.09	pCi/g-dry				1	E903.0	08/28/08 17:12/eli-c
Radium 226 MDC	0.04	pCi/g-dry				1	E903.0	08/28/08 17:12/eli-c
Thorium 230	1.2	pCi/g-dry		0.1		1	E907.0	09/05/08 13:00/eli-c
Thorium 230 precision (±)	0.6	pCi/g-dry				1	E907.0	09/05/08 13:00/eli-c
TOTAL METALS ANALYSES								
Uranium	2.7	mg/kg-dry		0.01		10	SW6020	08/14/08 03:14/eli-c
Uranium, Activity	1.8	pCi/g-dry		0.007		10	SW6020	08/14/08 03:14/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-002
Client Sample ID: LAN 001B

Report Date: 09/30/08
Collection Date: 07/18/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	4.6	pCi/g-dry				1	E909.0M	08/14/08 09:53/eli-c
Lead 210 precision (±)	2.3	pCi/g-dry				1	E909.0M	08/14/08 09:53/eli-c
Lead 210 MDC	3.8	pCi/g-dry				1	E909.0M	08/14/08 09:53/eli-c
Radium 226	0.8	pCi/g-dry				1	E903.0	08/28/08 17:12/eli-c
Radium 226 precision (±)	0.1	pCi/g-dry				1	E903.0	08/28/08 17:12/eli-c
Radium 226 MDC	0.04	pCi/g-dry				1	E903.0	08/28/08 17:12/eli-c
Thorium 230	1.4	pCi/g-dry		0.1		1	E907.0	09/05/08 13:00/eli-c
Thorium 230 precision (±)	0.6	pCi/g-dry				1	E907.0	09/05/08 13:00/eli-c
TOTAL METALS ANALYSES								
Uranium	2.8	mg/kg-dry		0.01		10	SW6020	08/14/08 03:22/eli-c
Uranium, Activity	1.9	pCi/g-dry		0.007		10	SW6020	08/14/08 03:22/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-003
Client Sample ID: LAN 001C

Report Date: 09/30/08
Collection Date: 07/18/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	1.9	pCi/g-dry	U			1	E909.0M	08/14/08 09:53/eli-c
Lead 210 precision (±)	2.2	pCi/g-dry				1	E909.0M	08/14/08 09:53/eli-c
Lead 210 MDC	3.7	pCi/g-dry				1	E909.0M	08/14/08 09:53/eli-c
Radium 226	0.9	pCi/g-dry				1	E903.0	08/28/08 17:12/eli-c
Radium 226 precision (±)	0.1	pCi/g-dry				1	E903.0	08/28/08 17:12/eli-c
Radium 226 MDC	0.04	pCi/g-dry				1	E903.0	08/28/08 17:12/eli-c
Thorium 230	1.6	pCi/g-dry		0.1		1	E907.0	09/05/08 13:00/eli-c
Thorium 230 precision (±)	0.7	pCi/g-dry				1	E907.0	09/05/08 13:00/eli-c
TOTAL METALS ANALYSES								
Uranium	2.8	mg/kg-dry		0.01		10	SW6020	08/14/08 03:26/eli-c
Uranium, Activity	1.9	pCi/g-dry		0.007		10	SW6020	08/14/08 03:26/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-004
Client Sample ID: LAN 002A

Report Date: 09/30/08
Collection Date: 07/18/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	3.4	pCi/g-dry	U			1	E909.0M	08/14/08 09:53/eli-c
Lead 210 precision (±)	2.3	pCi/g-dry				1	E909.0M	08/14/08 09:53/eli-c
Lead 210 MDC	3.7	pCi/g-dry				1	E909.0M	08/14/08 09:53/eli-c
Radium 226	0.9	pCi/g-dry				1	E903.0	08/28/08 17:12/eli-c
Radium 226 precision (±)	0.1	pCi/g-dry				1	E903.0	08/28/08 17:12/eli-c
Radium 226 MDC	0.05	pCi/g-dry				1	E903.0	08/28/08 17:12/eli-c
Thorium 230	0.9	pCi/g-dry		0.1		1	E907.0	09/05/08 13:00/eli-c
Thorium 230 precision (±)	0.5	pCi/g-dry				1	E907.0	09/05/08 13:00/eli-c
TOTAL METALS ANALYSES								
Uranium	1.3	mg/kg-dry		0.01		10	SW6020	08/14/08 03:46/eli-c
Uranium, Activity	0.86	pCi/g-dry		0.007		10	SW6020	08/14/08 03:46/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-005
Client Sample ID: LAN 002B

Report Date: 09/30/08
Collection Date: 07/18/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	1.5	pCi/g-dry	U			1	E909.0M	08/14/08 09:53/eli-c
Lead 210 precision (±)	2.3	pCi/g-dry				1	E909.0M	08/14/08 09:53/eli-c
Lead 210 MDC	3.8	pCi/g-dry				1	E909.0M	08/14/08 09:53/eli-c
Radium 226	1.0	pCi/g-dry				1	E903.0	08/28/08 17:12/eli-c
Radium 226 precision (±)	0.1	pCi/g-dry				1	E903.0	08/28/08 17:12/eli-c
Radium 226 MDC	0.06	pCi/g-dry				1	E903.0	08/28/08 17:12/eli-c
Thorium 230	0.4	pCi/g-dry	U	0.1		1	E907.0	09/05/08 13:00/eli-c
Thorium 230 precision (±)	0.4	pCi/g-dry				1	E907.0	09/05/08 13:00/eli-c
TOTAL METALS ANALYSES								
Uranium	1.1	mg/kg-dry		0.01		10	SW6020	08/14/08 03:50/eli-c
Uranium, Activity	0.75	pCi/g-dry		0.007		10	SW6020	08/14/08 03:50/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-006
Client Sample ID: LAN 002C

Report Date: 09/30/08
Collection Date: 07/18/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	1.1	pCi/g-dry	U			1	E909.0M	08/14/08 09:53/eli-c
Lead 210 precision (±)	2.2	pCi/g-dry				1	E909.0M	08/14/08 09:53/eli-c
Lead 210 MDC	3.6	pCi/g-dry				1	E909.0M	08/14/08 09:53/eli-c
Radium 226	1.2	pCi/g-dry				1	E903.0	08/27/08 17:52/eli-c
Radium 226 precision (±)	0.1	pCi/g-dry				1	E903.0	08/27/08 17:52/eli-c
Radium 226 MDC	0.06	pCi/g-dry				1	E903.0	08/27/08 17:52/eli-c
Thorium 230	0.3	pCi/g-dry	U	0.1		1	E907.0	09/05/08 13:00/eli-c
Thorium 230 precision (±)	0.3	pCi/g-dry				1	E907.0	09/05/08 13:00/eli-c
TOTAL METALS ANALYSES								
Uranium	2.2	mg/kg-dry		0.01		10	SW6020	08/14/08 03:55/eli-c
Uranium, Activity	1.5	pCi/g-dry		0.007		10	SW6020	08/14/08 03:55/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-007
Client Sample ID: LAN 003A

Report Date: 09/30/08
Collection Date: 07/18/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	0.8	pCi/g-dry	U			1	E909.0M	08/14/08 09:53/eli-c
Lead 210 precision (±)	2.2	pCi/g-dry				1	E909.0M	08/14/08 09:53/eli-c
Lead 210 MDC	3.6	pCi/g-dry				1	E909.0M	08/14/08 09:53/eli-c
Radium 226	1.2	pCi/g-dry				1	E903.0	08/27/08 17:52/eli-c
Radium 226 precision (±)	0.1	pCi/g-dry				1	E903.0	08/27/08 17:52/eli-c
Radium 226 MDC	0.05	pCi/g-dry				1	E903.0	08/27/08 17:52/eli-c
Thorium 230	0.7	pCi/g-dry		0.1		1	E907.0	09/05/08 13:00/eli-c
Thorium 230 precision (±)	0.6	pCi/g-dry				1	E907.0	09/05/08 13:00/eli-c
TOTAL METALS ANALYSES								
Uranium	1.2	mg/kg-dry		0.01		10	SW6020	08/14/08 03:59/eli-c
Uranium, Activity	0.78	pCi/g-dry		0.007		10	SW6020	08/14/08 03:59/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-008
Client Sample ID: LAN 003B

Report Date: 09/30/08
Collection Date: 07/18/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	2.4	pCi/g-dry	U			1	E909.0M	08/14/08 09:53/eli-c
Lead 210 precision (±)	2.3	pCi/g-dry				1	E909.0M	08/14/08 09:53/eli-c
Lead 210 MDC	3.8	pCi/g-dry				1	E909.0M	08/14/08 09:53/eli-c
Radium 226	1.2	pCi/g-dry				1	E903.0	08/27/08 17:52/eli-c
Radium 226 precision (±)	0.1	pCi/g-dry				1	E903.0	08/27/08 17:52/eli-c
Radium 226 MDC	0.05	pCi/g-dry				1	E903.0	08/27/08 17:52/eli-c
Thorium 230	0.8	pCi/g-dry		0.1		1	E907.0	09/05/08 13:00/eli-c
Thorium 230 precision (±)	0.5	pCi/g-dry				1	E907.0	09/05/08 13:00/eli-c
TOTAL METALS ANALYSES								
Uranium	1.7	mg/kg-dry		0.01		10	SW6020	08/14/08 04:03/eli-c
Uranium, Activity	1.1	pCi/g-dry		0.007		10	SW6020	08/14/08 04:03/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-009
Client Sample ID: LAN 003C

Report Date: 09/30/08
Collection Date: 07/18/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	2.6	pCi/g-dry	U			1	E909.0M	08/14/08 09:53/eli-c
Lead 210 precision (±)	2.3	pCi/g-dry				1	E909.0M	08/14/08 09:53/eli-c
Lead 210 MDC	3.7	pCi/g-dry				1	E909.0M	08/14/08 09:53/eli-c
Radium 226	1	pCi/g-dry				1	E903.0	08/27/08 17:52/eli-c
Radium 226 precision (±)	0.1	pCi/g-dry				1	E903.0	08/27/08 17:52/eli-c
Radium 226 MDC	0.05	pCi/g-dry				1	E903.0	08/27/08 17:52/eli-c
Thorium 230	0.6	pCi/g-dry		0.1		1	E907.0	09/05/08 13:00/eli-c
Thorium 230 precision (±)	0.3	pCi/g-dry				1	E907.0	09/05/08 13:00/eli-c
TOTAL METALS ANALYSES								
Uranium	2.9	mg/kg-dry		0.01		10	SW6020	08/14/08 04:07/eli-c
Uranium, Activity	2.0	pCi/g-dry		0.007		10	SW6020	08/14/08 04:07/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-010
Client Sample ID: LAN 004A

Report Date: 09/30/08
Collection Date: 07/18/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	1	pCi/g-dry	U			1	E909.0M	08/18/08 09:32/eli-c
Lead 210 precision (±)	1.4	pCi/g-dry				1	E909.0M	08/18/08 09:32/eli-c
Lead 210 MDC	2.4	pCi/g-dry				1	E909.0M	08/18/08 09:32/eli-c
Radium 226	1.9	pCi/g-dry				1	E903.0	08/21/08 11:46/eli-c
Radium 226 precision (±)	0.2	pCi/g-dry				1	E903.0	08/21/08 11:46/eli-c
Radium 226 MDC	0.08	pCi/g-dry				1	E903.0	08/21/08 11:46/eli-c
Thorium 230	0.6	pCi/g-dry	U	0.1		1	E907.0	09/05/08 13:00/eli-c
Thorium 230 precision (±)	0.6	pCi/g-dry				1	E907.0	09/05/08 13:00/eli-c
TOTAL METALS ANALYSES								
Uranium	1.0	mg/kg-dry		0.01		10	SW6020	08/14/08 04:11/eli-c
Uranium, Activity	0.69	pCi/g-dry		0.007		10	SW6020	08/14/08 04:11/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-011
Client Sample ID: LAN 004B

Report Date: 09/30/08
Collection Date: 07/18/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	2.2	pCi/g-dry	U			1	E909.0M	08/18/08 09:32/eli-c
Lead 210 precision (±)	1.4	pCi/g-dry				1	E909.0M	08/18/08 09:32/eli-c
Lead 210 MDC	2.3	pCi/g-dry				1	E909.0M	08/18/08 09:32/eli-c
Radium 226	1.3	pCi/g-dry				1	E903.0	08/21/08 11:46/eli-c
Radium 226 precision (±)	0.2	pCi/g-dry				1	E903.0	08/21/08 11:46/eli-c
Radium 226 MDC	0.08	pCi/g-dry				1	E903.0	08/21/08 11:46/eli-c
Thorium 230	0.2	pCi/g-dry	U	0.1		1	E907.0	09/05/08 13:00/eli-c
Thorium 230 precision (±)	0.5	pCi/g-dry				1	E907.0	09/05/08 13:00/eli-c
TOTAL METALS ANALYSES								
Uranium	1.2	mg/kg-dry		0.01		10	SW6020	08/14/08 04:15/eli-c
Uranium, Activity	0.79	pCi/g-dry		0.007		10	SW6020	08/14/08 04:15/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-012
Client Sample ID: LAN 004C

Report Date: 09/30/08
Collection Date: 07/18/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	0.8	pCi/g-dry	U			1	E909.0M	08/18/08 09:32/eli-c
Lead 210 precision (±)	1.4	pCi/g-dry				1	E909.0M	08/18/08 09:32/eli-c
Lead 210 MDC	2.3	pCi/g-dry				1	E909.0M	08/18/08 09:32/eli-c
Radium 226	1.0	pCi/g-dry				1	E903.0	08/21/08 11:46/eli-c
Radium 226 precision (±)	0.1	pCi/g-dry				1	E903.0	08/21/08 11:46/eli-c
Radium 226 MDC	0.08	pCi/g-dry				1	E903.0	08/21/08 11:46/eli-c
Thorium 230	0.7	pCi/g-dry		0.1		1	E907.0	09/05/08 13:00/eli-c
Thorium 230 precision (±)	0.5	pCi/g-dry				1	E907.0	09/05/08 13:00/eli-c
TOTAL METALS ANALYSES								
Uranium	2.2	mg/kg-dry		0.01		10	SW6020	08/14/08 04:19/eli-c
Uranium, Activity	1.5	pCi/g-dry		0.007		10	SW6020	08/14/08 04:19/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-013
Client Sample ID: LAN 005A

Report Date: 09/30/08
Collection Date: 07/18/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	1.2	pCi/g-dry	U			1	E909.0M	08/18/08 09:32/eli-c
Lead 210 precision (±)	1.4	pCi/g-dry				1	E909.0M	08/18/08 09:32/eli-c
Lead 210 MDC	2.3	pCi/g-dry				1	E909.0M	08/18/08 09:32/eli-c
Radium 226	4.4	pCi/g-dry				1	E903.0	08/21/08 11:46/eli-c
Radium 226 precision (±)	0.3	pCi/g-dry				1	E903.0	08/21/08 11:46/eli-c
Radium 226 MDC	0.08	pCi/g-dry				1	E903.0	08/21/08 11:46/eli-c
Thorium 230	0.9	pCi/g-dry		0.1		1	E907.0	09/05/08 13:00/eli-c
Thorium 230 precision (±)	0.5	pCi/g-dry				1	E907.0	09/05/08 13:00/eli-c
TOTAL METALS ANALYSES								
Uranium	1.2	mg/kg-dry		0.01		10	SW6020	08/14/08 04:39/eli-c
Uranium, Activity	0.84	pCi/g-dry		0.007		10	SW6020	08/14/08 04:39/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-014
Client Sample ID: LAN 005B

Report Date: 09/30/08
Collection Date: 07/18/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	0.9	pCi/g-dry	U			1	E909.0M	08/18/08 09:32/eli-c
Lead 210 precision (±)	1.4	pCi/g-dry				1	E909.0M	08/18/08 09:32/eli-c
Lead 210 MDC	2.4	pCi/g-dry				1	E909.0M	08/18/08 09:32/eli-c
Radium 226	1.6	pCi/g-dry				1	E903.0	08/21/08 11:46/eli-c
Radium 226 precision (±)	0.2	pCi/g-dry				1	E903.0	08/21/08 11:46/eli-c
Radium 226 MDC	0.08	pCi/g-dry				1	E903.0	08/21/08 11:46/eli-c
Thorium 230	0.6	pCi/g-dry		0.1		1	E907.0	09/05/08 13:00/eli-c
Thorium 230 precision (±)	0.4	pCi/g-dry				1	E907.0	09/05/08 13:00/eli-c
TOTAL METALS ANALYSES								
Uranium	1.0	mg/kg-dry		0.01		10	SW6020	08/14/08 04:43/eli-c
Uranium, Activity	0.71	pCi/g-dry		0.007		10	SW6020	08/14/08 04:43/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-015
Client Sample ID: LAN 005C

Report Date: 09/30/08
Collection Date: 07/18/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	0.6	pCi/g-dry	U			1	E909.0M	08/18/08 09:32/eli-c
Lead 210 precision (±)	1.4	pCi/g-dry				1	E909.0M	08/18/08 09:32/eli-c
Lead 210 MDC	2.3	pCi/g-dry				1	E909.0M	08/18/08 09:32/eli-c
Radium 226	1.5	pCi/g-dry				1	E903.0	08/21/08 11:46/eli-c
Radium 226 precision (±)	0.2	pCi/g-dry				1	E903.0	08/21/08 11:46/eli-c
Radium 226 MDC	0.08	pCi/g-dry				1	E903.0	08/21/08 11:46/eli-c
Thorium 230	0.5	pCi/g-dry		0.1		1	E907.0	09/05/08 13:00/eli-c
Thorium 230 precision (±)	0.4	pCi/g-dry				1	E907.0	09/05/08 13:00/eli-c
TOTAL METALS ANALYSES								
Uranium	1.0	mg/kg-dry		0.01		10	SW6020	08/14/08 04:47/eli-c
Uranium, Activity	0.71	pCi/g-dry		0.007		10	SW6020	08/14/08 04:47/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-016
Client Sample ID: LAN 004A Dup

