Vegetation Inventory
Energy Fuels Resources
Daneros Mine – Bullseye and South Portals
San Juan County, Utah

Cover Photo: South Portal Project Site

Prepared for:
Energy Fuels Resources

Prepared by:
WestWater Engineering
2516 Foresight Circle #1
Grand Junction, CO 81505

June 2013

1.0 INTRODUCTION

Energy Fuels Resources (Energy Fuels) requested WestWater Engineering (WestWater) to conduct a vegetation inventory for two proposed mine portals near Fry Canyon west of Blanding, Utah. Of the proposed 28.94 +/- acres of potential disturbance, approximately 8.04 acres are proposed for the Bullseye Portal and 20.89 acres are proposed for South Portal.

The site is within San Juan County, Utah. Access to the project site is available from State Highway 95 south of Blanding to Radium King Road (Figure 1).

The primary uses of the project site and surrounding area are wildlife habitat, livestock grazing, and natural resource development. The general area has been subject to uranium and vanadium mining operations, both currently and historically.

1.1 General Survey Information

WestWater was directed to document noxious weed infestations and to conduct quantitative vegetation analyses for vegetative communities occurring in the project area (Jed Carling, BLM-MFO, personal communication). No special status plant inventories or specific threatened/endangered wildlife surveys were requested of WestWater in the project area at this time.

WestWater biologists performed field surveys and assessments on June 24th, 2013, as requested by Energy Fuels. Aerial photographs were utilized to help biologists familiarize themselves with the area and determine previously disturbed land. The purpose of surveys was to determine the plant species and corresponding vegetative cover that occupies the project area that would potentially be impacted by the development and operation of an underground mining operation.

2.0 LANDSCAPE SETTING

2.1 Native Vegetation

Vegetation communities in the area are mixed salt desert scrub with some characteristics of xeric pinyon-juniper woodlands. Table 1 lists plant species observed in the project area. Species identification was aided using published field guides (Kershaw et al. 1998; Spackman et al. 1997; Weber & Wittman 2012; Welsh et al. 2008; Whitson, et al 2004). Nomenclature is consistent with that used by the U.S. Department of Agriculture (USDA)-PLANTS database (USDA, NRCS 2013).

Table 1. Vegetation present in the project area including those not sampled

Common Name	Scientific Name	Common Name	Scientific Name
Alkali sacaton	*Sporobolus airoides*	Kingcup cactus	*Echinocereus troglachidiatus*
Arizona fescue	*Festuca arizonica*	Lemon scurfpea	*Psoralidium lanceolatum*
Aster	*Symphyotrichum* sp.	Milkvetch sp.	*Astragalus* sp.
Basin big sagebrush	*Artemisia tridentata tridentata*	Mormon tea	*Ephedra viridis*
Bastard toad flax	*Commandra umbellata*	Narrowleaf yucca	*Yucca angustissima*
Bottlebrush squirreltail	*Elymus elymoides*	Prickly pear cactus	*Opuntia* sp.
Broom snakeweed	*Gutierrezia sarothrae*	Purple threeawn	*Aristida purpurea*
Crispleaf buckwheat	*Eriogonum corymbosum*	Rose heath	*Chaetopappa ericoides*
Desert four o'clock	*Mirabilis multiflora*	Roundleaf buckwheat	*Eriogonum rotundifolium*
Desert trumpet	*Eriogonum inflatum*	Roundleaf buffaloberry	*Shepherdia rotundifolia*

Table 1. Vegetation present in the project area including those not sampled

Common Name	Scientific Name	Common Name	Scientific Name
Fourwing saltbush	*Atriplex canescens*	Rubber rabbitbrush	*Ericameria nauseosa*
Fremont's mahonia	*Mahonia fremontii*	Sand dropseed	*Sporobolus cryptandrus*
Galleta grass	*Pleuraphis jamesii*	Shadscale saltbush	*Atriplex confertifolia*
Gardner's saltbush	*Atriplex gardneri*	Small wirelettuce	*Stephanomeria exigua*
Golden princesplume	*Stanleya pinnata*	Stansbury cliffrose	*Purshia stansburiana*
Green molly	*Bassia americana*	Torrey's jointfir	*Ephedra torreyana*
Indian paintbrush	*Castilleja scabrida*	Upright prairie coneflower	*Ratibida columnifera*
Indian ricegrass	*Achnatherum hymenoides*	Utah Juniper	*Juniperus osteosperma*

3.0 PLANT SURVEYS

3.1 Vegetative Cover

To satisfy UDOGM and the BLM permitting requirements, Energy Fuels requested that WestWater conduct an analysis to determine vegetation types, percent cover, and species composition within the project area.

3.1.1 Sampling Methods

The vegetation sampling protocol used is a modified "point-intercept method" based on the National Park Service Fire Monitoring Handbook (USDI National Park Service 2003). The point-intercept method uses the contact of a point to measure cover. The theory behind this method is that if an infinite number of points are placed in a two-dimensional area, the exact cover of a plant species can be determined by counting the number of points that hit that species.

Seven vegetation transects were established among both of the sites based on whether the area was previously disturbed or undisturbed. The South Portal site had four transects, while the smaller Bullseye Portal site had three. Once disturbance was identified, the vegetation sampling points were established at random (Figures 2 and 3). The following techniques were used to collect the sample data:

1. Each sample site was randomly selected within 200 feet of the area affected by the proposed project on either disturbed or undisturbed ground.
2. Each of transects were confined to a single distinct vegetative community and on either disturbed or undisturbed ground.
3. Transects were labeled SP for South Portal and BP for Bullseye Portal.
4. The beginning and ending point of each transect was recorded using a Garmin Global Positioning System (GPS) receiver. Photographs were taken along each transect that recorded vegetation condition from 0 to 50 meters and from 50 to 0 meters. Universal Transverse Mercator (UTM) coordinates for the 0m transect points and the azimuths to the 50m point were recorded.
5. Data were collected using point intercept protocols similar to those documented in the Fire Monitoring Handbook. Point count data were collected at 1meter intervals along a 50-meter tape measure using a thin, straight metal rod. Fifty samples were taken along each transect.
6. Standard data sheets taken from the Fire Monitoring Handbook were used.

7. At each point count sample point, ground cover was recorded. Bare ground and soil crust conditions were also recorded.
8. Other species of vegetation incidentally observed in the sample area were recorded (in addition to those recorded during sampling).