Report Date: 09/30/08
Collection Date: 07/18/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	0.5	pCi/g-dry	U			1	E909.0M	08/18/08 09:32/eli-c
Lead 210 precision (±)	1.4	pCi/g-dry				1	E909.0M	08/18/08 09:32/eli-c
Lead 210 MDC	2.4	pCi/g-dry				1	E909.0M	08/18/08 09:32/eli-c
Radium 226	0.7	pCi/g-dry				1	E903.0	08/21/08 11:46/eli-c
Radium 226 precision (±)	0.1	pCi/g-dry				1	E903.0	08/21/08 11:46/eli-c
Radium 226 MDC	0.08	pCi/g-dry				1	E903.0	08/21/08 11:46/eli-c
Thorium 230	0.4	pCi/g-dry		0.1		1	E907.0	09/05/08 13:00/eli-c
Thorium 230 precision (±)	0.3	pCi/g-dry				1	E907.0	09/05/08 13:00/eli-c
TOTAL METALS ANALYSES								
Uranium	1.1	mg/kg-dry		0.01		10	SW6020	08/14/08 04:51/eli-c
Uranium, Activity	0.72	pCi/g-dry		0.007		10	SW6020	08/14/08 04:51/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-017
Client Sample ID: LAN 004B Dup

Report Date: 09/30/08
Collection Date: 07/18/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	-0.3	pCi/g-dry	U			1	E909.0M	08/18/08 09:32/eli-c
Lead 210 precision (±)	1.4	pCi/g-dry				1	E909.0M	08/18/08 09:32/eli-c
Lead 210 MDC	2.3	pCi/g-dry				1	E909.0M	08/18/08 09:32/eli-c
Radium 226	0.7	pCi/g-dry				1	E903.0	08/21/08 11:46/eli-c
Radium 226 precision (±)	0.1	pCi/g-dry				1	E903.0	08/21/08 11:46/eli-c
Radium 226 MDC	0.08	pCi/g-dry				1	E903.0	08/21/08 11:46/eli-c
Thorium 230	0.5	pCi/g-dry		0.1		1	E907.0	09/05/08 13:00/eli-c
Thorium 230 precision (±)	0.4	pCi/g-dry				1	E907.0	09/05/08 13:00/eli-c
TOTAL METALS ANALYSES								
Uranium	1.0	mg/kg-dry		0.01		10	SW6020	08/14/08 04:55/eli-c
Uranium, Activity	0.68	pCi/g-dry		0.007		10	SW6020	08/14/08 04:55/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-018
Client Sample ID: LAN 004C Dup

Report Date: 09/30/08
Collection Date: 07/18/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	1.2	pCi/g-dry	U			1	E909.0M	08/18/08 09:32/eli-c
Lead 210 precision (±)	1.4	pCi/g-dry				1	E909.0M	08/18/08 09:32/eli-c
Lead 210 MDC	2.4	pCi/g-dry				1	E909.0M	08/18/08 09:32/eli-c
Radium 226	0.8	pCi/g-dry				1	E903.0	08/21/08 11:46/eli-c
Radium 226 precision (±)	0.1	pCi/g-dry				1	E903.0	08/21/08 11:46/eli-c
Radium 226 MDC	0.08	pCi/g-dry				1	E903.0	08/21/08 11:46/eli-c
Thorium 230	0.5	pCi/g-dry		0.1		1	E907.0	09/05/08 13:00/eli-c
Thorium 230 precision (±)	0.4	pCi/g-dry				1	E907.0	09/05/08 13:00/eli-c
TOTAL METALS ANALYSES								
Uranium	2.0	mg/kg-dry		0.01		10	SW6020	08/14/08 04:59/eli-c
Uranium, Activity	1.3	pCi/g-dry		0.007		10	SW6020	08/14/08 04:59/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-019
Client Sample ID: LAN 006A

Report Date: 09/30/08
Collection Date: 07/18/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	-0.005	pCi/g-dry	U			1	E909.0M	08/18/08 09:32/eli-c
Lead 210 precision (±)	1.4	pCi/g-dry				1	E909.0M	08/18/08 09:32/eli-c
Lead 210 MDC	2.4	pCi/g-dry				1	E909.0M	08/18/08 09:32/eli-c
Radium 226	1.1	pCi/g-dry				1	E903.0	08/21/08 13:55/eli-c
Radium 226 precision (±)	0.1	pCi/g-dry				1	E903.0	08/21/08 13:55/eli-c
Radium 226 MDC	0.08	pCi/g-dry				1	E903.0	08/21/08 13:55/eli-c
Thorium 230	0.3	pCi/g-dry	U	0.1		1	E907.0	09/05/08 13:00/eli-c
Thorium 230 precision (±)	0.5	pCi/g-dry				1	E907.0	09/05/08 13:00/eli-c
TOTAL METALS ANALYSES								
Uranium	1.0	mg/kg-dry		0.01		10	SW6020	08/14/08 05:03/eli-c
Uranium, Activity	0.71	pCi/g-dry		0.007		10	SW6020	08/14/08 05:03/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-020
Client Sample ID: LAN 006B

Report Date: 09/30/08
Collection Date: 07/18/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	0.5	pCi/g-dry	U			1	E909.0M	08/18/08 09:32/eli-c
Lead 210 precision (±)	1.4	pCi/g-dry				1	E909.0M	08/18/08 09:32/eli-c
Lead 210 MDC	2.3	pCi/g-dry				1	E909.0M	08/18/08 09:32/eli-c
Radium 226	1.3	pCi/g-dry				1	E903.0	08/21/08 13:55/eli-c
Radium 226 precision (±)	0.1	pCi/g-dry				1	E903.0	08/21/08 13:55/eli-c
Radium 226 MDC	0.08	pCi/g-dry				1	E903.0	08/21/08 13:55/eli-c
Thorium 230	0.6	pCi/g-dry		0.1		1	E907.0	09/05/08 13:00/eli-c
Thorium 230 precision (±)	0.4	pCi/g-dry				1	E907.0	09/05/08 13:00/eli-c
TOTAL METALS ANALYSES								
Uranium	1.1	mg/kg-dry		0.01		10	SW6020	08/14/08 05:07/eli-c
Uranium, Activity	0.75	pCi/g-dry		0.007		10	SW6020	08/14/08 05:07/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-021
Client Sample ID: LAN 006C

Report Date: 09/30/08
Collection Date: 07/18/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	0.7	pCi/g-dry	U			1	E909.0M	08/18/08 09:32/eli-c
Lead 210 precision (±)	1.4	pCi/g-dry				1	E909.0M	08/18/08 09:32/eli-c
Lead 210 MDC	2.4	pCi/g-dry				1	E909.0M	08/18/08 09:32/eli-c
Radium 226	1.4	pCi/g-dry				1	E903.0	08/21/08 13:55/eli-c
Radium 226 precision (±)	0.2	pCi/g-dry				1	E903.0	08/21/08 13:55/eli-c
Radium 226 MDC	0.08	pCi/g-dry				1	E903.0	08/21/08 13:55/eli-c
Thorium 230	0.5	pCi/g-dry		0.1		1	E907.0	09/05/08 13:00/eli-c
Thorium 230 precision (±)	0.3	pCi/g-dry				1	E907.0	09/05/08 13:00/eli-c
TOTAL METALS ANALYSES								
Uranium	1.7	mg/kg-dry		0.01		10	SW6020	08/14/08 05:43/eli-c
Uranium, Activity	1.1	pCi/g-dry		0.007		10	SW6020	08/14/08 05:43/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-022
Client Sample ID: LAN 007A

Report Date: 09/30/08
Collection Date: 07/18/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	0.6	pCi/g-dry	U			1	E909.0M	08/18/08 09:32/eli-c
Lead 210 precision (±)	1.4	pCi/g-dry				1	E909.0M	08/18/08 09:32/eli-c
Lead 210 MDC	2.4	pCi/g-dry				1	E909.0M	08/18/08 09:32/eli-c
Radium 226	0.7	pCi/g-dry				1	E903.0	08/21/08 13:55/eli-c
Radium 226 precision (±)	0.1	pCi/g-dry				1	E903.0	08/21/08 13:55/eli-c
Radium 226 MDC	0.08	pCi/g-dry				1	E903.0	08/21/08 13:55/eli-c
Thorium 230	0.3	pCi/g-dry	U	0.1		1	E907.0	09/05/08 13:00/eli-c
Thorium 230 precision (±)	0.5	pCi/g-dry				1	E907.0	09/05/08 13:00/eli-c
TOTAL METALS ANALYSES								
Uranium	1.2	mg/kg-dry		0.01		10	SW6020	08/14/08 05:51/eli-c
Uranium, Activity	0.81	pCi/g-dry		0.007		10	SW6020	08/14/08 05:51/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-023
Client Sample ID: LAN 007B

Report Date: 09/30/08
Collection Date: 07/18/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	0.6	pCi/g-dry	U			1	E909.0M	08/18/08 09:32/eli-c
Lead 210 precision (±)	1.4	pCi/g-dry				1	E909.0M	08/18/08 09:32/eli-c
Lead 210 MDC	2.4	pCi/g-dry				1	E909.0M	08/18/08 09:32/eli-c
Radium 226	0.7	pCi/g-dry				1	E903.0	08/21/08 13:55/eli-c
Radium 226 precision (±)	0.1	pCi/g-dry				1	E903.0	08/21/08 13:55/eli-c
Radium 226 MDC	0.08	pCi/g-dry				1	E903.0	08/21/08 13:55/eli-c
Thorium 230	0.4	pCi/g-dry	U	0.1		1	E907.0	09/05/08 13:00/eli-c
Thorium 230 precision (±)	0.4	pCi/g-dry				1	E907.0	09/05/08 13:00/eli-c
TOTAL METALS ANALYSES								
Uranium	2.2	mg/kg-dry		0.01		10	SW6020	08/14/08 05:55/eli-c
Uranium, Activity	1.5	pCi/g-dry		0.007		10	SW6020	08/14/08 05:55/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-024
Client Sample ID: LAN 007C

Report Date: 09/30/08
Collection Date: 07/18/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	0.1	pCi/g-dry	U			1	E909.0M	08/18/08 09:32/eli-c
Lead 210 precision (±)	1.4	pCi/g-dry				1	E909.0M	08/18/08 09:32/eli-c
Lead 210 MDC	2.3	pCi/g-dry				1	E909.0M	08/18/08 09:32/eli-c
Radium 226	0.4	pCi/g-dry				1	E903.0	08/21/08 13:55/eli-c
Radium 226 precision (±)	0.1	pCi/g-dry				1	E903.0	08/21/08 13:55/eli-c
Radium 226 MDC	0.08	pCi/g-dry				1	E903.0	08/21/08 13:55/eli-c
Thorium 230	0.8	pCi/g-dry		0.1		1	E907.0	09/05/08 13:00/eli-c
Thorium 230 precision (±)	0.6	pCi/g-dry				1	E907.0	09/05/08 13:00/eli-c
TOTAL METALS ANALYSES								
Uranium	3.6	mg/kg-dry		0.01		10	SW6020	08/14/08 05:59/eli-c
Uranium, Activity	2.5	pCi/g-dry		0.007		10	SW6020	08/14/08 05:59/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-025
Client Sample ID: LAN 008A

Report Date: 09/30/08
Collection Date: 07/18/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	1.0	pCi/g-dry	U			1	E909.0M	08/18/08 09:32/eli-c
Lead 210 precision (±)	1.4	pCi/g-dry				1	E909.0M	08/18/08 09:32/eli-c
Lead 210 MDC	2.3	pCi/g-dry				1	E909.0M	08/18/08 09:32/eli-c
Radium 226	0.9	pCi/g-dry				1	E903.0	08/21/08 13:55/eli-c
Radium 226 precision (±)	0.1	pCi/g-dry				1	E903.0	08/21/08 13:55/eli-c
Radium 226 MDC	0.09	pCi/g-dry				1	E903.0	08/21/08 13:55/eli-c
Thorium 230	1	pCi/g-dry		0.1		1	E907.0	09/05/08 13:00/eli-c
Thorium 230 precision (±)	0.7	pCi/g-dry				1	E907.0	09/05/08 13:00/eli-c
TOTAL METALS ANALYSES								
Uranium	3.1	mg/kg-dry		0.01		10	SW6020	08/14/08 07:15/eli-c
Uranium, Activity	2.1	pCi/g-dry		0.007		10	SW6020	08/14/08 07:15/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-026
Client Sample ID: LAN 008B

Report Date: 09/30/08
Collection Date: 07/18/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	0.1	pCi/g-dry	U			1	E909.0M	08/18/08 09:32/eli-c
Lead 210 precision (±)	1.4	pCi/g-dry				1	E909.0M	08/18/08 09:32/eli-c
Lead 210 MDC	2.3	pCi/g-dry				1	E909.0M	08/18/08 09:32/eli-c
Radium 226	1.0	pCi/g-dry				1	E903.0	08/21/08 13:55/eli-c
Radium 226 precision (±)	0.1	pCi/g-dry				1	E903.0	08/21/08 13:55/eli-c
Radium 226 MDC	0.08	pCi/g-dry				1	E903.0	08/21/08 13:55/eli-c
Thorium 230	0.9	pCi/g-dry		0.1		1	E907.0	09/05/08 13:00/eli-c
Thorium 230 precision (±)	0.7	pCi/g-dry				1	E907.0	09/05/08 13:00/eli-c
TOTAL METALS ANALYSES								
Uranium	5.1	mg/kg-dry		0.01		10	SW6020	08/14/08 07:19/eli-c
Uranium, Activity	3.5	pCi/g-dry		0.007		10	SW6020	08/14/08 07:19/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-027
Client Sample ID: LAN 009A

Report Date: 09/30/08
Collection Date: 07/18/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	-0.4	pCi/g-dry	U			1	E909.0M	08/18/08 09:32/eli-c
Lead 210 precision (±)	1.4	pCi/g-dry				1	E909.0M	08/18/08 09:32/eli-c
Lead 210 MDC	2.3	pCi/g-dry				1	E909.0M	08/18/08 09:32/eli-c
Radium 226	0.8	pCi/g-dry				1	E903.0	08/21/08 13:55/eli-c
Radium 226 precision (±)	0.1	pCi/g-dry				1	E903.0	08/21/08 13:55/eli-c
Radium 226 MDC	0.08	pCi/g-dry				1	E903.0	08/21/08 13:55/eli-c
Thorium 230	0.3	pCi/g-dry	U	0.1		1	E907.0	09/05/08 13:00/eli-c
Thorium 230 precision (±)	0.6	pCi/g-dry				1	E907.0	09/05/08 13:00/eli-c
TOTAL METALS ANALYSES								
Uranium	1.6	mg/kg-dry		0.01		10	SW6020	08/14/08 07:23/eli-c
Uranium, Activity	1.1	pCi/g-dry		0.007		10	SW6020	08/14/08 07:23/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-028
Client Sample ID: LAN 009B

Report Date: 09/30/08
Collection Date: 07/18/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	-0.3	pCi/g-dry	U			1	E909.0M	08/18/08 09:32/eli-c
Lead 210 precision (±)	1.4	pCi/g-dry				1	E909.0M	08/18/08 09:32/eli-c
Lead 210 MDC	2.3	pCi/g-dry				1	E909.0M	08/18/08 09:32/eli-c
Radium 226	4.1	pCi/g-dry				1	E903.0	08/21/08 13:55/eli-c
Radium 226 precision (±)	0.3	pCi/g-dry				1	E903.0	08/21/08 13:55/eli-c
Radium 226 MDC	0.08	pCi/g-dry				1	E903.0	08/21/08 13:55/eli-c
Thorium 230	0.7	pCi/g-dry		0.1		1	E907.0	09/05/08 13:00/eli-c
Thorium 230 precision (±)	0.5	pCi/g-dry				1	E907.0	09/05/08 13:00/eli-c
TOTAL METALS ANALYSES								
Uranium	2.6	mg/kg-dry		0.01		10	SW6020	08/14/08 07:27/eli-c
Uranium, Activity	1.8	pCi/g-dry		0.007		10	SW6020	08/14/08 07:27/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-029
Client Sample ID: LAN 009C

Report Date: 09/30/08
Collection Date: 07/18/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	0.5	pCi/g-dry	U			1	E909.0M	08/18/08 09:32/eli-c
Lead 210 precision (±)	1.4	pCi/g-dry				1	E909.0M	08/18/08 09:32/eli-c
Lead 210 MDC	2.3	pCi/g-dry				1	E909.0M	08/18/08 09:32/eli-c
Radium 226	3.9	pCi/g-dry				1	E903.0	08/21/08 15:29/eli-c
Radium 226 precision (±)	0.3	pCi/g-dry				1	E903.0	08/21/08 15:29/eli-c
Radium 226 MDC	0.08	pCi/g-dry				1	E903.0	08/21/08 15:29/eli-c
Thorium 230	1.1	pCi/g-dry		0.1		1	E907.0	09/05/08 13:00/eli-c
Thorium 230 precision (±)	0.6	pCi/g-dry				1	E907.0	09/05/08 13:00/eli-c
TOTAL METALS ANALYSES								
Uranium	2.4	mg/kg-dry		0.01		10	SW6020	08/14/08 07:31/eli-c
Uranium, Activity	1.6	pCi/g-dry		0.007		10	SW6020	08/14/08 07:31/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-030
Client Sample ID: LAN 010A