3.2 Results

Field data collected during sampling was recorded on a field data sheet, and point-intercept results for percent foliar cover, percent bare ground, and percent basal cover were calculated. Points that intercepted only litter in the lower canopy or that intercepted only rock do not represent foliar cover, bare ground, or basal cover, and therefore are accounted for as "Other". These results are presented in Tables 2 through 8. Photographs of each transect are located in Appendix A. Data sheets are provided in Appendix B.

Table 2. Summary of results of vegetation baseline sampling on South Portal Transect 1 (SP-1).

Common Name	Scientific Name	Number of Intercept Points	Percent Cover
Broom Snakeweed	*Gutierrezia sarothrae*	5	10
Rose heath	*Chaetopappa ericoides*	1	2
Alkali sacaton	*Sporobolus airoides*	1	2
Galleta grass	*Pleuraphis jamesii*	1	2
		Percent Foliar Cover	16
		Percent Bare Ground	62
		Percent Basal Cover	< 1
		Other	22

Table 3. Summary of results of vegetation baseline sampling on South Portal Transect 2 (SP-2).

Common Name	Scientific Name	Number of Intercept Points	Percent Cover
Broom Snakeweed	*Gutierrezia sarothrae*	2	4
Milkvetch	*Astragalus* sp.	1	2
Crispleaf buckwheat	*Eriogonum corymbosum*	1	2
		Percent Foliar Cover	8
		Percent Bare Ground	68
		Percent Basal Cover	< 1
		Other	24

Table 4. Summary of results of vegetation baseline sampling on South Portal Transect 3 (SP-3).

Common Name	Scientific Name	Number of Intercept Points	Percent Cover
Indian ricegrass	*Achnatherum hymenoides*	1	2
Saltlover	*Halogeton glomeratus*	1	2
		Percent Foliar Cover	4
		Percent Bare Ground	76
		Percent Basal Cover	< 1
		Other	20

Table 5. Summary of results of vegetation baseline sampling on South Portal Transect 4 (SP-4).

Common Name	Scientific Name	Number of Intercept Points	Percent Cover
Broom Snakeweed	*Gutierrezia sarothrae*	4	8
Rose heath	*Chaetopappa ericoides*	1	2
Utah Juniper	*Juniperus osteosperma*	4	8
Galleta grass	*Pleuraphis jamesii*	2	4
		Percent Foliar Cover	22
		Percent Bare Ground	44
		Percent Basal Cover	< 1
		Other	34

Table 6. Summary of results of vegetation baseline sampling on Bullseye Portal Transect 1 (BP-1).

Common Name	Scientific Name	Number of Intercept Points	Percent Cover
Russian thistle	*Salsola kali*	1	2
Saltlover	*Halogeton glomeratus*	2	4
		Percent Foliar Cover	6
		Percent Bare Ground	86
		Percent Basal Cover	< 1
		Other	8

Table 7. Summary of results of vegetation baseline sampling on Bullseye Portal Transect 2 (BP-2).

Common Name	Scientific Name	Number of Intercept Points	Percent Cover
Broom Snakeweed	*Gutierrezia sarothrae*	6	12
Saltlover	*Halogeton glomeratus*	3	6
Fourwing saltbush	*Atriplex canescens*	2	4
Galleta grass	*Pleuraphis jamesii*	1	2
Rubber rabbitbrush	*Ericameria nauseosa*	2	4
Desert trumpet	*Eriogonum inflatum*	1	2
		Percent Foliar Cover	30
		Percent Bare Ground	50
		Percent Basal Cover	< 1
		Other	20

Table 8. Summary of results of vegetation baseline sampling on Bullseye Portal Transect 3 (BP-3).

Common Name	Scientific Name	Number of Intercept Points	Percent Cover
Broom Snakeweed	*Gutierrezia sarothrae*	4	8
Galleta grass	*Pleuraphis jamesii*	4	8
		Percent Foliar Cover	16
		Percent Bare Ground	52
		Percent Basal Cover	< 1
		Other	32

The major vegetation cover type in the project area is mixed salt desert scrub with some characteristics of xeric pinyon-juniper woodlands. Transects SP-1, 2, 3 and BP-1 were conducted in historically disturbed areas, some of the areas more recently disturbed than others (Figures 2 and 3). Transects SP-4 and BP-2 and 3 were conducted in native vegetation and were aimed at representing the overall vegetative cover in the area (Figures 2 and 3). The disturbed areas were easily identified by aerial photographs and ground observations, as they were sparsely vegetated.

3.3 Noxious Weeds

The proposed project site is not heavily infested by noxious weeds and saltcedar (tamarisk) was the only species noted within the plant survey area (200 feet surrounding project features). Other invasive species

noted in the area included; Russian thistle, saltlover (halogeton), and cheatgrass. State listed noxious weed species observed are listed in Table9 and illustrated in Figures 2 and 3.

Table 9. Utah state noxious weed observations

Common Name	USDA Plant Code – Scientific Name	State Listing Status	Location description
Saltcedar	TARA- *Tamarix ramosissima*	Class C	One location at the South Portal site and one location at the Bullseye Portal site (Figures 2 and 3).

4.0 RECOMMENDATIONS

4.1 Preservation and Rehabilitation of Native Vegetation

The proposed portals are situated in areas that have been historically used for mining where native vegetation has been removed from a portion of the site. Approximately 28.94 acres of native vegetation would be removed by construction of proposed portals.

The following goals and objectives should be considered for managing vegetation in the project area:

- Manage vegetation resources for desired future conditions, ensuring ecological diversity, stability, and sustainability, including the desired mix of vegetation types, structural stages, and landscape/watershed function, and provide for native plant and wildlife habitats.
- Provide sustainable forage for livestock and wildlife with a plant community that incorporates and meets the standards for rangeland health.
- Control invasive and non-native weed species and prevent the introduction of new invasive species through the implementation of a comprehensive weed program, including coordination with partners; prevention and early detection; education; inventory and monitoring; and principles of integrated weed management.

To accomplish these goals the following recommendations are made:

1. Minimize the removal of native vegetation to the extent possible.
2. Manage topsoil removed from the site according to live topsoil handling Best Management Practices.
3. Maintain a noxious weed control program for the life of the project to include the reclamation period.
4. Use a noxious weed free seed menu, consisting of native plant species for final site reclamation at the end of active mining.

4.2 Treatment and Control of Noxious Weed Infestations

The site is not currently heavily infested by noxious weeds, and every effort should be made to maintain or improve the current conditions. The highest priority for noxious weed management is to prevent the establishment of any noxious weed infestation of the project site.