Report Date: 09/30/08
Collection Date: 07/18/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	1.8	pCi/g-dry	U			1	E909.0M	08/19/08 10:35/eli-c
Lead 210 precision (±)	1.2	pCi/g-dry				1	E909.0M	08/19/08 10:35/eli-c
Lead 210 MDC	2.0	pCi/g-dry				1	E909.0M	08/19/08 10:35/eli-c
Radium 226	1.2	pCi/g-dry				1	E903.0	08/18/08 15:15/eli-c
Radium 226 precision (±)	0.2	pCi/g-dry				1	E903.0	08/18/08 15:15/eli-c
Radium 226 MDC	0.1	pCi/g-dry				1	E903.0	08/18/08 15:15/eli-c
Thorium 230	1.2	pCi/g-dry		0.1		1	E907.0	09/12/08 12:30/eli-c
Thorium 230 precision (±)	0.6	pCi/g-dry				1	E907.0	09/12/08 12:30/eli-c
TOTAL METALS ANALYSES								
Uranium	2.3	mg/kg-dry		0.01		10	SW6020	08/14/08 07:35/eli-c
Uranium, Activity	1.6	pCi/g-dry		0.007		10	SW6020	08/14/08 07:35/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-031
Client Sample ID: LAN 010B

Report Date: 09/30/08
Collection Date: 07/18/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	1.1	pCi/g-dry	U			1	E909.0M	08/19/08 10:35/eli-c
Lead 210 precision (±)	1.1	pCi/g-dry				1	E909.0M	08/19/08 10:35/eli-c
Lead 210 MDC	1.9	pCi/g-dry				1	E909.0M	08/19/08 10:35/eli-c
Radium 226	1.4	pCi/g-dry				1	E903.0	08/18/08 15:15/eli-c
Radium 226 precision (±)	0.2	pCi/g-dry				1	E903.0	08/18/08 15:15/eli-c
Radium 226 MDC	0.1	pCi/g-dry				1	E903.0	08/18/08 15:15/eli-c
Thorium 230	7.9	pCi/g-dry		0.1		1	E907.0	09/12/08 12:30/eli-c
Thorium 230 precision (±)	1.2	pCi/g-dry				1	E907.0	09/12/08 12:30/eli-c
TOTAL METALS ANALYSES								
Uranium	2.2	mg/kg-dry		0.01		10	SW6020	08/14/08 07:39/eli-c
Uranium, Activity	1.5	pCi/g-dry		0.007		10	SW6020	08/14/08 07:39/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-032
Client Sample ID: LAN 010C

Report Date: 09/30/08
Collection Date: 07/18/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	1.9	pCi/g-dry	U			1	E909.0M	08/19/08 10:35/eli-c
Lead 210 precision (±)	1.2	pCi/g-dry				1	E909.0M	08/19/08 10:35/eli-c
Lead 210 MDC	2.0	pCi/g-dry				1	E909.0M	08/19/08 10:35/eli-c
Radium 226	1.5	pCi/g-dry				1	E903.0	08/18/08 15:15/eli-c
Radium 226 precision (±)	0.2	pCi/g-dry				1	E903.0	08/18/08 15:15/eli-c
Radium 226 MDC	0.1	pCi/g-dry				1	E903.0	08/18/08 15:15/eli-c
Thorium 230	1.9	pCi/g-dry		0.1		1	E907.0	09/12/08 12:30/eli-c
Thorium 230 precision (±)	0.8	pCi/g-dry				1	E907.0	09/12/08 12:30/eli-c
TOTAL METALS ANALYSES								
Uranium	4.0	mg/kg-dry		0.01		10	SW6020	08/14/08 07:44/eli-c
Uranium, Activity	2.7	pCi/g-dry		0.007		10	SW6020	08/14/08 07:44/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-033
Client Sample ID: LAS 001A

Report Date: 09/30/08
Collection Date: 07/19/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	1.6	pCi/g-dry	U			1	E909.0M	08/19/08 10:35/eli-c
Lead 210 precision (±)	1.2	pCi/g-dry				1	E909.0M	08/19/08 10:35/eli-c
Lead 210 MDC	1.9	pCi/g-dry				1	E909.0M	08/19/08 10:35/eli-c
Radium 226	0.9	pCi/g-dry				1	E903.0	08/18/08 15:15/eli-c
Radium 226 precision (±)	0.1	pCi/g-dry				1	E903.0	08/18/08 15:15/eli-c
Radium 226 MDC	0.1	pCi/g-dry				1	E903.0	08/18/08 15:15/eli-c
Thorium 230	0.6	pCi/g-dry		0.1		1	E907.0	09/12/08 12:30/eli-c
Thorium 230 precision (±)	0.5	pCi/g-dry				1	E907.0	09/12/08 12:30/eli-c
TOTAL METALS ANALYSES								
Uranium	1.8	mg/kg-dry		0.01		10	SW6020	08/14/08 07:48/eli-c
Uranium, Activity	1.2	pCi/g-dry		0.007		10	SW6020	08/14/08 07:48/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-034
Client Sample ID: LAS 001B

Report Date: 09/30/08
Collection Date: 07/19/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	1.1	pCi/g-dry	U			1	E909.0M	08/19/08 10:35/eli-c
Lead 210 precision (±)	1.2	pCi/g-dry				1	E909.0M	08/19/08 10:35/eli-c
Lead 210 MDC	2.0	pCi/g-dry				1	E909.0M	08/19/08 10:35/eli-c
Radium 226	0.8	pCi/g-dry				1	E903.0	08/18/08 15:15/eli-c
Radium 226 precision (±)	0.1	pCi/g-dry				1	E903.0	08/18/08 15:15/eli-c
Radium 226 MDC	0.1	pCi/g-dry				1	E903.0	08/18/08 15:15/eli-c
Thorium 230	0.4	pCi/g-dry	U	0.1		1	E907.0	09/12/08 12:30/eli-c
Thorium 230 precision (±)	0.5	pCi/g-dry				1	E907.0	09/12/08 12:30/eli-c
TOTAL METALS ANALYSES								
Uranium	1.3	mg/kg-dry		0.01		10	SW6020	08/14/08 08:08/eli-c
Uranium, Activity	0.86	pCi/g-dry		0.007		10	SW6020	08/14/08 08:08/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-035
Client Sample ID: LAS 001C

Report Date: 09/30/08
Collection Date: 07/19/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	0.9	pCi/g-dry	U			1	E909.0M	08/19/08 10:35/eli-c
Lead 210 precision (±)	1.1	pCi/g-dry				1	E909.0M	08/19/08 10:35/eli-c
Lead 210 MDC	1.9	pCi/g-dry				1	E909.0M	08/19/08 10:35/eli-c
Radium 226	0.8	pCi/g-dry				1	E903.0	08/18/08 15:15/eli-c
Radium 226 precision (±)	0.1	pCi/g-dry				1	E903.0	08/18/08 15:15/eli-c
Radium 226 MDC	0.1	pCi/g-dry				1	E903.0	08/18/08 15:15/eli-c
Thorium 230	0.1	pCi/g-dry	U	0.1		1	E907.0	09/12/08 12:30/eli-c
Thorium 230 precision (±)	0.3	pCi/g-dry				1	E907.0	09/12/08 12:30/eli-c
TOTAL METALS ANALYSES								
Uranium	0.91	mg/kg-dry		0.01		10	SW6020	08/15/08 16:46/eli-c
Uranium, Activity	0.61	pCi/g-dry		0.007		10	SW6020	08/15/08 16:46/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-036
Client Sample ID: LAS 002A

Report Date: 09/30/08
Collection Date: 07/19/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	1.4	pCi/g-dry	U			1	E909.0M	08/19/08 10:35/eli-c
Lead 210 precision (±)	1.2	pCi/g-dry				1	E909.0M	08/19/08 10:35/eli-c
Lead 210 MDC	1.9	pCi/g-dry				1	E909.0M	08/19/08 10:35/eli-c
Radium 226	0.7	pCi/g-dry				1	E903.0	08/18/08 15:15/eli-c
Radium 226 precision (±)	0.1	pCi/g-dry				1	E903.0	08/18/08 15:15/eli-c
Radium 226 MDC	0.1	pCi/g-dry				1	E903.0	08/18/08 15:15/eli-c
Thorium 230	0.1	pCi/g-dry	U	0.1		1	E907.0	09/12/08 12:30/eli-c
Thorium 230 precision (±)	0.5	pCi/g-dry				1	E907.0	09/12/08 12:30/eli-c
TOTAL METALS ANALYSES								
Uranium	0.71	mg/kg-dry		0.01		10	SW6020	08/15/08 16:50/eli-c
Uranium, Activity	0.48	pCi/g-dry		0.007		10	SW6020	08/15/08 16:50/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-037
Client Sample ID: LAS 002B

Report Date: 09/30/08
Collection Date: 07/19/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	0.7	pCi/g-dry	U			1	E909.0M	08/19/08 10:35/eli-c
Lead 210 precision (±)	1.2	pCi/g-dry				1	E909.0M	08/19/08 10:35/eli-c
Lead 210 MDC	1.9	pCi/g-dry				1	E909.0M	08/19/08 10:35/eli-c
Radium 226	0.7	pCi/g-dry				1	E903.0	08/18/08 15:15/eli-c
Radium 226 precision (±)	0.1	pCi/g-dry				1	E903.0	08/18/08 15:15/eli-c
Radium 226 MDC	0.1	pCi/g-dry				1	E903.0	08/18/08 15:15/eli-c
Thorium 230	0.4	pCi/g-dry	U	0.1		1	E907.0	09/12/08 12:30/eli-c
Thorium 230 precision (±)	0.4	pCi/g-dry				1	E907.0	09/12/08 12:30/eli-c
TOTAL METALS ANALYSES								
Uranium	1.0	mg/kg-dry		0.01		10	SW6020	08/15/08 16:54/eli-c
Uranium, Activity	0.71	pCi/g-dry		0.007		10	SW6020	08/15/08 16:54/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-038
Client Sample ID: LAS 003C

Report Date: 09/30/08
Collection Date: 07/19/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	0.4	pCi/g-dry	U			1	E909.0M	08/19/08 10:35/eli-c
Lead 210 precision (±)	1.1	pCi/g-dry				1	E909.0M	08/19/08 10:35/eli-c
Lead 210 MDC	1.9	pCi/g-dry				1	E909.0M	08/19/08 10:35/eli-c
Radium 226	0.7	pCi/g-dry				1	E903.0	08/18/08 15:15/eli-c
Radium 226 precision (±)	0.1	pCi/g-dry				1	E903.0	08/18/08 15:15/eli-c
Radium 226 MDC	0.1	pCi/g-dry				1	E903.0	08/18/08 15:15/eli-c
Thorium 230	0.4	pCi/g-dry	U	0.1		1	E907.0	09/12/08 12:30/eli-c
Thorium 230 precision (±)	0.4	pCi/g-dry				1	E907.0	09/12/08 12:30/eli-c
TOTAL METALS ANALYSES								
Uranium	0.93	mg/kg-dry		0.01		10	SW6020	08/15/08 16:58/eli-c
Uranium, Activity	0.63	pCi/g-dry		0.007		10	SW6020	08/15/08 16:58/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-039
Client Sample ID: LAS 003A

Report Date: 09/30/08
Collection Date: 07/19/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	1.4	pCi/g-dry	U			1	E909.0M	08/19/08 10:35/eli-c
Lead 210 precision (±)	1.2	pCi/g-dry				1	E909.0M	08/19/08 10:35/eli-c
Lead 210 MDC	1.9	pCi/g-dry				1	E909.0M	08/19/08 10:35/eli-c
Radium 226	0.7	pCi/g-dry				1	E903.0	08/18/08 17:42/eli-c
Radium 226 precision (±)	0.1	pCi/g-dry				1	E903.0	08/18/08 17:42/eli-c
Radium 226 MDC	0.1	pCi/g-dry				1	E903.0	08/18/08 17:42/eli-c
Thorium 230	0.3	pCi/g-dry	U	0.1		1	E907.0	09/12/08 12:30/eli-c
Thorium 230 precision (±)	0.4	pCi/g-dry				1	E907.0	09/12/08 12:30/eli-c
TOTAL METALS ANALYSES								
Uranium	0.74	mg/kg-dry		0.01		10	SW6020	08/15/08 17:03/eli-c
Uranium, Activity	0.50	pCi/g-dry		0.007		10	SW6020	08/15/08 17:03/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-040
Client Sample ID: LAS 003B

Report Date: 09/30/08
Collection Date: 07/19/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	1.1	pCi/g-dry	U			1	E909.0M	08/19/08 10:35/eli-c
Lead 210 precision (±)	1.1	pCi/g-dry				1	E909.0M	08/19/08 10:35/eli-c
Lead 210 MDC	1.9	pCi/g-dry				1	E909.0M	08/19/08 10:35/eli-c
Radium 226	0.9	pCi/g-dry				1	E903.0	08/18/08 17:42/eli-c
Radium 226 precision (±)	0.1	pCi/g-dry				1	E903.0	08/18/08 17:42/eli-c
Radium 226 MDC	0.1	pCi/g-dry				1	E903.0	08/18/08 17:42/eli-c
Thorium 230	0.5	pCi/g-dry		0.1		1	E907.0	09/12/08 12:30/eli-c
Thorium 230 precision (±)	0.4	pCi/g-dry				1	E907.0	09/12/08 12:30/eli-c
TOTAL METALS ANALYSES								
Uranium	1.8	mg/kg-dry		0.01		10	SW6020	08/14/08 08:12/eli-c
Uranium, Activity	1.2	pCi/g-dry		0.007		10	SW6020	08/14/08 08:12/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-041
Client Sample ID: LAS 003C

Report Date: 09/30/08
Collection Date: 07/19/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	0.7	pCi/g-dry	U			1	E909.0M	08/19/08 10:35/eli-c
Lead 210 precision (±)	1.2	pCi/g-dry				1	E909.0M	08/19/08 10:35/eli-c
Lead 210 MDC	1.9	pCi/g-dry				1	E909.0M	08/19/08 10:35/eli-c
Radium 226	0.8	pCi/g-dry				1	E903.0	08/18/08 17:42/eli-c
Radium 226 precision (±)	0.1	pCi/g-dry				1	E903.0	08/18/08 17:42/eli-c
Radium 226 MDC	0.1	pCi/g-dry				1	E903.0	08/18/08 17:42/eli-c
Thorium 230	1	pCi/g-dry		0.1		1	E907.0	09/12/08 12:30/eli-c
Thorium 230 precision (±)	0.5	pCi/g-dry				1	E907.0	09/12/08 12:30/eli-c
TOTAL METALS ANALYSES								
Uranium	1.4	mg/kg-dry		0.01		10	SW6020	08/15/08 17:15/eli-c
Uranium, Activity	0.93	pCi/g-dry		0.007		10	SW6020	08/15/08 17:15/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-042
Client Sample ID: LAS 004A

Report Date: 09/30/08
Collection Date: 07/19/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	1.2	pCi/g-dry	U			1	E909.0M	08/19/08 10:35/eli-c
Lead 210 precision (±)	1.2	pCi/g-dry				1	E909.0M	08/19/08 10:35/eli-c
Lead 210 MDC	1.9	pCi/g-dry				1	E909.0M	08/19/08 10:35/eli-c
Radium 226	0.8	pCi/g-dry				1	E903.0	08/18/08 17:42/eli-c
Radium 226 precision (±)	0.1	pCi/g-dry				1	E903.0	08/18/08 17:42/eli-c
Radium 226 MDC	0.1	pCi/g-dry				1	E903.0	08/18/08 17:42/eli-c
Thorium 230	0.6	pCi/g-dry		0.1		1	E907.0	09/12/08 12:30/eli-c
Thorium 230 precision (±)	0.5	pCi/g-dry				1	E907.0	09/12/08 12:30/eli-c
TOTAL METALS ANALYSES								
Uranium	1.6	mg/kg-dry		0.01		10	SW6020	08/26/08 01:02/eli-c
Uranium, Activity	1.1	pCi/g-dry		0.007		10	SW6020	08/26/08 01:02/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-043
Client Sample ID: LAS 004B

Report Date: 09/30/08
Collection Date: 07/19/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	1.3	pCi/g-dry	U			1	E909.0M	08/19/08 10:35/eli-c
Lead 210 precision (±)	1.2	pCi/g-dry				1	E909.0M	08/19/08 10:35/eli-c
Lead 210 MDC	2.0	pCi/g-dry				1	E909.0M	08/19/08 10:35/eli-c
Radium 226	0.8	pCi/g-dry				1	E903.0	08/18/08 17:42/eli-c
Radium 226 precision (±)	0.1	pCi/g-dry				1	E903.0	08/18/08 17:42/eli-c
Radium 226 MDC	0.1	pCi/g-dry				1	E903.0	08/18/08 17:42/eli-c
Thorium 230	0.5	pCi/g-dry		0.1		1	E907.0	09/12/08 12:30/eli-c
Thorium 230 precision (±)	0.4	pCi/g-dry				1	E907.0	09/12/08 12:30/eli-c
TOTAL METALS ANALYSES								
Uranium	1.4	mg/kg-dry		0.01		10	SW6020	08/15/08 17:43/eli-c
Uranium, Activity	0.95	pCi/g-dry		0.007		10	SW6020	08/15/08 17:43/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-044
Client Sample ID: LAS 004C

Report Date: 09/30/08
Collection Date: 07/19/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	1.2	pCi/g-dry	U			1	E909.0M	08/19/08 10:35/eli-c
Lead 210 precision (±)	1.1	pCi/g-dry				1	E909.0M	08/19/08 10:35/eli-c
Lead 210 MDC	1.9	pCi/g-dry				1	E909.0M	08/19/08 10:35/eli-c
Radium 226	0.9	pCi/g-dry				1	E903.0	08/18/08 17:42/eli-c
Radium 226 precision (±)	0.1	pCi/g-dry				1	E903.0	08/18/08 17:42/eli-c
Radium 226 MDC	0.1	pCi/g-dry				1	E903.0	08/18/08 17:42/eli-c
Thorium 230	0.5	pCi/g-dry		0.1		1	E907.0	09/12/08 12:30/eli-c
Thorium 230 precision (±)	0.3	pCi/g-dry				1	E907.0	09/12/08 12:30/eli-c
TOTAL METALS ANALYSES								
Uranium	1.9	mg/kg-dry		0.01		10	SW6020	08/26/08 01:28/eli-c
Uranium, Activity	1.3	pCi/g-dry		0.007		10	SW6020	08/26/08 01:28/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-045
Client Sample ID: LAS 005A

Report Date: 09/30/08
Collection Date: 07/19/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	1.6	pCi/g-dry	U			1	E909.0M	08/19/08 10:35/eli-c
Lead 210 precision (±)	1.2	pCi/g-dry				1	E909.0M	08/19/08 10:35/eli-c
Lead 210 MDC	1.9	pCi/g-dry				1	E909.0M	08/19/08 10:35/eli-c
Radium 226	0.9	pCi/g-dry				1	E903.0	08/18/08 17:42/eli-c
Radium 226 precision (±)	0.1	pCi/g-dry				1	E903.0	08/18/08 17:42/eli-c
Radium 226 MDC	0.1	pCi/g-dry				1	E903.0	08/18/08 17:42/eli-c
Thorium 230	0.4	pCi/g-dry		0.1		1	E907.0	09/12/08 12:30/eli-c
Thorium 230 precision (±)	0.3	pCi/g-dry				1	E907.0	09/12/08 12:30/eli-c
TOTAL METALS ANALYSES								
Uranium	1.7	mg/kg-dry		0.02		10	SW6020	08/29/08 23:20/eli-c
Uranium, Activity	1.2	pCi/g-dry		0.01		10	SW6020	08/29/08 23:20/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-046
Client Sample ID: LAS 005B

Report Date: 09/30/08
Collection Date: 07/19/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	1.4	pCi/g-dry	U			1	E909.0M	08/19/08 10:35/eli-c
Lead 210 precision (±)	1.1	pCi/g-dry				1	E909.0M	08/19/08 10:35/eli-c
Lead 210 MDC	1.9	pCi/g-dry				1	E909.0M	08/19/08 10:35/eli-c
Radium 226	1	pCi/g-dry				1	E903.0	08/18/08 17:42/eli-c
Radium 226 precision (±)	0.2	pCi/g-dry				1	E903.0	08/18/08 17:42/eli-c
Radium 226 MDC	0.1	pCi/g-dry				1	E903.0	08/18/08 17:42/eli-c
Thorium 230	0.4	pCi/g-dry	U	0.1		1	E907.0	09/12/08 12:30/eli-c
Thorium 230 precision (±)	0.4	pCi/g-dry				1	E907.0	09/12/08 12:30/eli-c
TOTAL METALS ANALYSES								
Uranium	2.4	mg/kg-dry		0.01		10	SW6020	08/26/08 01:32/eli-c
Uranium, Activity	1.6	pCi/g-dry		0.007		10	SW6020	08/26/08 01:32/eli-c

Report Definitions:
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QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-047
Client Sample ID: LAS 005C

Report Date: 09/30/08
Collection Date: 07/19/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	1.2	pCi/g-dry	U			1	E909.0M	08/19/08 10:35/eli-c
Lead 210 precision (±)	1.1	pCi/g-dry				1	E909.0M	08/19/08 10:35/eli-c
Lead 210 MDC	1.9	pCi/g-dry				1	E909.0M	08/19/08 10:35/eli-c
Radium 226	1.1	pCi/g-dry				1	E903.0	08/18/08 17:42/eli-c
Radium 226 precision (±)	0.2	pCi/g-dry				1	E903.0	08/18/08 17:42/eli-c
Radium 226 MDC	0.1	pCi/g-dry				1	E903.0	08/18/08 17:42/eli-c
Thorium 230	0.7	pCi/g-dry		0.1		1	E907.0	09/12/08 12:30/eli-c
Thorium 230 precision (±)	0.5	pCi/g-dry				1	E907.0	09/12/08 12:30/eli-c
TOTAL METALS ANALYSES								
Uranium	1.4	mg/kg-dry		0.01		10	SW6020	08/15/08 18:00/eli-c
Uranium, Activity	0.98	pCi/g-dry		0.007		10	SW6020	08/15/08 18:00/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-048
Client Sample ID: LAS 006A

Report Date: 09/30/08
Collection Date: 07/19/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	0.7	pCi/g-dry	U			1	E909.0M	08/19/08 10:35/eli-c
Lead 210 precision (±)	1.1	pCi/g-dry				1	E909.0M	08/19/08 10:35/eli-c
Lead 210 MDC	1.9	pCi/g-dry				1	E909.0M	08/19/08 10:35/eli-c
Radium 226	0.7	pCi/g-dry				1	E903.0	08/18/08 17:42/eli-c
Radium 226 precision (±)	0.1	pCi/g-dry				1	E903.0	08/18/08 17:42/eli-c
Radium 226 MDC	0.1	pCi/g-dry				1	E903.0	08/18/08 17:42/eli-c
Thorium 230	0.6	pCi/g-dry	U	0.1		1	E907.0	09/12/08 12:30/eli-c
Thorium 230 precision (±)	0.6	pCi/g-dry				1	E907.0	09/12/08 12:30/eli-c
TOTAL METALS ANALYSES								
Uranium	0.55	mg/kg-dry		0.01		10	SW6020	08/15/08 18:04/eli-c
Uranium, Activity	0.37	pCi/g-dry		0.007		10	SW6020	08/15/08 18:04/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-049
Client Sample ID: LAS 006B

Report Date: 09/30/08
Collection Date: 07/19/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	1.4	pCi/g-dry	U			1	E909.0M	08/19/08 10:35/eli-c
Lead 210 precision (±)	1.2	pCi/g-dry				1	E909.0M	08/19/08 10:35/eli-c
Lead 210 MDC	1.9	pCi/g-dry				1	E909.0M	08/19/08 10:35/eli-c
Radium 226	0.7	pCi/g-dry				1	E903.0	08/18/08 22:13/eli-c
Radium 226 precision (±)	0.1	pCi/g-dry				1	E903.0	08/18/08 22:13/eli-c
Radium 226 MDC	0.1	pCi/g-dry				1	E903.0	08/18/08 22:13/eli-c
Thorium 230	0.3	pCi/g-dry	U	0.1		1	E907.0	09/12/08 12:30/eli-c
Thorium 230 precision (±)	0.4	pCi/g-dry				1	E907.0	09/12/08 12:30/eli-c
TOTAL METALS ANALYSES								
Uranium	0.71	mg/kg-dry		0.01		10	SW6020	08/15/08 18:08/eli-c
Uranium, Activity	0.48	pCi/g-dry		0.007		10	SW6020	08/15/08 18:08/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-050
Client Sample ID: LAS 006C

Report Date: 09/30/08
Collection Date: 07/19/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	-0.3	pCi/g-dry	U			1	E909.0M	08/21/08 10:15/eli-c
Lead 210 precision (±)	1.5	pCi/g-dry				1	E909.0M	08/21/08 10:15/eli-c
Lead 210 MDC	2.6	pCi/g-dry				1	E909.0M	08/21/08 10:15/eli-c
Radium 226	0.6	pCi/g-dry				1	E903.0	08/20/08 09:10/eli-c
Radium 226 precision (±)	0.1	pCi/g-dry				1	E903.0	08/20/08 09:10/eli-c
Radium 226 MDC	0.1	pCi/g-dry				1	E903.0	08/20/08 09:10/eli-c
Thorium 230	0.3	pCi/g-dry		0.1		1	E907.0	09/04/08 15:30/eli-c
Thorium 230 precision (±)	0.09	pCi/g-dry				1	E907.0	09/04/08 15:30/eli-c
TOTAL METALS ANALYSES								
Uranium	0.96	mg/kg-dry		0.01		10	SW6020	08/15/08 18:28/eli-c
Uranium, Activity	0.65	pCi/g-dry		0.007		10	SW6020	08/15/08 18:28/eli-c

Report Definitions:
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MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-051
Client Sample ID: LAS 007A

Report Date: 09/30/08
Collection Date: 07/19/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	0.6	pCi/g-dry	U			1	E909.0M	08/21/08 10:15/eli-c
Lead 210 precision (±)	1.5	pCi/g-dry				1	E909.0M	08/21/08 10:15/eli-c
Lead 210 MDC	2.5	pCi/g-dry				1	E909.0M	08/21/08 10:15/eli-c
Radium 226	0.8	pCi/g-dry				1	E903.0	08/20/08 09:10/eli-c
Radium 226 precision (±)	0.1	pCi/g-dry				1	E903.0	08/20/08 09:10/eli-c
Radium 226 MDC	0.09	pCi/g-dry				1	E903.0	08/20/08 09:10/eli-c
Thorium 230	0.6	pCi/g-dry		0.1		1	E907.0	09/04/08 15:30/eli-c
Thorium 230 precision (±)	0.1	pCi/g-dry				1	E907.0	09/04/08 15:30/eli-c
TOTAL METALS ANALYSES								
Uranium	0.64	mg/kg-dry		0.01		10	SW6020	08/15/08 18:32/eli-c
Uranium, Activity	0.43	pCi/g-dry		0.007		10	SW6020	08/15/08 18:32/eli-c

Report Definitions:
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QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-052
Client Sample ID: LAS 007B

Report Date: 09/30/08
Collection Date: 07/19/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	0.6	pCi/g-dry	U			1	E909.0M	08/21/08 10:15/eli-c
Lead 210 precision (±)	1.5	pCi/g-dry				1	E909.0M	08/21/08 10:15/eli-c
Lead 210 MDC	2.5	pCi/g-dry				1	E909.0M	08/21/08 10:15/eli-c
Radium 226	0.7	pCi/g-dry				1	E903.0	08/20/08 09:10/eli-c
Radium 226 precision (±)	0.1	pCi/g-dry				1	E903.0	08/20/08 09:10/eli-c
Radium 226 MDC	0.1	pCi/g-dry				1	E903.0	08/20/08 09:10/eli-c
Thorium 230	0.6	pCi/g-dry		0.1		1	E907.0	09/04/08 15:30/eli-c
Thorium 230 precision (±)	0.1	pCi/g-dry				1	E907.0	09/04/08 15:30/eli-c
TOTAL METALS ANALYSES								
Uranium	0.67	mg/kg-dry		0.01		10	SW6020	08/15/08 18:36/eli-c
Uranium, Activity	0.45	pCi/g-dry		0.007		10	SW6020	08/15/08 18:36/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Dewey Burdock Baseline
Lab ID: R08070420-053
Client Sample ID: LAS 007C

Report Date: 09/30/08
Collection Date: 07/19/08
Date Received: 07/23/08
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Lead 210	-0.7	pCi/g-dry	U			1	E909.0M	08/21/08 10:15/eli-c
Lead 210 precision (±)	1.5	pCi/g-dry				1	E909.0M	08/21/08 10:15/eli-c
Lead 210 MDC	2.6	pCi/g-dry				1	E909.0M	08/21/08 10:15/eli-c
Radium 226	0.7	pCi/g-dry				1	E903.0	08/20/08 09:10/eli-c
Radium 226 precision (±)	0.1	pCi/g-dry				1	E903.0	08/20/08 09:10/eli-c
Radium 226 MDC	0.1	pCi/g-dry				1	E903.0	08/20/08 09:10/eli-c
Thorium 230	0.5	pCi/g-dry		0.1		1	E907.0	09/04/08 15:30/eli-c
Thorium 230 precision (±)	0.1	pCi/g-dry				1	E907.0	09/04/08 15:30/eli-c
TOTAL METALS ANALYSES								
Uranium	1.1	mg/kg-dry		0.01		10	SW6020	08/15/08 18:40/eli-c
Uranium, Activity	0.72	pCi/g-dry		0.007		10	SW6020	08/15/08 18:40/eli-c

Report Definitions:
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QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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ANALYTICAL SUMMARY REPORT

October 08, 2007

Environmental Restoration Group Inc
8809 Washington St NE
Albuquerque, NM 87113

Workorder No.: C07081328

Project Name: DB Vegetation Sampling

Energy Laboratories, Inc. received the following 8 samples from Environmental Restoration Group Inc on 8/23/2007 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C07081328-001	AMS-05	08/14/07 00:00	08/23/07	Vegetation	Uranium, Total Digestion, Radiochemistry Lead 210 Polonium 210 Radium 226 Thorium, Isotopic
C07081328-002	AMS-02	08/14/07 00:00	08/23/07	Vegetation	Same As Above
C07081328-003	AMS-BKG	08/14/07 00:00	08/23/07	Vegetation	Same As Above
C07081328-004	AMS-06	08/14/07 00:00	08/23/07	Vegetation	Same As Above
C07081328-005	AMS-01	08/14/07 00:00	08/23/07	Vegetation	Same As Above
C07081328-006	AMS-07	08/14/07 00:00	08/23/07	Vegetation	Same As Above
C07081328-007	AMS-04	08/14/07 00:00	08/23/07	Vegetation	Same As Above
C07081328-008	AMS-03		08/23/07	Vegetation	Same As Above

There were no problems with the analyses and all data for associated QC met EPA or laboratory specifications except where noted in the Case Narrative or Report.

If you have any questions regarding these tests results, please call.

Report Approved By: R.A. Gaskins
Roger Gaskins
Laboratory Supervisor

TRACK# C07081328

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: DB Vegetation Sampling
Lab ID: C07081328-001
Client Sample ID: AMS-05

Report Date: 10/08/07
Collection Date: 08/14/07
DateReceived: 08/23/07
Matrix: Vegetation

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - TOTAL							
Lead 210	1.7E-03	uCi/kg		6.5E-06		E909.0M	09/04/07 12:50 / dm
Lead 210 precision (±)	2.1E-04	uCi/kg				E909.0M	09/04/07 12:50 / dm
Polonium 210	6.6E-05	uCi/kg		6.5E-06		RMO-3008	09/06/07 22:00 / res
Polonium 210 precision (±)	3.0E-05	uCi/kg				RMO-3008	09/06/07 22:00 / res
Radium 226	2.4E-05	uCi/kg		1.3E-06		E903.0	09/04/07 11:27 / crw
Radium 226 precision (±)	9.1E-06	uCi/kg				E903.0	09/04/07 11:27 / crw
Thorium 230	1.5E-05	uCi/kg		1.3E-06		E907.0	09/04/07 15:00 / dmf
Thorium 230 precision (±)	8.5E-06	uCi/kg				E907.0	09/04/07 15:00 / dmf
Uranium, Activity	3.7E-05	uCi/kg		1.3E-06		SW6020	09/08/07 07:16 / bws

±2σ = precision estimate

Report Definitions: RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

TRACK# C07081328

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LABORATORY ANALYTICAL REPORT

Client:	Environmental Restoration Group Inc	Report Date:	10/08/07
Project:	DB Vegetation Sampling	Collection Date:	08/14/07
Lab ID:	C07081328-002	DateReceived:	08/23/07
Client Sample ID:	AMS-02	Matrix:	Vegetation

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - TOTAL							
Lead 210	3.3E-04	uCi/kg		2.7E-06		E909.0M	09/04/07 12:50 / dm
Lead 210 precision (±)	7.5E-05	uCi/kg				E909.0M	09/04/07 12:50 / dm
Polonium 210	1.8E-05	uCi/kg		2.7E-06		RMO-3008	09/06/07 22:00 / res
Polonium 210 precision (±)	9.9E-06	uCi/kg				RMO-3008	09/06/07 22:00 / res
Radium 226	2.2E-05	uCi/kg		5.5E-07		E903.0	09/04/07 11:27 / crw
Radium 226 precision (±)	5.6E-06	uCi/kg				E903.0	09/04/07 11:27 / crw
Thorium 230	4.7E-06	uCi/kg		5.5E-07		E907.0	09/04/07 15:00 / dmf
Thorium 230 precision (±)	3.0E-06	uCi/kg				E907.0	09/04/07 15:00 / dmf
Uranium, Activity	1.0E-05	uCi/kg		5.5E-07		SW6020	09/08/07 07:20 / bws

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level.
QCL - Quality control limit. ND - Not detected at the reporting limit.