Noxious weeds aggressively compete with native vegetation. Most have come from Europe or Asia, either accidentally or as ornamentals that have escaped. Once established they tend to spread quickly because the insects, diseases, and animals that normally control them are absent. Prevention is especially valuable in the case of noxious weed management.

Noxious weeds are spread by man, animals, water, and wind. Prime locations for the establishment of noxious weeds include roadsides, construction sites, wetlands, riparian corridors, and areas that are overused by animals or humans. Subsequent to soil disturbances, vegetation communities can be susceptible to infestations of invasive or exotic weed species. Vegetation removal and soil disturbance during construction can create optimal conditions for the establishment of invasive, non-native species. Construction equipment traveling from weed-infested areas into weed-free areas could disperse noxious or invasive weed seeds and propagates, resulting in the establishment of these weeds in previously weed-free areas.

Several simple practices should be employed to prevent most weed infestations. The following practices should be adopted for any activity to reduce the costs of noxious weed control through prevention. The practices include:

1. Prior to delivery to the site, equipment should be thoroughly cleaned of soils remaining from previous construction sites which may be contaminated with noxious weeds.
2. If working in sites with weed-seed contaminated soil, equipment should be cleaned of potentially seed-bearing soils and vegetative debris at the infested area prior to moving to uncontaminated terrain.
3. All maintenance vehicles should be regularly cleaned of soil.
4. Avoid driving vehicles through areas where weed infestations exist.

5.0 REFERENCES

Kershaw, Linda, A. MacKinnon, and J. Pojar. 1998. Plants of the Rocky Mountains. Lone Pine Publishing, Auburn, Washington.

Spackman, S., B. Jennings, J. Coles, C. Dawson, M. Minton, A. Kratz, and C. Spurrier. 1997. Colorado Rare Plant Field Guide. Prepared for the U.S. Bureau of Land Management, the U.S. Forest Service and the U.S. Fish and Wildlife Service by the Colorado Natural Heritage Program.

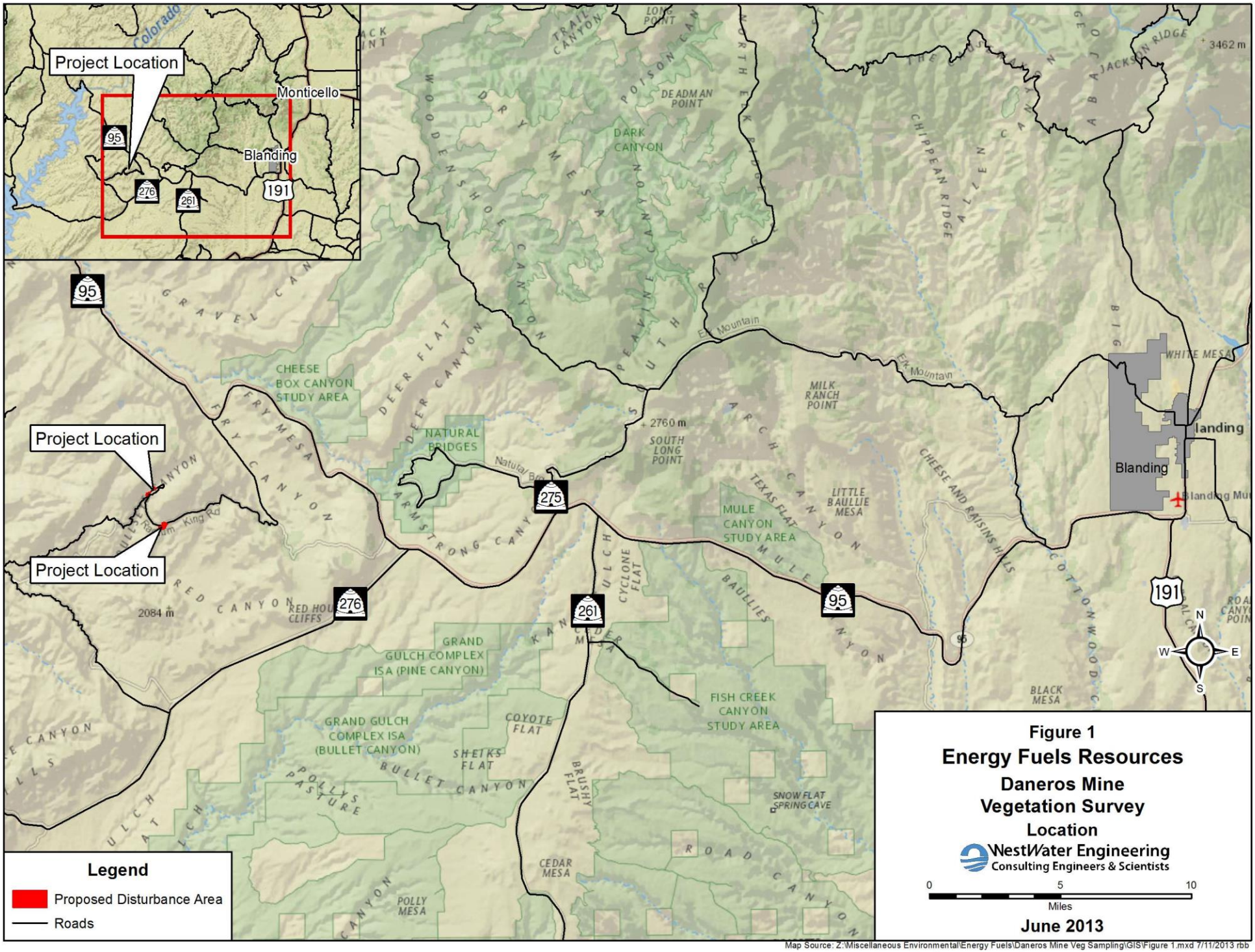
USDA, NRCS. 2013. The PLANTS Database (http://plants.usda.gov, accessed July 2012). U.S. Division of Agriculture, , Natural Resources Conservation Service, National Plant Data Team, Greensboro, NC.

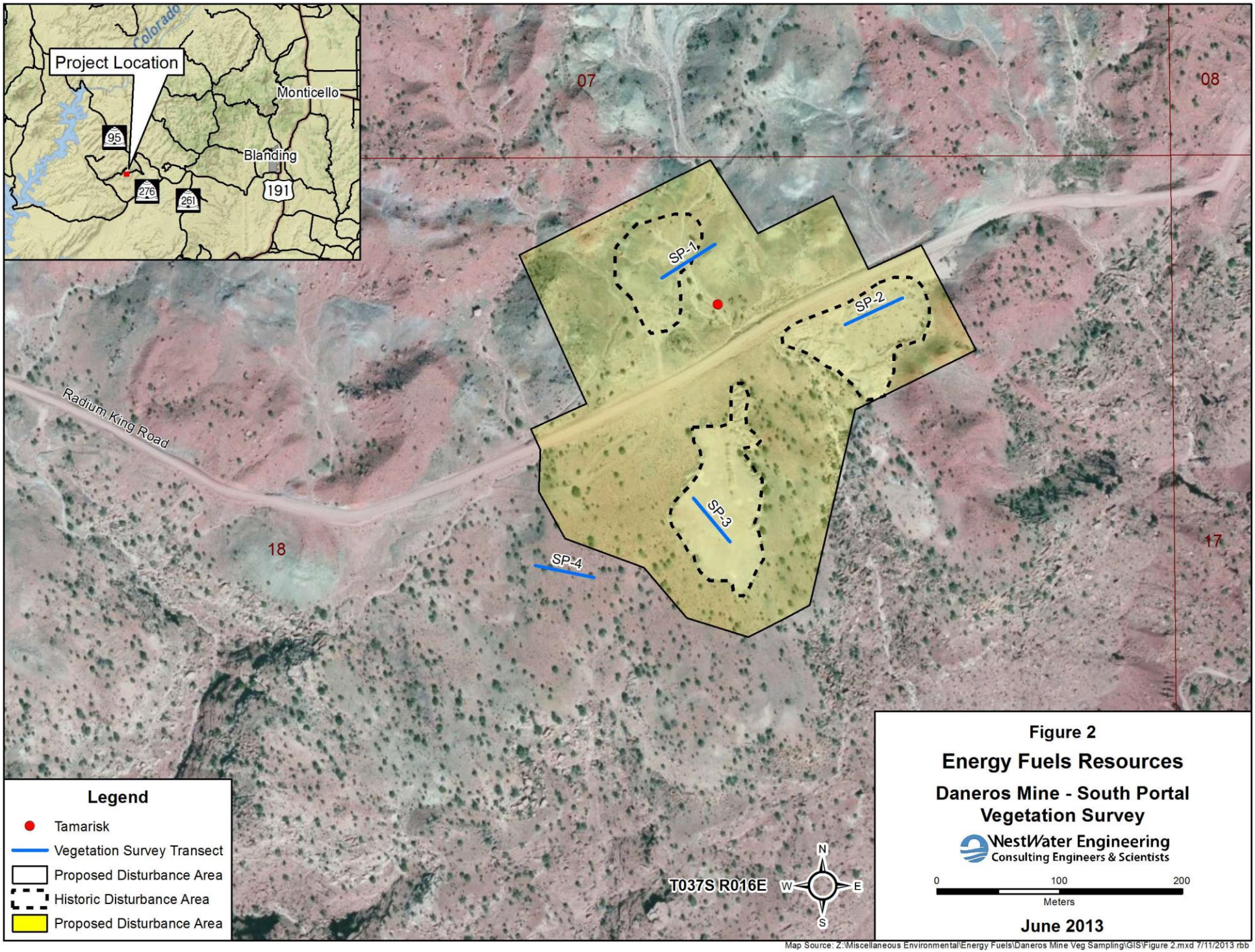
USDI, National Park Service. 2003. Fire Monitoring Handbook. Boise (ID): Fire Management Program Center, National Interagency Fire Center. 274p.

Weber, W. A., and R. C. Wittman. 2012. Colorado Flora Western Slope, 4th Ed. University Press of Colorado, Boulder.

Welch, S. L., N. D. Atwood, S. Goodrich, and L. C. Higgins. 2008. A Utah Flora, 4th Ed. Brigham Young University. Provo.

Whitson, T. D. (editor), L. C. Burrill, S. A. Dewey, D. W. Cudney, B. E. Nelson, R. D. Lee, and R. Parker. 2004. Weeds of the West, Ninth Edition. Western Society of Weed Science in cooperation with Cooperative Extension Services, University of Wyoming. Laramie


Project Location
Monticello
Blanding
95
276
261
191
Colorado
Project Location
Project Location
Blanding
Legend
Proposed Disturbance Area
Roads
Figure 1
Energy Fuels Resources
Daneros Mine
Vegetation Survey
Location
WestWater Engineering
Consulting Engineers & Scientists
0
5
10
Miles
June 2013
Map Source: Z:\Miscellaneous Environmental\Energy Fuels\Daneros Mine Veg Sampling\GIS\Figure 1.mxd 7/11/2013 rbb


Project Location
Colorado
Monticello
Blanding
95
276
261
191
07
08
17
18
SP-1
SP-2
SP-3
SP-4
Radium King Road
T037S R016E
N
W
E
S
Legend
Tamarisk
Vegetation Survey Transect
Proposed Disturbance Area
Historic Disturbance Area
Proposed Disturbance Area
Figure 2
Energy Fuels Resources
Daneros Mine - South Portal
Vegetation Survey
WestWater Engineering
Consulting Engineers & Scientists
0
100
200
Meters
June 2013
Map Source: Z:\Miscellaneous Environmental\Energy Fuels\Daneros Mine Veg Sampling\GIS\Figure 2.mxd 7/11/2013 rbb