TRACK# C07081328

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LABORATORY ANALYTICAL REPORT

Client:	Environmental Restoration Group Inc	Report Date:	10/08/07
Project:	DB Vegetation Sampling	Collection Date:	08/14/07
Lab ID:	C07081328-003	DateReceived:	08/23/07
Client Sample ID:	AMS-BKG	Matrix:	Vegetation

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - TOTAL							
Lead 210	6.9E-04	uCi/kg		4.8E-06		E909.0M	09/04/07 12:50 / dm
Lead 210 precision (±)	1.4E-04	uCi/kg				E909.0M	09/04/07 12:50 / dm
Polonium 210	2.5E-05	uCi/kg		4.8E-06		RMO-3008	09/06/07 22:00 / ras
Polonium 210 precision (±)	1.6E-05	uCi/kg				RMO-3008	09/06/07 22:00 / ras
Radium 226	4.1E-05	uCi/kg		9.7E-07		E903.0	09/04/07 11:27 / crw
Radium 226 precision (±)	9.9E-06	uCi/kg				E903.0	09/04/07 11:27 / crw
Thorium 230	1.0E-05	uCi/kg		9.7E-07		E907.0	09/04/07 15:00 / dmf
Thorium 230 precision (±)	6.3E-06	uCi/kg				E907.0	09/04/07 15:00 / dmf
Uranium, Activity	4.0E-05	uCi/kg		9.7E-07		SW6020	09/08/07 07:24 / bws

Report Definitions: RL - Analyte reporting limit. QCL - Quality control limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

TRACK# C07081328

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LABORATORY ANALYTICAL REPORT

Client:	Environmental Restoration Group Inc	**Report Date:**	10/08/07
Project:	DB Vegetation Sampling	**Collection Date:**	08/14/07
Lab ID:	C07081328-004	**DateReceived:**	08/23/07
Client Sample ID:	AMS-06	**Matrix:**	Vegetation

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - TOTAL							
Lead 210	1.0E-03	uCi/kg		4.1E-06		E909.0M	09/04/07 12:50 / dm
Lead 210 precision (±)	1.3E-04	uCi/kg				E909.0M	09/04/07 12:50 / dm
Polonium 210	6.0E-05	uCi/kg		4.1E-06		RMO-3008	09/06/07 22:00 / res
Polonium 210 precision (±)	2.2E-05	uCi/kg				RMO-3008	09/06/07 22:00 / res
Radium 226	3.2E-05	uCi/kg		8.2E-07		E903.0	09/04/07 11:27 / crw
Radium 226 precision (±)	8.1E-06	uCi/kg				E903.0	09/04/07 11:27 / crw
Thorium 230	1.9E-05	uCi/kg		8.2E-07		E907.0	09/04/07 15:00 / dmf
Thorium 230 precision (±)	6.6E-06	uCi/kg				E907.0	09/04/07 15:00 / dmf
Uranium, Activity	3.8E-05	uCi/kg		8.3E-07		SW6020	09/08/07 07:28 / bws

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level.
QCL - Quality control limit. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client:	Environmental Restoration Group Inc	**Report Date:**	10/08/07
Project:	DB Vegetation Sampling	**Collection Date:**	08/14/07
Lab ID:	C07081328-005	**DateReceived:**	08/23/07
Client Sample ID:	AMS-01	**Matrix:**	Vegetation

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - TOTAL							
Lead 210	1.8E-03	uCi/kg		8.6E-06		E909.0M	09/04/07 12:50 / dm
Lead 210 precision (±)	2.7E-04	uCi/kg				E909.0M	09/04/07 12:50 / dm
Polonium 210	1.3E-04	uCi/kg		8.6E-06		RMO-3008	09/06/07 22:00 / res
Polonium 210 precision (±)	4.9E-05	uCi/kg				RMO-3008	09/06/07 22:00 / res
Radium 226	5.5E-05	uCi/kg		1.7E-06		E903.0	09/04/07 11:27 / crw
Radium 226 precision (±)	1.6E-05	uCi/kg				E903.0	09/04/07 11:27 / crw
Thorium 230	ND	uCi/kg		1.7E-06		E907.0	09/04/07 15:00 / dmf
Uranium, Activity	1.3E-05	uCi/kg		1.7E-06		SW6020	09/08/07 07:33 / bws

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level.
QCL - Quality control limit. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client:	Environmental Restoration Group Inc	**Report Date:**	10/08/07
Project:	DB Vegetation Sampling	**Collection Date:**	08/14/07
Lab ID:	C07081328-006	**DateReceived:**	08/23/07
Client Sample ID:	AMS-07	**Matrix:**	Vegetation

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - TOTAL							
Lead 210	2.1E-03	uCi/kg		4.8E-06		E909.0M	09/04/07 12:50 / dm
Lead 210 precision (±)	1.8E-04	uCi/kg				E909.0M	09/04/07 12:50 / dm
Polonium 210	1.5E-04	uCi/kg		4.8E-06		RMO-3008	09/06/07 22:00 / res
Polonium 210 precision (±)	4.1E-05	uCi/kg				RMO-3008	09/06/07 22:00 / res
Radium 226	2.7E-05	uCi/kg		9.7E-07		E903.0	09/04/07 12:30 / crw
Radium 226 precision (±)	8.1E-06	uCi/kg				E903.0	09/04/07 12:30 / crw
Thorium 230	1.6E-05	uCi/kg		9.7E-07		E907.0	09/04/07 15:00 / dmf
Thorium 230 precision (±)	9.2E-06	uCi/kg				E907.0	09/04/07 15:00 / dmf
Uranium, Activity	1.8E-05	uCi/kg		9.7E-07		SW6020	09/08/07 07:37 / bws

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level.
QCL - Quality control limit. ND - Not detected at the reporting limit.

TRACK# C07081328

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LABORATORY ANALYTICAL REPORT

Client:	Environmental Restoration Group Inc	**Report Date:**	10/08/07
Project:	DB Vegetation Sampling	**Collection Date:**	08/14/07
Lab ID:	C07081328-007	**DateReceived:**	08/23/07
Client Sample ID:	AMS-04	**Matrix:**	Vegetation

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - TOTAL							
Lead 210	1.5E-03	uCi/kg		4.0E-06		E909.0M	09/04/07 12:50 / dm
Lead 210 precision (±)	1.5E-04	uCi/kg				E909.0M	09/04/07 12:50 / dm
Polonium 210	9.8E-05	uCi/kg		4.0E-06		RMO-3008	09/06/07 22:00 / res
Polonium 210 precision (±)	3.2E-05	uCi/kg				RMO-3008	09/06/07 22:00 / res
Radium 226	2.3E-05	uCi/kg		8.0E-07		E903.0	09/04/07 12:30 / crw
Radium 226 precision (±)	6.8E-06	uCi/kg				E903.0	09/04/07 12:30 / crw
Thorium 230	3.6E-06	uCi/kg		8.0E-07		E907.0	09/04/07 15:00 / dmf
Thorium 230 precision (±)	2.8E-06	uCi/kg				E907.0	09/04/07 15:00 / dmf
Uranium, Activity	9.3E-06	uCi/kg		8.1E-07		SW6020	09/08/07 07:53 / bws

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level.
QCL - Quality control limit. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client:	Environmental Restoration Group Inc	**Report Date:**	10/08/07
Project:	DB Vegetation Sampling	**Collection Date:**	Not Provided
Lab ID:	C07081328-008	**DateReceived:**	08/23/07
Client Sample ID:	AMS-03	**Matrix:**	Vegetation

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - TOTAL							
Lead 210	9.1E-04	uCi/kg		3.2E-06		E909.0M	09/04/07 12:50 / dm
Lead 210 precision (±)	1.1E-04	uCi/kg				E909.0M	09/04/07 12:50 / dm
Polonium 210	7.8E-05	uCi/kg		3.2E-06		RMO-3008	09/06/07 22:00 / res
Polonium 210 precision (±)	2.2E-05	uCi/kg				RMO-3008	09/06/07 22:00 / res
Radium 226	7.4E-05	uCi/kg		6.4E-07		E903.0	09/04/07 12:30 / crw
Radium 226 precision (±)	1.1E-05	uCi/kg				E903.0	09/04/07 12:30 / crw
Thorium 230	2.6E-06	uCi/kg		6.4E-07		E907.0	09/04/07 15:00 / dmf
Thorium 230 precision (±)	2.2E-06	uCi/kg				E907.0	09/04/07 15:00 / dmf
Uranium, Activity	9.8E-06	uCi/kg		6.4E-07		SW6020	09/08/07 07:57 / bws

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level.
QCL - Quality control limit. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: DB Vegetation Sampling
Lab ID: R08040284-001
Client Sample ID: AMS-BKG

Report Date: 06/16/08
Collection Date: 04/20/08
Date Received: 04/21/08
Matrix: PLANT

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES								
Thorium 230	3.5E-05	uCi/kg		2.0E-07		1	E907.0	05/12/08 11:30/eli-c
Thorium 230 precision (±)	0.000012	uCi/kg				1	E907.0	05/12/08 11:30/eli-c
RADIONUCLIDES - TOTAL								
Polonium 210	2.2E-04	uCi/kg		1.0E-06		1	RMO-3008	06/02/08 11:15/eli-c
Polonium 210 precision (±)	5.1E-05	uCi/kg				1	RMO-3008	06/02/08 11:15/eli-c
Lead 210	1.4E-03	uCi/kg		1.0E-06		1	E909.0M	05/19/08 07:15/eli-c
Lead 210 precision (±)	1.0E-04	uCi/kg				1	E909.0M	05/19/08 07:15/eli-c
Uranium, Activity	9.0E-02	uCi/kg	D	3.8E-06		25	SW6020	06/11/08 21:36/eli-c
RADIUM 226								
Radium 226 MDC	6.4E-06	uCi/kg				1	E903.0	05/16/08 09:56/eli-c
Radium 226	0.000083	uCi/kg				1	E903.0	05/16/08 09:56/eli-c
Radium 226 precision (±)	0.000011	uCi/kg				1	E903.0	05/16/08 09:56/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix interference.

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: DB Vegetation Sampling
Lab ID: R08040284-002
Client Sample ID: AMS-01

Report Date: 06/16/08
Collection Date: 04/20/08
Date Received: 04/21/08
Matrix: PLANT

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES								
Thorium 230	1.2E-05	uCi/kg		2.0E-07		1	E907.0	05/12/08 11:30/eli-c
Thorium 230 precision (±)	5.2E-06	uCi/kg				1	E907.0	05/12/08 11:30/eli-c
RADIONUCLIDES - TOTAL								
Polonium 210	4.7E-04	uCi/kg		1.0E-06		1	RMO-3008	06/02/08 11:15/eli-c
Polonium 210 precision (±)	7.2E-05	uCi/kg				1	RMO-3008	06/02/08 11:15/eli-c
Lead 210	2.9E-03	uCi/kg		1.0E-06		1	E909.0M	05/19/08 07:15/eli-c
Lead 210 precision (±)	1.1E-04	uCi/kg				1	E909.0M	05/19/08 07:15/eli-c
Uranium, Activity	2.8E-02	uCi/kg	D	2.4E-06		25	SW6020	06/11/08 21:44/eli-c
RADIUM 226								
Radium 226 MDC	3.7E-06	uCi/kg				1	E903.0	05/16/08 09:56/eli-c
Radium 226	0.000033	uCi/kg				1	E903.0	05/16/08 09:56/eli-c
Radium 226 precision (±)	5.5E-06	uCi/kg				1	E903.0	05/16/08 09:56/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix interference.

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: DB Vegetation Sampling
Lab ID: R08040284-003
Client Sample ID: AMS-02

Report Date: 06/16/08
Collection Date: 04/20/08
Date Received: 04/21/08
Matrix: PLANT

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES								
Thorium 230	1.4E-05	uCi/kg		2.0E-07		1	E907.0	05/12/08 11:30/eli-c
Thorium 230 precision (±)	4.9E-06	uCi/kg				1	E907.0	05/12/08 11:30/eli-c
RADIONUCLIDES - TOTAL								
Polonium 210	2.0E-04	uCi/kg		1.0E-06		1	RMO-3008	06/02/08 11:15/eli-c
Polonium 210 precision (±)	4.2E-05	uCi/kg				1	RMO-3008	06/02/08 11:15/eli-c
Lead 210	1.3E-03	uCi/kg		1.0E-06		1	E909.0M	05/19/08 07:15/eli-c
Lead 210 precision (±)	6.9E-05	uCi/kg				1	E909.0M	05/19/08 07:15/eli-c
Uranium, Activity	2.7E-02	uCi/kg	D	1.9E-06		25	SW6020	06/11/08 21:49/eli-c
RADIUM 226								
Radium 226 MDC	2.8E-06	uCi/kg				1	E903.0	05/16/08 09:56/eli-c
Radium 226	0.000030	uCi/kg				1	E903.0	05/16/08 09:56/eli-c
Radium 226 precision (±)	4.5E-06	uCi/kg				1	E903.0	05/16/08 09:56/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix interference.

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: DB Vegetation Sampling
Lab ID: R08040284-004
Client Sample ID: AMS-03

Report Date: 06/16/08
Collection Date: 04/20/08
Date Received: 04/21/08
Matrix: PLANT

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES								
Thorium 230	4.1E-05	uCi/kg		2.0E-07		1	E907.0	05/12/08 11:30/eli-c
Thorium 230 precision (±)	0.000011	uCi/kg				1	E907.0	05/12/08 11:30/eli-c
RADIONUCLIDES - TOTAL								
Polonium 210	2.3E-04	uCi/kg		1.0E-06		1	RMO-3008	06/02/08 11:15/eli-c
Polonium 210 precision (±)	4.4E-05	uCi/kg				1	RMO-3008	06/02/08 11:15/eli-c
Lead 210	1.4E-03	uCi/kg		1.0E-06		1	E909.0M	05/19/08 07:15/eli-c
Lead 210 precision (±)	8.2E-05	uCi/kg				1	E909.0M	05/19/08 07:15/eli-c
Uranium, Activity	1.5E-01	uCi/kg	D	2.4E-06		25	SW6020	06/11/08 21:53/eli-c
RADIUM 226								
Radium 226 MDC	3.7E-06	uCi/kg				1	E903.0	05/16/08 09:56/eli-c
Radium 226	0.00011	uCi/kg				1	E903.0	05/16/08 09:56/eli-c
Radium 226 precision (±)	9.7E-06	uCi/kg				1	E903.0	05/16/08 09:56/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix interference.

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: DB Vegetation Sampling
Lab ID: R08040284-005
Client Sample ID: AMS-04

Report Date: 06/16/08
Collection Date: 04/20/08
Date Received: 04/21/08
Matrix: PLANT

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES								
Thorium 230	8.3E-06	uCi/kg		2.0E-07		1	E907.0	05/12/08 11:30/eli-c
Thorium 230 precision (±)	4.2E-06	uCi/kg				1	E907.0	05/12/08 11:30/eli-c
RADIONUCLIDES - TOTAL								
Polonium 210	1.7E-04	uCi/kg		1.0E-06		1	RMO-3008	06/02/08 11:15/eli-c
Polonium 210 precision (±)	3.9E-05	uCi/kg				1	RMO-3008	06/02/08 11:15/eli-c
Lead 210	1.2E-03	uCi/kg		1.0E-06		1	E909.0M	05/19/08 07:15/eli-c
Lead 210 precision (±)	6.6E-05	uCi/kg				1	E909.0M	05/19/08 07:15/eli-c
Uranium, Activity	2.1E-02	uCi/kg	D	1.9E-06		25	SW6020	06/11/08 21:57/eli-c
RADIUM 226								
Radium 226 MDC	2.8E-06	uCi/kg				1	E903.0	05/16/08 09:56/eli-c
Radium 226	0.000031	uCi/kg				1	E903.0	05/16/08 09:56/eli-c
Radium 226 precision (±)	4.6E-06	uCi/kg				1	E903.0	05/16/08 09:56/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix interference.

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: DB Vegetation Sampling
Lab ID: R08040284-006
Client Sample ID: AMS-06

Report Date: 06/16/08
Collection Date: 04/20/08
Date Received: 04/21/08
Matrix: PLANT

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES								
Thorium 230	3.9E-05	uCi/kg		2.0E-07		1	E907.0	05/12/08 11:30/eli-c
Thorium 230 precision (±)	0.000011	uCi/kg				1	E907.0	05/12/08 11:30/eli-c
RADIONUCLIDES - TOTAL								
Polonium 210	4.0E-04	uCi/kg		1.0E-06		1	RMO-3008	06/02/08 11:15/eli-c
Polonium 210 precision (±)	7.7E-05	uCi/kg				1	RMO-3008	06/02/08 11:15/eli-c
Lead 210	1.8E-03	uCi/kg		1.0E-06		1	E909.0M	05/19/08 07:15/eli-c
Lead 210 precision (±)	1.1E-04	uCi/kg				1	E909.0M	05/19/08 07:15/eli-c
Uranium, Activity	1.3E-01	uCi/kg	D	3.2E-06		25	SW6020	06/11/08 22:13/eli-c
RADIUM 226								
Radium 226 MDC	4.6E-06	uCi/kg				1	E903.0	05/16/08 09:56/eli-c
Radium 226	0.000092	uCi/kg				1	E903.0	05/16/08 09:56/eli-c
Radium 226 precision (±)	9.9E-06	uCi/kg				1	E903.0	05/16/08 09:56/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix interference.

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: DB Vegetation Sampling
Lab ID: R08040284-007
Client Sample ID: AMS-05

Report Date: 06/16/08
Collection Date: 04/21/08
Date Received: 04/21/08
Matrix: PLANT

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES								
Thorium 230	4.8E-05	uCi/kg		2.0E-07		1	E907.0	05/12/08 11:30/eli-c
Thorium 230 precision (±)	8.1E-06	uCi/kg				1	E907.0	05/12/08 11:30/eli-c
RADIONUCLIDES - TOTAL								
Polonium 210	1.6E-04	uCi/kg		1.0E-06		1	RMO-3008	06/02/08 11:15/eli-c
Polonium 210 precision (±)	3.1E-05	uCi/kg				1	RMO-3008	06/02/08 11:15/eli-c
Lead 210	3.3E-04	uCi/kg		1.0E-06		1	E909.0M	05/19/08 07:15/eli-c
Lead 210 precision (±)	3.0E-05	uCi/kg				1	E909.0M	05/19/08 07:15/eli-c
Uranium, Activity	2.3E-01	uCi/kg	D	1.3E-06		25	SW6020	06/11/08 22:17/eli-c
RADIUM 226								
Radium 226 MDC	1.8E-06	uCi/kg				1	E903.0	05/16/08 09:56/eli-c
Radium 226	0.000079	uCi/kg				1	E903.0	05/16/08 09:56/eli-c
Radium 226 precision (±)	5.7E-06	uCi/kg				1	E903.0	05/16/08 09:56/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix interference.

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: DB Vegetation Sampling
Lab ID: R08040284-008
Client Sample ID: AMS-07

Report Date: 06/16/08
Collection Date: 04/21/08
Date Received: 04/21/08
Matrix: PLANT

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES								
Thorium 230	4.0E-05	uCi/kg		2.0E-07		1	E907.0	05/12/08 11:30/eli-c
Thorium 230 precision (±)	0.000012	uCi/kg				1	E907.0	05/12/08 11:30/eli-c
RADIONUCLIDES - TOTAL								
Polonium 210	2.3E-04	uCi/kg		1.0E-06		1	RMO-3008	06/02/08 11:15/eli-c
Polonium 210 precision (±)	4.7E-05	uCi/kg				1	RMO-3008	06/02/08 11:15/eli-c
Lead 210	6.2E-04	uCi/kg		1.0E-06		1	E909.0M	05/19/08 07:15/eli-c
Lead 210 precision (±)	5.3E-05	uCi/kg				1	E909.0M	05/19/08 07:15/eli-c
Uranium, Activity	1.4E-01	uCi/kg	D	2.1E-06		25	SW6020	06/11/08 22:22/eli-c
RADIUM 226								
Radium 226 MDC	3.0E-06	uCi/kg				1	E903.0	05/16/08 11:45/eli-c
Radium 226	0.000076	uCi/kg				1	E903.0	05/16/08 11:45/eli-c
Radium 226 precision (±)	7.2E-06	uCi/kg				1	E903.0	05/16/08 11:45/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix interference.

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: DB Vegetation Sampling
Lab ID: R08070287-001
Client Sample ID: AMS-02

Report Date: 09/30/08
Collection Date: 07/14/08
Date Received: 07/15/08
Matrix: PLANT

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES								
Thorium 230	-9.5E-07	uCi/kg	U	4.7E-07		1	E907.0	08/06/08 11:00/eli-c
Thorium 230 precision (±)	5.0E-06	uCi/kg				1	E907.0	08/06/08 11:00/eli-c
RADIONUCLIDES - TOTAL								
Polonium 210	9.1E-06	uCi/kg	U	1.0E-06		1	RMO-3008	08/08/08 16:34/eli-c
Polonium 210 precision (±)	8.5E-06	uCi/kg				1	RMO-3008	08/08/08 16:34/eli-c
Lead 210	1.5E-04	uCi/kg				1	E909.0M	08/07/08 09:30/eli-c
Lead 210 precision (±)	7.3E-05	uCi/kg				1	E909.0M	08/07/08 09:30/eli-c
Lead 210 MDC	1.2E-04	uCi/kg				1	E909.0M	08/07/08 09:30/eli-c
Uranium, Activity	3.2E-06	uCi/kg		2.0E-07		10	SW6020	08/06/08 01:53/eli-c
RADIUM 226								
Radium 226	9.3E-06	uCi/kg				1	E903.0	08/11/08 09:35/eli-c
Radium 226 precision (±)	3.6E-06	uCi/kg				1	E903.0	08/11/08 09:35/eli-c
Radium 226 MDC	4.0E-06	uCi/kg				1	E903.0	08/11/08 09:35/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: DB Vegetation Sampling
Lab ID: R08070287-002
Client Sample ID: AMS-03

Report Date: 09/30/08
Collection Date: 07/14/08
Date Received: 07/15/08
Matrix: PLANT

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES								
Thorium 230	1.0E-05	uCi/kg		7.7E-07		1	E907.0	08/06/08 11:00/eli-c
Thorium 230 precision (±)	6.6E-06	uCi/kg				1	E907.0	08/06/08 11:00/eli-c
RADIONUCLIDES - TOTAL								
Polonium 210	9.6E-06	uCi/kg	U	1.0E-06		1	RMO-3008	08/08/08 16:34/eli-c
Polonium 210 precision (±)	1.1E-05	uCi/kg				1	RMO-3008	08/08/08 16:34/eli-c
Lead 210	3.3E-04	uCi/kg				1	E909.0M	08/07/08 09:30/eli-c
Lead 210 precision (±)	1.2E-04	uCi/kg				1	E909.0M	08/07/08 09:30/eli-c
Lead 210 MDC	1.9E-04	uCi/kg				1	E909.0M	08/07/08 09:30/eli-c
Uranium, Activity	7.7E-06	uCi/kg		2.0E-07		10	SW6020	08/06/08 01:57/eli-c
RADIUM 226								
Radium 226	7.5E-06	uCi/kg				1	E903.0	08/11/08 09:35/eli-c
Radium 226 precision (±)	4.9E-06	uCi/kg				1	E903.0	08/11/08 09:35/eli-c
Radium 226 MDC	6.6E-06	uCi/kg				1	E903.0	08/11/08 09:35/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: DB Vegetation Sampling
Lab ID: R08070287-003
Client Sample ID: AMS-04

Report Date: 09/30/08
Collection Date: 07/14/08
Date Received: 07/15/08
Matrix: PLANT

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES								
Thorium 230	-2.7E-06	uCi/kg	U	7.7E-07		1	E907.0	08/06/08 11:00/eli-c
Thorium 230 precision (±)	4.2E-06	uCi/kg				1	E907.0	08/06/08 11:00/eli-c
RADIONUCLIDES - TOTAL								
Polonium 210	9.0E-06	uCi/kg	U	1.0E-06		1	RMO-3008	08/08/08 16:34/eli-c
Polonium 210 precision (±)	9.6E-06	uCi/kg				1	RMO-3008	08/08/08 16:34/eli-c
Lead 210	2.1E-04	uCi/kg				1	E909.0M	08/07/08 09:30/eli-c
Lead 210 precision (±)	1.2E-04	uCi/kg				1	E909.0M	08/07/08 09:30/eli-c
Lead 210 MDC	1.9E-04	uCi/kg				1	E909.0M	08/07/08 09:30/eli-c
Uranium, Activity	8.4E-06	uCi/kg		2.0E-07		10	SW6020	08/06/08 02:01/eli-c
RADIUM 226								
Radium 226	9.3E-06	uCi/kg				1	E903.0	08/11/08 09:35/eli-c
Radium 226 precision (±)	5.2E-06	uCi/kg				1	E903.0	08/11/08 09:35/eli-c
Radium 226 MDC	6.7E-06	uCi/kg				1	E903.0	08/11/08 09:35/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: DB Vegetation Sampling
Lab ID: R08070287-004
Client Sample ID: AMS-05

Report Date: 09/30/08
Collection Date: 07/14/08
Date Received: 07/15/08
Matrix: PLANT

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES								
Thorium 230	-8.8E-07	uCi/kg	U	8.8E-07		1	E907.0	08/06/08 11:00/eli-c
Thorium 230 precision (±)	5.7E-06	uCi/kg				1	E907.0	08/06/08 11:00/eli-c
RADIONUCLIDES - TOTAL								
Polonium 210	2.1E-05	uCi/kg		1.0E-06		1	RMO-3008	08/08/08 16:34/eli-c
Polonium 210 precision (±)	1.6E-05	uCi/kg				1	RMO-3008	08/08/08 16:34/eli-c
Lead 210	3.4E-04	uCi/kg				1	E909.0M	08/07/08 09:30/eli-c
Lead 210 precision (±)	1.4E-04	uCi/kg				1	E909.0M	08/07/08 09:30/eli-c
Lead 210 MDC	2.2E-04	uCi/kg				1	E909.0M	08/07/08 09:30/eli-c
Uranium, Activity	1.4E-05	uCi/kg		2.0E-07		10	SW6020	08/06/08 02:05/eli-c
RADIUM 226								
Radium 226	5.9E-06	uCi/kg	U			1	E903.0	08/11/08 09:35/eli-c
Radium 226 precision (±)	5.3E-06	uCi/kg				1	E903.0	08/11/08 09:35/eli-c
Radium 226 MDC	7.7E-06	uCi/kg				1	E903.0	08/11/08 09:35/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: DB Vegetation Sampling
Lab ID: R08070287-005
Client Sample ID: AMS-06

Report Date: 09/30/08
Collection Date: 07/14/08
Date Received: 07/15/08
Matrix: PLANT

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES								
Thorium 230	2.1E-05	uCi/kg		5.7E-07		1	E907.0	08/06/08 11:00/eli-c
Thorium 230 precision (±)	7.4E-06	uCi/kg				1	E907.0	08/06/08 11:00/eli-c
RADIONUCLIDES - TOTAL								
Polonium 210	5.7E-06	uCi/kg	U	1.0E-06		1	RMO-3008	08/08/08 16:34/eli-c
Polonium 210 precision (±)	5.7E-06	uCi/kg				1	RMO-3008	08/08/08 16:34/eli-c
Lead 210	1.4E-04	uCi/kg	U			1	E909.0M	08/07/08 09:30/eli-c
Lead 210 precision (±)	8.7E-05	uCi/kg				1	E909.0M	08/07/08 09:30/eli-c
Lead 210 MDC	1.4E-04	uCi/kg				1	E909.0M	08/07/08 09:30/eli-c
Uranium, Activity	2.2E-05	uCi/kg		2.0E-07		10	SW6020	08/06/08 02:09/eli-c
RADIUM 226								
Radium 226	1.8E-05	uCi/kg				1	E903.0	08/11/08 09:35/eli-c
Radium 226 precision (±)	5.0E-06	uCi/kg				1	E903.0	08/11/08 09:35/eli-c
Radium 226 MDC	5.0E-06	uCi/kg				1	E903.0	08/11/08 09:35/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: DB Vegetation Sampling
Lab ID: R08070287-006
Client Sample ID: AMS-07

Report Date: 09/30/08
Collection Date: 07/14/08
Date Received: 07/15/08
Matrix: PLANT

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES								
Thorium 230	2.0E-05	uCi/kg		8.6E-07		1	E907.0	08/06/08 11:00/eli-c
Thorium 230 precision (±)	8.6E-06	uCi/kg				1	E907.0	08/06/08 11:00/eli-c
RADIONUCLIDES - TOTAL								
Polonium 210	2.0E-05	uCi/kg		1.0E-06		1	RMO-3008	08/08/08 16:34/eli-c
Polonium 210 precision (±)	1.3E-05	uCi/kg				1	RMO-3008	08/08/08 16:34/eli-c
Lead 210	-3.2E-05	uCi/kg	U			1	E909.0M	08/07/08 09:30/eli-c
Lead 210 precision (±)	1.3E-04	uCi/kg				1	E909.0M	08/07/08 09:30/eli-c
Lead 210 MDC	2.1E-04	uCi/kg				1	E909.0M	08/07/08 09:30/eli-c
Uranium, Activity	2.7E-05	uCi/kg		2.0E-07		10	SW6020	08/06/08 02:13/eli-c
RADIUM 226								
Radium 226	2.4E-05	uCi/kg				1	E903.0	08/11/08 09:35/eli-c
Radium 226 precision (±)	7.5E-06	uCi/kg				1	E903.0	08/11/08 09:35/eli-c
Radium 226 MDC	7.7E-06	uCi/kg				1	E903.0	08/11/08 09:35/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: DB Vegetation Sampling
Lab ID: R08070287-007
Client Sample ID: AMS-BKG

Report Date: 09/30/08
Collection Date: 07/14/08
Date Received: 07/15/08
Matrix: PLANT

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES								
Thorium 230	7.3E-06	uCi/kg		5.6E-07		1	E907.0	08/06/08 11:00/eli-c
Thorium 230 precision (±)	4.2E-06	uCi/kg				1	E907.0	08/06/08 11:00/eli-c
RADIONUCLIDES - TOTAL								
Polonium 210	9.3E-06	uCi/kg		1.0E-06		1	RMO-3008	08/08/08 16:34/eli-c
Polonium 210 precision (±)	8.8E-06	uCi/kg				1	RMO-3008	08/08/08 16:34/eli-c
Lead 210	1.3E-04	uCi/kg	U			1	E909.0M	08/07/08 09:30/eli-c
Lead 210 precision (±)	8.6E-05	uCi/kg				1	E909.0M	08/07/08 09:30/eli-c
Lead 210 MDC	1.4E-04	uCi/kg				1	E909.0M	08/07/08 09:30/eli-c
Uranium, Activity	1.0E-05	uCi/kg		2.0E-07		10	SW6020	08/06/08 02:17/eli-c
RADIUM 226								
Radium 226	1.3E-05	uCi/kg				1	E903.0	08/11/08 09:35/eli-c
Radium 226 precision (±)	4.6E-06	uCi/kg				1	E903.0	08/11/08 09:35/eli-c
Radium 226 MDC	5.1E-06	uCi/kg				1	E903.0	08/11/08 09:35/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: DB Vegetation Sampling
Lab ID: R08070287-008
Client Sample ID: AMS-01

Report Date: 09/30/08
Collection Date: 07/15/08
Date Received: 07/15/08
Matrix: PLANT

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES								
Thorium 230	1.2E-05	uCi/kg		8.4E-07		1	E907.0	08/06/08 11:00/eli-c
Thorium 230 precision (±)	8.4E-06	uCi/kg				1	E907.0	08/06/08 11:00/eli-c
RADIONUCLIDES - TOTAL								
Polonium 210	1.7E-05	uCi/kg		1.0E-06		1	RMO-3008	08/08/08 16:34/eli-c
Polonium 210 precision (±)	1.5E-05	uCi/kg				1	RMO-3008	08/08/08 16:34/eli-c
Lead 210	3.3E-04	uCi/kg				1	E909.0M	08/07/08 09:30/eli-c
Lead 210 precision (±)	1.3E-04	uCi/kg				1	E909.0M	08/07/08 09:30/eli-c
Lead 210 MDC	2.1E-04	uCi/kg				1	E909.0M	08/07/08 09:30/eli-c
Uranium, Activity	9.4E-06	uCi/kg		2.0E-07		10	SW6020	08/06/08 02:37/eli-c
RADIUM 226								
Radium 226	8.1E-05	uCi/kg				1	E903.0	08/11/08 11:26/eli-c
Radium 226 precision (±)	1.2E-05	uCi/kg				1	E903.0	08/11/08 11:26/eli-c
Radium 226 MDC	7.4E-06	uCi/kg				1	E903.0	08/11/08 11:26/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08070463-001
Client Sample ID: DBAT-01

Report Date: 09/30/08
Collection Date: 06/25/08
Date Received: 07/28/08
Matrix: SOLID

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
METALS - TOTAL								
Uranium	ND	mg/kg-dry		0.01		10	SW6020	08/09/08 04:46/eli-c
Uranium, Activity	ND	pCi/g-dry		0.007		10	SW6020	08/09/08 04:46/eli-c
RADIONUCLIDES - TOTAL								
Polonium 210	0.0	pCi/g-dry	U	0.008		1	RMO-3008	09/03/08 17:30/eli-c
Polonium 210 precision (±)	0.1	pCi/g-dry				1	RMO-3008	09/03/08 17:30/eli-c
Lead 210	-0.007	pCi/g-dry	U			1	E909.0M	08/28/08 08:48/eli-c
Lead 210 precision (±)	0.04	pCi/g-dry				1	E909.0M	08/28/08 08:48/eli-c
Lead 210 MDC	0.08	pCi/g-dry				1	E909.0M	08/28/08 08:48/eli-c
Radium 226	0.003	pCi/g-dry	U			1	E903.0	08/20/08 16:28/eli-c
Radium 226 precision (±)	0.002	pCi/g-dry				1	E903.0	08/20/08 16:28/eli-c
Radium 226 MDC	0.003	pCi/g-dry				1	E903.0	08/20/08 16:28/eli-c
Thorium 230	0.0	pCi/g-dry	U	0.008		1	E907.0	09/04/08 15:30/eli-c
Thorium 230 precision (±)	0.02	pCi/g-dry				1	E907.0	09/04/08 15:30/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

ENERGY LABORATORIES, INC. * 2821 Plant St * Rapid City, SD 57702
Toll Free 888.672.1225 * 605.342.1225 * FAX 605.342.1397 * rapid_city@energylab.com

LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08070463-002
Client Sample ID: DBAT-02

Report Date: 09/30/08
Collection Date: 06/25/08
Date Received: 07/28/08
Matrix: SOLID

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
METALS - TOTAL								
Uranium	ND	mg/kg-dry		0.01		10	SW6020	08/09/08 04:50/eli-c
Uranium, Activity	ND	pCi/g-dry		0.007		10	SW6020	08/09/08 04:50/eli-c
RADIONUCLIDES - TOTAL								
Polonium 210	0.0	pCi/g-dry	U	0.1		1	RMO-3008	09/03/08 17:30/eli-c
Polonium 210 precision (±)	1.2	pCi/g-dry				1	RMO-3008	09/03/08 17:30/eli-c
Lead 210	0.2	pCi/g-dry	U			1	E909.0M	08/28/08 08:48/eli-c
Lead 210 precision (±)	0.7	pCi/g-dry				1	E909.0M	08/28/08 08:48/eli-c
Lead 210 MDC	1.2	pCi/g-dry				1	E909.0M	08/28/08 08:48/eli-c
Radium 226	0.06	pCi/g-dry				1	E903.0	08/20/08 16:28/eli-c
Radium 226 precision (±)	0.03	pCi/g-dry				1	E903.0	08/20/08 16:28/eli-c
Radium 226 MDC	0.04	pCi/g-dry				1	E903.0	08/20/08 16:28/eli-c
Thorium 230	0.0	pCi/g-dry	U	0.1		1	E907.0	09/04/08 15:30/eli-c
Thorium 230 precision (±)	1.4	pCi/g-dry				1	E907.0	09/04/08 15:30/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