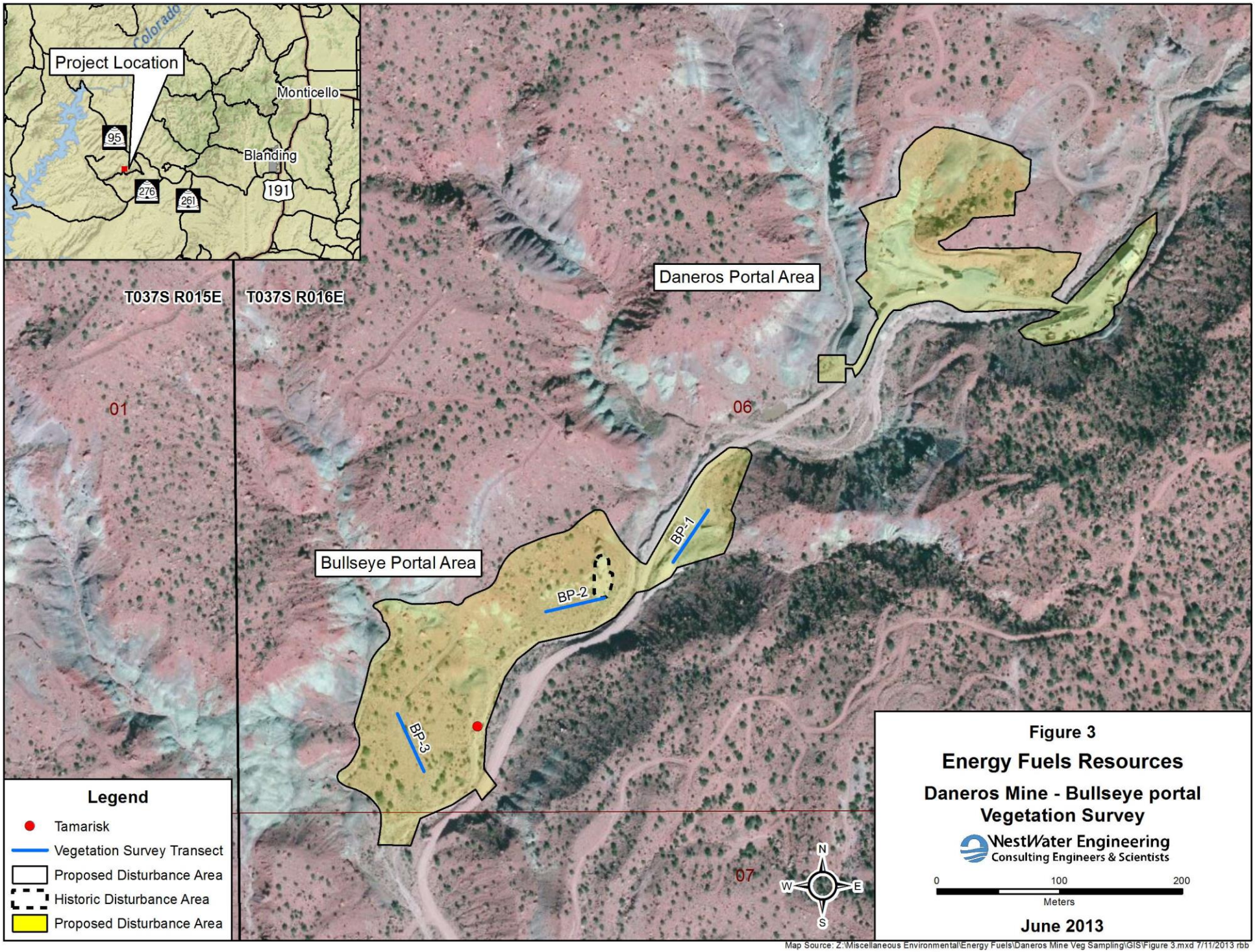


Figure 3

Energy Fuels Resources

Daneros Mine - Bullseye portal Vegetation Survey

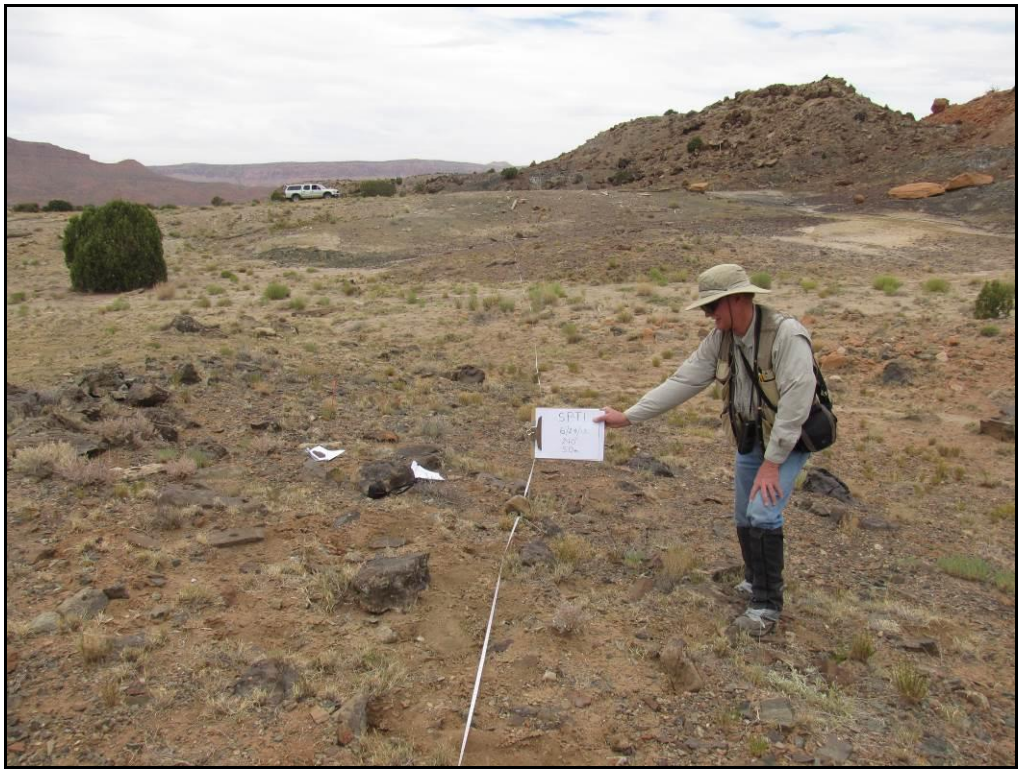
WestWater Engineering
Consulting Engineers & Scientists

June 2013

Map Source: Z:\Miscellaneous Environmental\Energy Fuels\Daneros Mine Veg Sampling\GIS\Figure 3.mxd 7/11/2013 rbb