ENERGY LABORATORIES, INC. * 2821 Plant St * Rapid City, SD 57702
Toll Free 888.672.1225 * 605.342.1225 * FAX 605.342.1397 * rapid_city@energylab.com

LABORATORY ANALYTICAL REPORT

Client: Environmental Restoration Group Inc
Project: Edgemont (Soils/Air filters)
Lab ID: R08070463-003
Client Sample ID: DBAT-03

Report Date: 09/30/08
Collection Date: 06/25/08
Date Received: 07/28/08
Matrix: SOLID

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
METALS - TOTAL								
Uranium	ND	mg/kg-dry		0.01		10	SW6020	08/09/08 04:54/eli-c
Uranium, Activity	ND	pCi/g-dry		0.007		10	SW6020	08/09/08 04:54/eli-c
RADIONUCLIDES - TOTAL								
Polonium 210	0.02	pCi/g-dry	U	0.006		1	RMO-3008	09/03/08 17:30/eli-c
Polonium 210 precision (±)	0.2	pCi/g-dry				1	RMO-3008	09/03/08 17:30/eli-c
Lead 210	-0.007	pCi/g-dry	U			1	E909.0M	08/28/08 08:48/eli-c
Lead 210 precision (±)	0.04	pCi/g-dry				1	E909.0M	08/28/08 08:48/eli-c
Lead 210 MDC	0.06	pCi/g-dry				1	E909.0M	08/28/08 08:48/eli-c
Radium 226	0.003	pCi/g-dry				1	E903.0	08/20/08 16:28/eli-c
Radium 226 precision (±)	0.001	pCi/g-dry				1	E903.0	08/20/08 16:28/eli-c
Radium 226 MDC	0.002	pCi/g-dry				1	E903.0	08/20/08 16:28/eli-c
Thorium 230	0.0	pCi/g-dry	U	0.006		1	E907.0	09/04/08 15:30/eli-c
Thorium 230 precision (±)	0.1	pCi/g-dry				1	E907.0	09/04/08 15:30/eli-c

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

Radon Monitoring Report

ENVIRONMENTAL RESTORATION GRP
ATTN: KEN BAKER
8809 WASHINGTON NE
SUITE 150
ALBUQUERQUE, NM 87113

Acct. No. 0410058

LANDAUER

Landauer, Inc. 2 Science Road Glenwood, Illinois 60425-1586
Telephone: (800) 528-8327 Facsimile: (708) 755-7048

Detector Number	Detector Type	Starting Date	Ending Date	Field Data / Comments	Exposure pCi/l-days	Avg. Radon Conc. pCi/l	AREA GROSS COUNT	AREA COUNTED (SQ MM)	AREA BACK GRND	AREA LOT NO.
4730145	DRNF	01-FEB-08	17-MAY-08	RN-8 1350 CALIB FACT= 37.8 STD DEV= 7.1 DAYS EXPOSED: 106	111.1	1.0	198	37.2 A	2.38	T33605
4730146	DRNF	01-FEB-08	17-MAY-08	HV-1 DANIELS W/TLD 14:28 CALIB FACT= 37.8 STD DEV= 8.0 DAYS EXPOSED: 106	70.3	0.7	158	37.2 A	2.38	T33605
4730148	DRNF	01-FEB-08	17-MAY-08	HV-1 DANIELS W/TLD 14:28 CALIB FACT= 37.8 STD DEV= 8.7 DAYS EXPOSED: 106	44.9	0.4	133	37.2 A	2.38	T33605
4730149	DRNF	01-FEB-08	17-MAY-08	RN-4 1528 CALIB FACT= 37.8 STD DEV= 7.3 DAYS EXPOSED: 106	102.9	1.0	190	37.2 A	2.38	T33605
4730150	DRNF	01-FEB-08	17-MAY-08	HV-2 SPENCER W/TLD 1604 CALIB FACT= 37.8 STD DEV= 7.9 DAYS EXPOSED: 106	71.3	0.7	159	37.2 A	2.38	T33605
4730169	DRNF	04-FEB-08	17-MAY-08	HV-4 DEWEY W/TLD 1630 CALIB FACT= 38.1 STD DEV= 5.1 DAYS EXPOSED: 103	298.8	2.9	381	37.2 A	2.38	T33605
4730170	DRNF	04-FEB-08	17-MAY-08	HV-3 BEAVER CREEK W/TLD 1650 CALIB FACT= 38.0 STD DEV= 5.3 DAYS EXPOSED: 103	279.2	2.7	362	37.2 A	2.38	T33605

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

Q.C. Release	Process No.	Report Date	Date Received
DRB	A21453	23-JUN-08	11-JUN-08

Radon Monitoring Report

ENVIRONMENTAL RESTORATION GRP
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Acct. No. 0410058

LANDAUER

Landauer, Inc. 2 Science Road Glenwood, Illinois 60425-1586
Telephone: (800) 528-8327 Facsimile: (708) 755-7048

Detector Number	Detector Type	Starting Date	Ending Date	Field Data / Comments	Exposure pCi/l-days	Avg. Radon Conc. pCi/l	AREA GROSS COUNT	AREA COUNTED (SQ MM)	AREA BACK GRND	LOT NO.
4730199	DRNF	11-FEB-08	17-MAY-08	RN=3 1440 CALIB FACT= 38.0 STD DEV= 5.4 DAYS EXPOSED: 96	256.6	2.7	340	37.2 A	2.38	T33605
4730200	DRNF	11-FEB-08	17-MAY-08	RN=6 1452 CALIB FACT= 38.1 STD DEV= 5.2 DAYS EXPOSED: 96	283.3	3.0	366	37.2 A	2.38	T33605
4730201	DRNF	11-FEB-08	17-MAY-08	RN=1 1517 CALIB FACT= 38.0 STD DEV= 5.6 DAYS EXPOSED: 96	231.9	2.4	316	37.2 A	2.38	T33605
4730203	DRNF	12-FEB-08	17-MAY-08	RN=7 1810 CALIB FACT= 38.1 STD DEV= 5.0 DAYS EXPOSED: 95	317.4	3.3	399	37.2 A	2.38	T33605
4730204	DRNF	12-FEB-08	17-MAY-08	RN=5 1544 CALIB FACT= 38.0 STD DEV= 5.5 DAYS EXPOSED: 95	248.3	2.6	332	37.2 A	2.38	T33605
4730221	DRNF	01-FEB-08	17-MAY-08	BKGD-ANDERSEN W/TLD 1725 CALIB FACT= 37.9 STD DEV= 6.2 DAYS EXPOSED: 106	175.4	1.7	261	37.2 A	2.38	T33605
4730222	DRNF	01-FEB-08	17-MAY-08	BKGD-ANDERSEN W/TLD 1725 CALIB FACT= 37.9 STD DEV= 6.5 DAYS EXPOSED: 106	153.9	1.5	240	37.2 A	2.38	T33605
①	②	③	④	⑤	⑥	⑦	⑧			

O.C. Release	Process No.	Report Date	Date Received
DRB	A21453	23-JUN-08	11-JUN-08

Radon Monitoring Report

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Detector Number	Detector Type	Starting Date	Ending Date	Field Data / Comments	Exposure pCi/l-days	Avg. Radon Conc. pCi/l	AREA GROSS COUNT	AREA COUNTED (SQ MM)	AREA BACK GRND	LOT NO.
4730223	DRNF	01-FEB-08	17-MAY-08	HV=6 SCHOOL HOUSE W/TLD 1710 CALIB FACT= 37.9 STD DEV= 6.6 DAYS EXPOSED: 106	140.7	1.3	227	37.2 A	2.38	T33605
4730224	DRNF	01-FEB-08	17-MAY-08	HV=5 ENGLEBERT W/TLD 1311 CALIB FACT= 37.9 STD DEV= 6.9 DAYS EXPOSED: 106	122.3	1.2	209	37.2 A	2.38	T33605
4730225	DRNF	01-FEB-08	17-MAY-08	HV=7 HECK W/TLD 1325 CALIB FACT= 37.8 STD DEV= 7.1 DAYS EXPOSED: 106	109.0	1.0	196	37.2 A	2.38	T33605

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

O.C. Release	Process No.	Report Date	Date Received
DRB	A21453	23-JUN-08	11-JUN-08

Radon Monitoring Report

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Detector Number	Detector Type	Starting Date	Ending Date	Field Data / Comments	Exposure pCi/l-days	Avg. Radon Conc. pCi/l	AREA GROSS COUNT	AREA COUNTED (SQ MM)	AREA BACK GRND	LOT NO.
4729620	DRNM	17-MAY-08	17-JUL-08	* - LESS THAN INDICATED VALUE RN-06 CALIB FACT= 36.6 DAYS EXPOSED: 61	* 30.0	* 0.5	71	37.2 A	1.27	T33604
4729621	DRNM	17-MAY-08	17-JUL-08	RN-02 CALIB FACT= 36.6 STD DEV= 11.0 DAYS EXPOSED: 61	35.1	0.6	83	37.2 A	1.27	T33604
4729622	DRNM	17-MAY-08	18-JUL-08 17, according to radon test detector log. DRF 8/19/08	RN-01 CALIB FACT= 36.6 STD DEV= 11.3 DAYS EXPOSED: 63	31.2	0.5	79	37.2 A	1.27	T33604
4729638	DRNM	17-MAY-08	17-JUL-08	* - LESS THAN INDICATED VALUE AMS-01 DANIELS CALIB FACT= 36.6 DAYS EXPOSED: 61	* 30.0	* 0.5	63	37.2 A	1.27	T33604
4729639	DRNM	17-MAY-08	17-JUL-08	* - LESS THAN INDICATED VALUE AMS-01 DANIELS CALIB FACT= 36.6 DAYS EXPOSED: 61	* 30.0	* 0.5	67	37.2 A	1.27	T33604
4729640	DRNM	17-MAY-08	17-JUL-08	* - LESS THAN INDICATED VALUE RN-03 CALIB FACT= 36.6 DAYS EXPOSED: 61	* 30.0	* 0.5	74	37.2 A	1.27	T33604

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

Q.C. Release	Process No.	Report Date	Date Received
VVG	A21500	11-AUG-08	05-AUG-08

Radon Monitoring Report

ENVIRONMENTAL RESTORATION GRP
ATTN: KEN BAKER
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Acct. No. 0410058

LANDAUER

Landauer, Inc. 2 Science Road Glenwood, Illinois 60425-1586
Telephone: (800) 528-8327 Facsimile: (708) 755-7048

Detector Number	Detector Type	Starting Date	Ending Date	Field Data / Comments	Exposure pCi/l-days	Avg. Radon Conc. pCi/l	AREA GROSS COUNT	AREA COUNTED (SQ MM)	AREA BACK GRND	AREA LOT NO.
4729647	DRNM	17-MAY-08	17-JUL-08	RN-07 CALIB FACT= 36.7 STD DEV= 10.4 DAYS EXPOSED: 61	44.0	0.7	92	37.2 A	1.27	T33604
4729648	DRNM	17-MAY-08	17-JUL-08	AMS-BKG ANDERSON CALIB FACT= 36.6 STD DEV= 11.3 DAYS EXPOSED: 61	30.2	0.5	78	37.2 A	1.27	T33604
4729649	DRNM	17-MAY-08	17-JUL-08	* - LESS THAN INDICATED VALUE AMS-BKG ANDERSON CALIB FACT= 36.6 DAYS EXPOSED: 61	* 30.0	* 0.5	68	37.2 A	1.27	T33604
4729653	DRNM	17-MAY-08	17-JUL-08	AMS-04 DEWEY CALIB FACT= 36.6 STD DEV= 11.0 DAYS EXPOSED: 61	35.1	0.6	83	37.2 A	1.27	T33604
4729654	DRNM	17-MAY-08	17-JUL-08	* - LESS THAN INDICATED VALUE AMS-03 BEAVER CREEK RANCH CALIB FACT= 36.6 DAYS EXPOSED: 61	* 30.0	* 0.5	67	37.2 A	1.27	T33604
4729655	DRNM	17-MAY-08	17-JUL-08	AMS-06 SCHOOL CALIB FACT= 36.6 STD DEV= 10.5 DAYS EXPOSED: 61	42.0	0.7	90	37.2 A	1.27	T33604

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

Q.C. Release	Process No.	Report Date	Date Received
VVG	A21500	11-AUG-08	05-AUG-08

Radon Monitoring Report

ENVIRONMENTAL RESTORATION GRP
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LANDAUER

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Detector Number	Detector Type	Starting Date	Ending Date	Field Data / Comments	Exposure pCi/l-days	Avg. Radon Conc. pCi/l	AREA GROSS COUNT	AREA COUNTED (SQ MM)	AREA BACK GRND	AREA LOT NO.
4729667	DRNM	17-MAY-08	17-JUL-08	* - LESS THAN INDICATED VALUE AMS-05 ENGLEBERT CALIB FACT= 36.6 DAYS EXPOSED: 61	* 30.0	* 0.5	65	37.2 A	1.27	T33604
4729668	DRNM	17-MAY-08	17-JUL-08	* - LESS THAN INDICATED VALUE AMS-07 NECK CALIB FACT= 36.6 DAYS EXPOSED: 61	* 30.0	* 0.5	67	37.2 A	1.27	T33604
4729669	DRNM	17-MAY-08	17-JUL-08	* - LESS THAN INDICATED VALUE RN-08 CALIB FACT= 36.6 DAYS EXPOSED: 61	* 30.0	* 0.5	56	37.2 A	1.27	T33604
4729673	DRNM	17-MAY-08	17-JUL-08	* - LESS THAN INDICATED VALUE ~~RN-01~~ RN-04, according to radon test detector log DF 8-18-08 CALIB FACT= 36.6 DAYS EXPOSED: 61	* 30.0	* 0.5	68	37.2 A	1.27	T33604
4729674	DRNM	17-MAY-08	17-JUL-08	RN-05 CALIB FACT= 36.7 STD DEV= 10.1 DAYS EXPOSED: 61	49.9	0.8	98	37.2 A	1.27	T33604
4729675	DRNM	17-MAY-08	17-JUL-08	* - LESS THAN INDICATED VALUE AMS-02 SPENCER CALIB FACT= 36.6 DAYS EXPOSED: 61	* 30.0	* 0.5	68	37.2 A	1.27	T33604

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

O.C. Release	Process No.	Report Date	Date Received
VVG	A21500	11-AUG-08	05-AUG-08

Radon Monitoring Report

ENVIRONMENTAL RESTORATION GRP
ATTN: KEN BAKER
8809 WASHINGTON NE
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ALBUQUERQUE, NM 87113

Acct. No. 0410058

LANDAUER
Landauer, Inc. 2 Science Road Glenwood, Illinois 60425-1586
Telephone: (800) 528-8327 Facsimile: (708) 755-7048

Detector Number	Detector Type	Starting Date	Ending Date	Field Data / Comments	Exposure pCi/l-days	Avg. Radon Conc. pCi/l	
4681411	DRNF	14-AUG-07	24-SEP-07	BACKGROUND-KEITH ANDERSON	83.6	2.0	
4681412	DRNF	14-AUG-07	23-SEP-07	RADON 01-BASE WASH PILE, NORTH SIDE	81.0	2.0	
4681414	DRNF	14-AUG-07	23-SEP-07	RADON 02-MIDDLE OF MILE WASTE EDGE OPEN PIT	390.0	9.8	
4681416	DRNF	14-AUG-07	23-SEP-07	RADON 03-SOUTH OF DARROW PIT MINE	48.8	1.2	
4681417	DRNF	14-AUG-07	23-SEP-07	RADON 04-MET STATION	79.0	2.0	
4681418	DRNF	14-AUG-07	23-SEP-07	RADON 05-ABANDONED MINE NEAR N BD	60.0	1.5	
4681419	DRNF	14-AUG-07	24-SEP-07	LOCATION 4 DEWEY	47.5	1.2	
4681421	DRNF	14-AUG-07	27-SEP-07	LOCATION 3 BEAVER CREEK RANCH (NO GOLD COVER)	50.8	1.2	
4681424	DRNF	14-AUG-07	27-SEP-07	LOCATION 1-NW DANIELS RANCH	43.6	1.0	
4681433	DRNF	14-AUG-07	27-SEP-07	LOCATION 1 DULICATE-NW DANIELS RANCH	44.2	1.0	
4681439	DRNF	14-AUG-07	27-SEP-07	LOCATION 7 HECK'S RANCH	47.5	1.1	
4681440	DRNF	14-AUG-07	27-SEP-07	BACKGROUND-KEITH ANDERSON	117.8	2.7	

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

O.C. Release	Process No.	Report Date	Date Received
VVG	A21305	05-OCT-07	01-OCT-07

Radon Monitoring Report

ENVIRONMENTAL RESTORATION GRP
ATTN: KEN BAKER
8809 WASHINGTON NE
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LANDAUER

Landauer, Inc. 2 Science Road Glenwood, Illinois 60425-1586
Telephone: (800) 528-8327 Facsimile: (708) 755-7048

Acct. No. 0410058

Detector Number	Detector Type	Starting Date	Ending Date	Field Data / Comments	Exposure pCi/l-days	Avg. Radon Conc. pCi/l	
4690837	DRNF	15-AUG-07	27-SEP-07	LOCATION 2-MRS SPENCER'S HOUSE	93.9	2.2	
4690838	DRNF	15-AUG-07	23-SEP-07	RADON 07-WYOMING LINE	118.1	3.0	
4690839	DRNF	16-AUG-07	23-SEP-07	MARC KOLLENBECK'S HOUSE RN-08	113.4	3.0	
4690840	DRNF	19-AUG-07	23-SEP-07	RADON 06-ROLLFRONT AREA	114.8	3.3	
4690841	DRNF	17-AUG-07	27-SEP-07	LOCATION 6-OLD SCHOOLHOUSE	106.7	2.6	
4690842	DRNF	15-AUG-07	27-SEP-07	LOCATION 5-PINK 2-STORY HOUSE	93.2	2.2	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)

Q.C. Release	Process No.	Report Date	Date Received
VVG	A21305	05-OCT-07	01-OCT-07

Radon Monitoring Report

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Telephone: (800) 528-8327 Facsimile: (708) 755-7048

Detector Number	Detector Type	Starting Date	Ending Date	Field Data / Comments	Exposure pCi/l-days	Avg. Radon Conc. pCi/l	
4703748	DRNF	27-SEP-07	01-FEB-08	SPENCER-LOC 2	154.8	1.2	
4703749	DRNF	27-SEP-07	01-FEB-08	DANIELS-LOC 1	83.1	0.7	
4703750	DRNF	27-SEP-07	01-FEB-08	DANIELS-LOC 1	44.9	0.4	
4703751	DRNF	27-SEP-07	04-FEB-08	DEWEY- LOC 4	161.6	1.2	
4703752	DRNF	27-SEP-07	04-FEB-08	BEAVER CREEK RANCH-LOC 3	150.5	1.2	
4703765	DRNF	23-SEP-07	11-FEB-08	RN-03	126.3	0.9	
4703766	DRNF	23-SEP-07	11-FEB-08	RN-01	179.6	1.3	
4703768	DRNF	23-SEP-07	01-FEB-08	RN-04	183.3	1.4	
4703769	DRNF	23-SEP-07	12-FEB-08	NO GOLD SEAL RN-05	157.9	1.1	
4703771	DRNF	23-SEP-07	12-FEB-08	RN-07	261.7	1.8	
4703797	DRNF	27-SEP-07	01-FEB-08	MECH RANCH-LOC 7	188.9	1.5	
4703799	DRNF	27-SEP-07	01-FEB-08	ENGLEBERT RANCH-LOC 5	128.2	1.0	
4703800	DRNF	27-SEP-07	01-FEB-08	SCHOOL-LOC 6	122.6	1.0	
4703801	DRNF	27-SEP-07	01-FEB-08	ANDERSON-BKG	198.9	1.6	
①	②	③	④	⑤	⑥	⑦	⑧

Q.C. Release	Process No.	Report Date	Date Received
VVG	A21380	04-MAR-08	15-FEB-08

Radon Monitoring Report

ENVIRONMENTAL RESTORATION GRP
ATTN: KEN BAKER
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Acct. No. 0410058

LANDAUER
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Telephone: (800) 528-8327 Facsimile: (708) 755-7048

Detector Number	Detector Type	Starting Date	Ending Date	Field Data / Comments	Exposure pCi/l-days	Avg. Radon Conc. pCi/l	
4703802	DRNF	27-SEP-07	01-FEB-08	ANDERSON-BKG	196.4	1.5	
4712642	DRNF	23-SEP-07	11-FEB-08	RN-06	190.2	1.3	
4712643	DRNF	23-SEP-07	01-FEB-08	RN-08	171.3	1.3	
4712644	DRNF	23-SEP-07	11-FEB-08	RN-02	173.8	1.2	
①	②	③	④	⑤	⑥	⑦	⑧

QC Release	Process No.	Report Date	Date Received
VVG	A21380	04-MAR-08	15-FEB-08

Appendix C

Radon Flux Measurement Documentation

ERG Radon Flux Canister Data Log

Site: Dewey-Burdock

Location Number	Canister Number	Deployment Date (mm/dd/yy)	Deployment Time (24:00)	Retrieval Date (mm/dd/yy)	Retrieval Time (24:00)	Notes/Comments
1	22	—	—	—	—	Trip Blank
2	257	07/14/08	09:24	07/15/08	10:06	RFA-B37
3	258		09:27		10:14	RFA-B21
4	8		08:19		08:49	RFA-B17
5	73		08:55		09:29	RFA-B36
6	65		09:13		09:54	RFA-B15
7	95		09:20		10:00	RFA-B02
8	92		08:10		08:43	RFA-B30
9	38		08:05		08:41	RFA-B13
10	59		07:56		08:30	RFA-B01
11						
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25						

Environmental Restoration Group, Inc.
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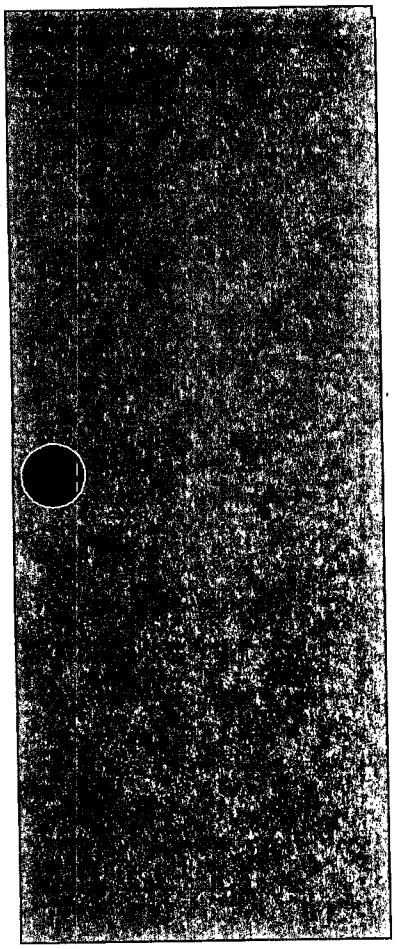
Albuquerque, NM 87113

ERG Radon Flux Data Log
(505) 298-4224
www.ERGoffice.com



ERG Radon Flux Canister Data Log

Site: Denny - Burdock

Location Number	Canister Number	Deployment Date (mm/dd/yy)	Deployment Time (24:00)	Retrieval Date (mm/dd/yy)	Retrieval Time (24:00)	Notes/Comments
1	91	09/26/07	08:51	09/27/07	10:00	RFA-B21
2	55	09/26/07	11:18	09/27/07	09:40	RFA-B31
3	72	09/26/07	09:04	09/27/07	10:10	RFA-B37
4	73	09/26/07	09:33	09/27/07	10:20	RFA-B02
5	23	09/26/07	10:15	09/27/07	10:30	RFA-B15
6	63	09/26/07	12:12	09/27/07	10:36	RFA-B17
7	105	09/26/07	13:40	09/27/07	10:22	RFA-B13
8	102	09/26/07	13:09	09/27/07	10:15	RFA-B30
9	45	09/26/07	13:50	09/27/07	10:07	RFA-B01
10						
11						
12						
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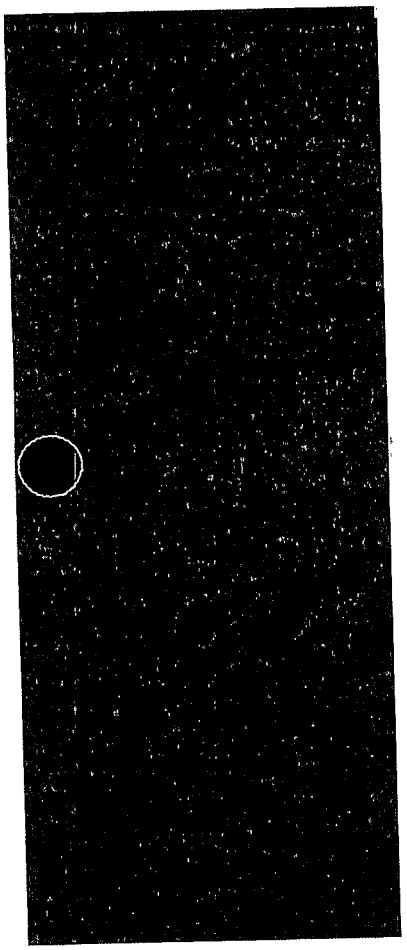
23						
24						
25						

Environmental Restoration Group, Inc.
8809 Washington St. NE * Suite 150
Albuquerque, NM 87113



Radon – 222 Canister Chain of Custody Record

Facility: Davis Beach
Pile or Stack Name: N/A
Area of Pile or Stack: N/A
Field Representative: N. WRUBEL

	Deployment	Retrival
Date	4/20/08	4/21/08
Rel. Humid.	x̄: 39; 6-71	x̄: 29.44; 19-68
Bar. Press	29.50 in.	30.02 in.
Temp. (F)	~71 °F x̄: 59; 31-81	~40 °F x̄: 38; 25-50

www.weatherground.com CLEARFIELD NS — no frost observed

Deployment/Retrieval Record

Item	Location ID or Description	Coordinates North	Coordinates East	Canister Number	Deployment Time	Deployment By	Retrieval Time	Retrieval By	Comments
101	RFA-B21	428288.77	999295.30	48	0830	NW	0902	NW	
102	RFA-B31	432201.68	1001484.26	2	0852		0825		
103	RFA-B37	430292.49	1005338.17	71	0900		0838		
104	RFA-B02	430897.96	1006307.78	59	0909		0846		
105	RFA-B15	432487.00	1007599.62	80	0918		0854		
106	RFA-B17	445319.19	989655.54	90	1010		0930		
107	RFA-B01	444878.75	986206.90	256	1024		0948		
108	RFA-B13	442713.12	988273.03	38	1035		1001		
109	RFA-B30	443982.77	988057.01	88	1045		1009		
110	Trip Blank	—	—	255	—	—	—	—	
111									
112									
113									
114									

Custody Transfer Record

Items Nos.	Relinquished By	Date	Time	Accepted By	Date	Time /0AM
101-110	NW	4/21/08	1400	K Baker	4/22/08	0700 KB

Radon Flux Measurements

Site Dewey - Burdock

RFA-B##

Canister Number	Lab Date	Start Count Time	Deploy Date	Deploy Time	Retrieve Date	Retrieve Time	Collection Time (sec)	Count Time (sec)	Peak Counts	Percent Error	Bkg counts	Percent Error	Detector Efficiency	Canister Activity(pCi)	Flux pCi/m2s	Flux Error 1.00S.D	LLD pCi/m2s	Remarks
257	7/16	15:20	7/14	9:24	7/15	10:06		1200	5117						37			
258	"	15:40		9:27		10:14		"	4448						21			
8	"	16:01		8:19		8:49		"	5121						17			
73	"	16:22		8:55		9:29		"	3712						36			
65	"	16:46		9:13		9:54		"	5845						15			
95	"	17:10		9:20		10:00		"	4515						ø2			
92	"	17:31		8:10		8:43		"	6326						3ø			
* 92 B	"	17:52		"		"		"	6386						3ø			
38	"	18:16		8:05		8:41		"	6724						13			
22	"	18:38		—		—		"	3126						—	BLANK		
59	"	18:59		7:56		8:30		"	6871				[illegible]	RFA-B	ø1			
BKG #2		19:42						"	2938									
STD #3	"	20:03						"	42987									
STD #1	"	20:24						"	47880									

ROI 563-697
4/22/08

Radon Flux Measurements

Site Dewey-Bradock

Canister Number	Lab Date	Start Count Time	Deploy Date	Deploy Time	Retrieve Date	Retrieve Time	Collection Time (sec)	Count Time (sec)	Peak Counts	Percent Error	Bkg counts	Percent Error	Detector Efficiency	Canister Activity(nCi)	Flux pCi/m2s	Flux Error 1.00S.D.	LLD pCi/m2s	Remarks
STD 1	4/22	1720							29888	48042								
STD 3	4/22	1740							39122									
BKG1		1808							2757									
38		1840							3642									
88		1905							3848									
90		1923							3695									
256		1945							3810									
80		2010							4481									
80B		2031							4374									
3-9		2055							3932									
2		2115							3751									
1		2137							4800									
55		2200							2863									
48		2220							3182									
BKG2		2241							2605									
STD 1		2308							48463									
STD 3		2330							38657									

Kenneth Baker

Data entered 4/30/08 by MSS

LAM = 562 - 680

Radon Flux Measurements

Site Dewey-Burdock, SD

TOTAL

Canister Number	Lab Date	Start Count Time	Deploy Date	Deploy Time	Retrieve Date	Retrieve Time	Collection Time (sec)	Count Time (sec)	Peak Counts	Percent Error	Bkg counts	Percent Error	Detector Efficiency	Canister Activity(pCi)	Flux (pCi/m2s	Flux Error 1.00S.D	LLD (Ci/m2s	Remarks
STD 1	9/28/07	1600						1200	31826	1.9				46124				
STD 3	9/28/07	1635							26724	2.2				40807				
BKG 1	9/28/07	1700							-50	482				2594				
91	9/28/07	1722	9/26/07	0851	9/27/07	1000			1220	21				4230				
55	9/28/07	1745	9/26/07	1118	9/27/07	0940			810	31				3627				
72	9/28/07	1805	9/26/07	0925	9/27/07	1010		1200	1137	22				3972				
73	9/28/07	1830	9/26/07	0948	9/27/07	1020			525	28				4064				
23	9/28/07	1853	9/26/07	1015	9/27/07	1030			1744	14.6				4582				
63	9/28/07	1921	9/26/07	1212	9/27/07	1036			1596	16.1				4478				
105	9/28/07	1946	9/26/07	1240	9/27/07	1022			1742	16				5761				
102	9/28/07	2009	9/26/07	1304	9/27/07	1015			1986	13.3				5049				
75	9/28/07	2030	9/26/07	1350	9/27/07	1007			1672	16.2				4876				
458	9/28/07	2100	9/26/07	1350	9/27/07	1007			1404	18.9				4824				
46	9/28/07	2121	NA	NA	NA	NA	NA		219	110				1799				FAIR BLANK
BKG2	9/28/07	2142							279	82				2601				
STD 3	9/28/07	2204							25961	2.3				40345				
STD 1	9/28/07	2225							31277	1.9				45940				

SOUTH DAKOTA GAME FISH AND PARKS 3305 WEST SOUTH STREET RAPID CITY, SD 57702

Stream Name Cheyenne River
Site Number CHR05

DATE dd-mmm-yy							
0	9	J	U	L	0	8

example 0 2 M A Y 9 2

Fish ID #	Pass #	Species Code	Total Length (mm)	Weight (grams)	Sca.	Mor.	Sex	Comments	Fish ID #	Pass #	Species Code	Total Length (mm)	Weight (grams)	Sca.	Mor.	Sex	Comments
1	1	RIC	415	1150				R	51	1	SAS	51					
2	1	RIC	426	1200				R	52	1	SAS	45					
3	1	RIC	405	980				R	53	1	SAS	50					
4	1	RIC	381	820				R	54	1	SAS	44					
5	1	SRS	160	46				R	55	1	SAS	60					
6	1	SRS	146	32				R	56	1	SAS	47					
7	1	CAP	135	31				R	57	1	SAS	54					
8	1	CHC	290	166				R	58	1	SAS	46					
9	1	CHC	196	50				R	59	1	SAS	52					
10	1	CHC	181	49				R	60	1	SAS	46	6				V,C(60-64)
11	1	LND	74	4				V	61	1	SAS	45					V
12	1	PLK	72	10				R,C (#12-16)	62	1	SAS	50					V
13	1	PLK	59					R	63	1	SAS	46					V
14	1	PLK	51					R	64	1	SAS	50					V
15	1	PLK	68					R	65	1	FHM	46	7				R,C(65-74)
16	1	PLK	46					R	66	1	FHM	38					R
17	1	PLK	54	3			3	V,C(#17-18)	67	1	FHM	60					R
18	1	PLK	53					V	68	1	FHM	44					R
19	1	SAS	49	7				R,C(#19-23)	69	1	FHM	51					R
20	1	SAS	50					R	70	1	FHM	48					V
21	1	SAS	53					R	71	1	FHM	46					V
22	1	SAS	46					R	72	1	FHM	46					V
23	1	SAS	48					R	73	1	FHM	47					V
24	1	SAS	50	54				C	74	1	FHM	47					V
25	1	SAS	46						75	1							
26	1	SAS	49						76	1							
27	1	SAS	43						77	1							
28	1	SAS	47						78	1							
29	1	SAS	46						79	1							
30	1	SAS	50						80	1							
31	1	SAS	47						81	1							
32	1	SAS	45						82	1							
33	1	SAS	53						83	1							
34	1	SAS	46						84	1							
35	1	SAS	52						85	1							
36	1	SAS	52						86	1							
37	1	SAS	42						87	1							
38	1	SAS	47						88	1							
39	1	SAS	51						89	1							
40	1	SAS	49						90	1							
41	1	SAS	46						91	1							
42	1	SAS	54						92	1							
43	1	SAS	52						93	1							
44	1	SAS	46						94	1							
45	1	SAS	48						95	1							
46	1	SAS	53						96	1							
47	1	SAS	52						97	1							
48	1	SAS	54						98	1							
49	1	SAS	47						99	1							
50	1	SAS	46						00	1							

Comments: R = sample collected for radiological testing, V = voucher specimen, C = combined weight