Appendix A

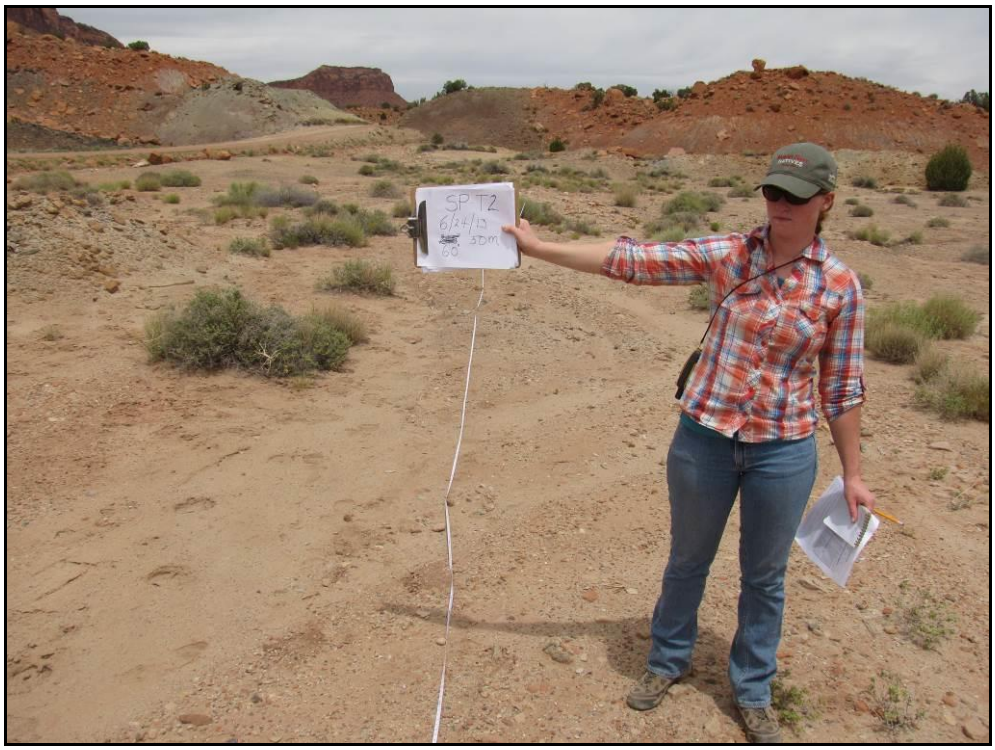
Transect SP-1, 0-50m



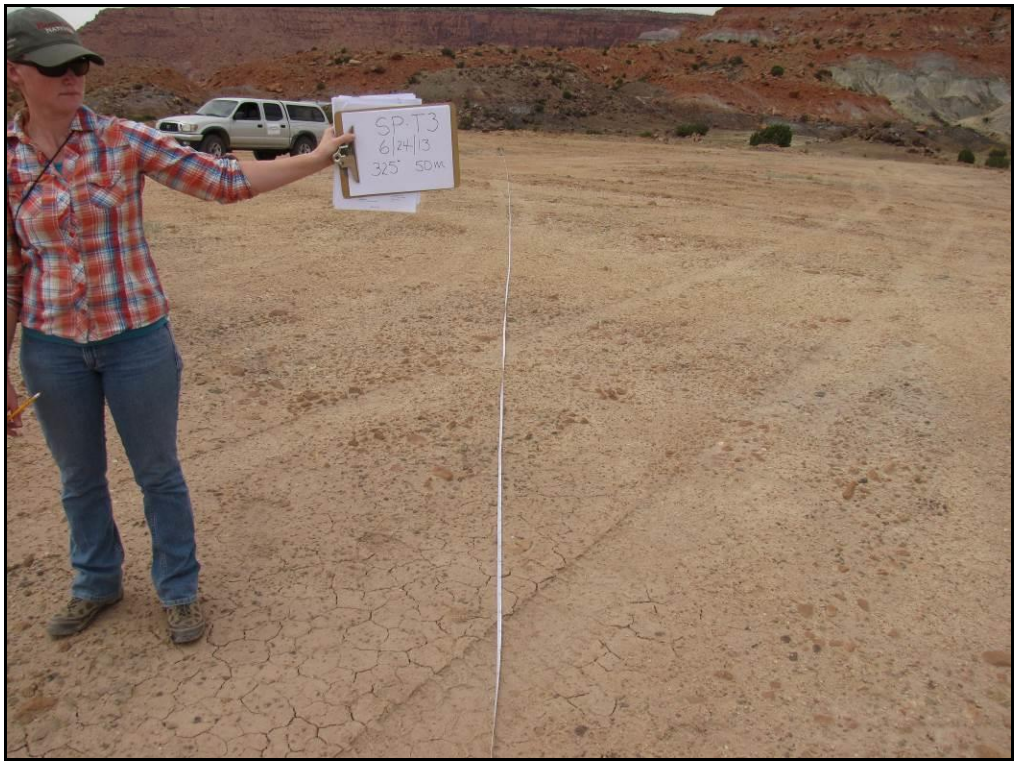
Transect SP-1, 50-0m

Transect SP-2, 0-50m

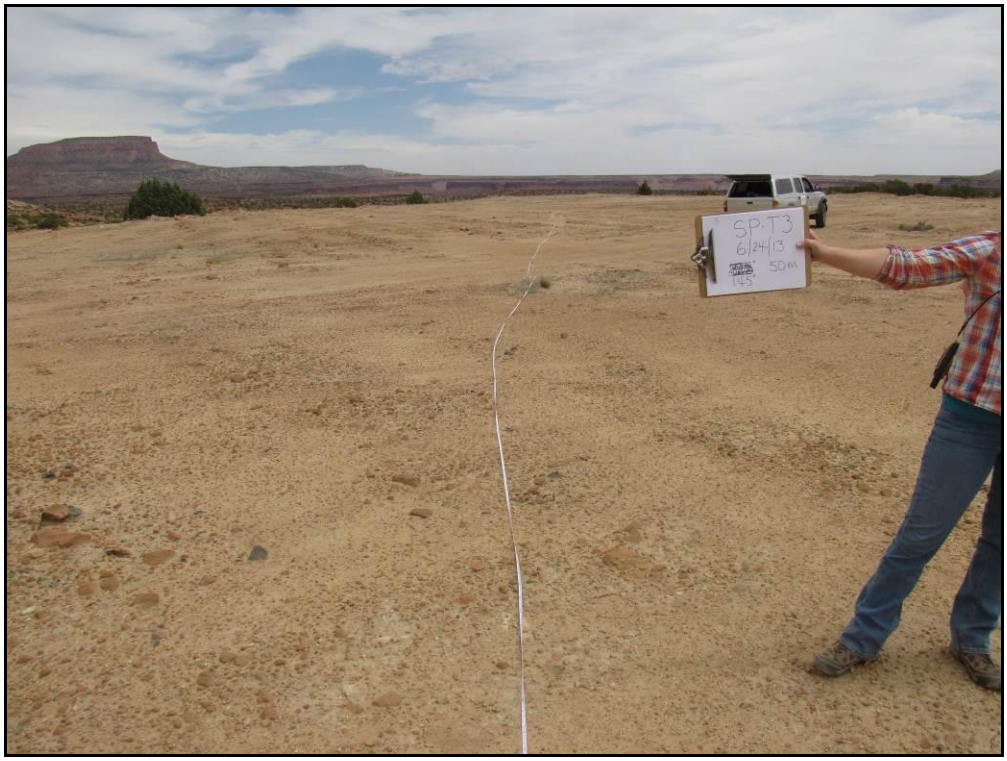
Transect SP-2, 50-0m



Transect SP-3, 0-50m

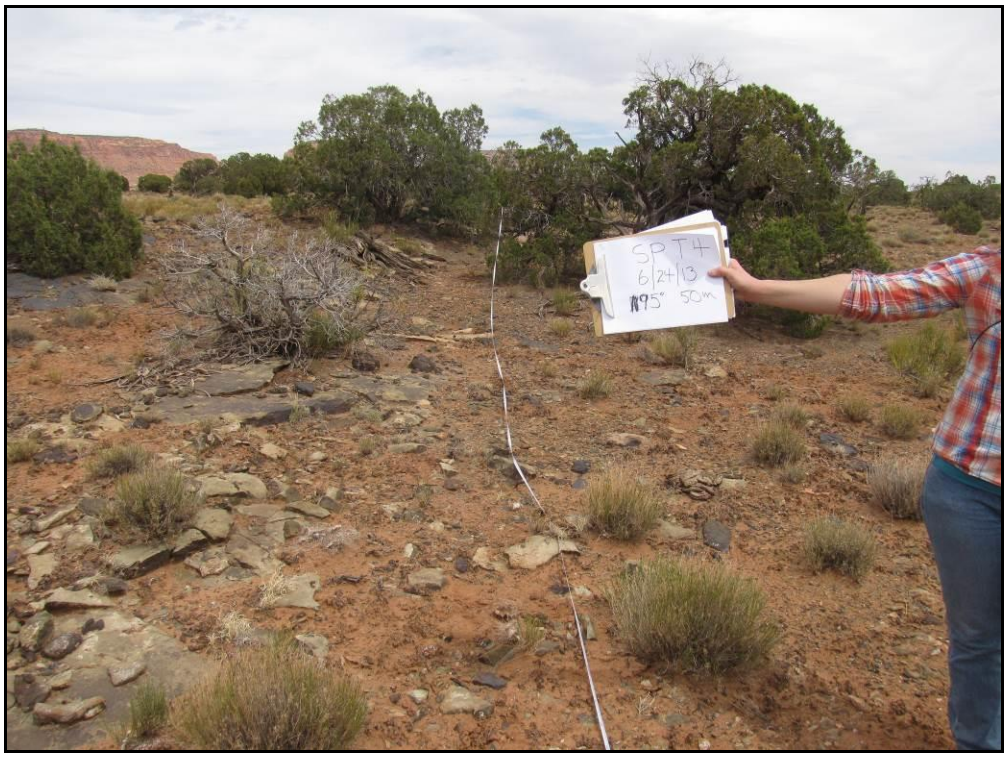


Transect SP-3, 50-0m



Transect SP-4, 0-50m

Transect SP-4, 50-0m



Transect BE-1, 0-50m

Transect BE-1, 50-0m

Transect BE-2, 0-50m

Transect BE-2, 50-0m

Transect BE-3, 0-50m

Transect BE-3, 50-0m

Appendix B

Attachment C

Line-Point Intercept Data Form

Page 1 of ___ Site: South Portal Line: T1

Observer: Graham / Kowalski Recorder: _____ Line Length: 50 m

Direction (Azimuth): 240 Date: 6/24/13 (mm/dd/yyyy) Intercept (Point) Spacing Interval: 1 m

Pt.	Top Layer	Lower Canopy Layers Code1	Code2	Code3	Soil Surface	Pt.	Top Layer	Lower Canopy Layers Code1	Code2	Code3	Soil Surface
1					S	26					S
2				L	S	27					S
3					S	28					S
4					S	29	PLSA			L	S
5					R	30					S
6					R	31					S
7	GUSA			L	S	32					S
8					R	33					S
9					S	34					S
10				L	S	35					R
11	GUSA			L	S	36				L	S
12					S	37	GUSA				S
13					S	38					S
14	CHER			L	S	39					S
15	SPAI			L	S	40	GUSA			L	S
16					S	41					S
17					S	42					R
18				L	S	43					S
19					S	44					S
20					R	45					S
21	GUSA				S	46					R
22					S	47					S
23					S	48					S
24					S	49					S
25					S	50					S

% Foliar Cover = 8 top layer pts (1st col) x 2= 16 %

% Bare Ground* = 31 pts (w/NONE)) x 2= 62 %

% Basal Cover = 0 plant base pts (last col) x 2= 0 %

**Bare ground only occurs when Top Layer = None, Lower Layers are empty (no L), and Soil Surface = S.*

Top Layer Codes:
- Species code
- Common name
- NONE (no cover)

Lower Layer Codes:
- Species code
- Common name
- L (herbaceous litter)
- WL (woody litter, >5 mm (~1/4 in) diameter)

Unknown Species Codes:
- AF#= annual forb
- PF#= perennial forb
- AG#= annual graminoid
- PG#+perennial graminoid
- SH#= shrub
- TR#= tree

Soil Surface (do not use litter):
- Species Code (for basal intercept)
- R= rock fragment (>5 mm (~1/4 in) diameter)
- BR= bedrock
- M= moss
- LC= visible biotic crist on soil
- S= soil w/o any other soil surface code
- EL= embedded litter
- D= Duff

Attachment D

Vegetative Species Inventory Form

Encana Oil & Gas (USA), Inc.

Project Name: Energy Fuels South Portal

Site: Trans. 1

Observer/Recorder: EIK **Date:** 6/24/13 **Weather:** _____

Code	Nox?	Species	Code	Nox?	Species
		Narrowleaf yucca			
		salt grass			
		Ephedra torreyana			
ELEL		Bottlebrush squirreltail			
		Galleta grass			
		Shadscale saltbush			
		Rabbit brush			
		claret cup cactus			
		Opuntia polyacanthus			
GUSA		Snakeweed			
		Rose heath			
		Utah Juniper			
		Sporobolus airoides			
		Green Molly			
		Astragalus spp.			
		Gardners saltbush			
		Alkali seepweed			
		Halogeton			
		Salt cedar			
		Russian Thistle			
ACHY		Indian Ricegrass			
		Norwegian cinquefoil			
		Cheat grass			

% Tree Cover_____ **Dominant Tree Species:** _____

% Shrub Cover_____ **Dominant Shrub Species:** _____

Page _____ **of** _____

South Portal Transect 1

Attachment E

Invasive Species Inventory Form

Project Name: _____ **Site/UTM:** _____

Observer: ERR **Ownership:** BLM STATE OTHER **Photo:** Y / N **Date** 6/24

Noxious Weed Species, Cover, Phenological Stage, and Estimated Density WITHIN Project				
Species	Cover (%)	Phenology	Infested Area (ft x ft)	Estimated Density (stem/0.01 ac, i.e. 21 ft²)
Tamarix spp.	<5	Rose Bolt Bud Flwr (Seed)	20X20	<1 (1-5) 5-10 10-20 20-50 50-100 >100
Halogeton	<5	Rose Bolt Bud (Flwr) Seed	50X50	<1 1-5 (5-10) 10-20 20-50 50-100 >100
Cheat grass	<5	Rose Bolt Bud Flwr (Seed)	50X50	<1 (1-5) 5-10 10-20 20-50 50-100 >100
0		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
Noxious Weed Species, Cover, Phenological Stage, and Estimated Density ADJACENT to Project				
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100

GPS Locations of Invasions:

wp 001

Site Conditions (adjacent land use, existing disturbance including wildife, vehicular, pipelines, erosion)

Exsisting disturbance

Weed Origination, if known (adjacent, elsewhere from project, other)

Comments/Recommendations: **No Action**_____ **Monitor**_____ **Weed Control**_____

Flagged Site? Y / N

Hand-pulled weeds within project during inventory? Y / N

Attachment C

Line-Point Intercept Data Form

Page ___ of ___ Site: South Portal Line: T2

Observer: IRG, ERK Recorder: _____ Line Length: 50 m

Direction (Azimuth): 245° Date: 6/24/13 (mm/dd/yyyy) Intercept (Point) Spacing Interval: _____ m

Pt.	Top Layer	Lower Canopy Layers Code1	Code2	Code3	Soil Surface	Pt.	Top Layer	Lower Canopy Layers Code1	Code2	Code3	Soil Surface
1					S	26					S
2					R	27					R
3	ASTRA				S	28				WL	S
4					S	29	ERCO			L	S
5	GUSA				S	30				L	S
6				L	S	31					S
7					S	32					S
8	GUSA			L	S	33					S
9					S	34					R
10					S	35					S
11					S	36					R
12					S	37					R
13					S	38					S
14					S	39					S
15					R	40					S
16					S	41					S
17					S	42					R
18					S	43					S
19					S	44					S
20					S	45					S
21					S	46					S
22					S	47					R
23					S	48					S
24					R	49					S
25					S	50					S

% Foliar Cover = 4 top layer pts (1st col) x 2= 8 %

% Bare Ground* = 34 pts (w/NONE)) x 2= 68 %

% Basal Cover = 0 plant base pts (last col) x 2= 0 %

**Bare ground only occurs when Top Layer = None, Lower Layers are empty (no L), and Soil Surface = S.*

Top Layer Codes:
- Species code
- Common name
- NONE (no cover)

Lower Layer Codes:
- Species code
- Common name
- L (herbaceous litter)
- WL (woody litter, >5 mm (~1/4 in) diameter)

Unknown Species Codes:
- AF#= annual forb
- PF#= perennial forb
- AG#= annual graminoid
- PG#+perennial graminoid
- SH#= shrub
- TR#= tree

Soil Surface (do not use litter):
- Species Code (for basal intercept)
- R= rock fragment (>5 mm (~1/4 in) diameter)
- BR= bedrock
- M= moss
- LC= visible biotic crist on soil
- S= soil w/o any other soil surface code
- EL= embedded litter
- D= Duff

Attachment D

Vegetative Species Inventory Form

Encana Oil & Gas (USA), Inc.

Project Name: EF South Portal

Site: T-2

Observer/Recorder: VKG, ERK **Date:** 6/24/13 **Weather:** _____

Code	Nox?	Species	Code	Nox?	Species
		Green Mo[illegible]			
GUSA		Snake weed			
ACHY		Indian ricegrass			
		[illegible] saltbush			
		Chrysothamnus spp.			
		[illegible]			
		Utah Juniper			
		Halogeton			
CHNA		Rubber rabbitbrush			
		Galleta grass			
		Indian paintbrush			
		Eriogonum corymbosum			
ELEL		bottlebrush squirreltail			
		Russian Thistle			

% Tree Cover_____ **Dominant Tree Species:** _____

% Shrub Cover_____ **Dominant Shrub Species:** _____

Page _____ **of** _____

South Portal Transect 2

Attachment E

Invasive Species Inventory Form

Project Name: _____ Site/UTM: _____

Observer:_____ Ownership: BLM STATE OTHER Photo: Y / N Date_____

Noxious Weed Species, Cover, Phenological Stage, and Estimated Density WITHIN Project				
Species	Cover (%)	Phenology	Infested Area (ft x ft)	Estimated Density (stem/0.01 ac, i.e. 21 ft^2)
Halogeton	<5	Rose Bolt Bud (Flwr) Seed	50x50	<1 (1-5) 5-10 10-20 20-50 50-100 >100
Russian thistle	<5	Rose Bolt Bud (Flwr) Seed	50x50	<1 (1-5) 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
Noxious Weed Species, Cover, Phenological Stage, and Estimated Density ADJACENT to Project				
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100

GPS Locations of Invasions:

Site Conditions (adjacent land use, existing disturbance including wildife, vehicular, pipelines, erosion)

Weed Origination, if known (adjacent, elsewhere from project, other)

Comments/Recommendations: No Action_____ Monitor_____ Weed Control_____

Flagged Site? Y / N

Hand-pulled weeds within project during inventory? Y / N

Attachment C

Line-Point Intercept Data Form

Page ____ of ____ Site: Santa Teresa Line: T3

Observer: _____ Recorder: _____ Line Length: _____ m

Direction (Azimuth): 330° Date: 6/24/13 (mm/dd/yyyy) Intercept (Point) Spacing Interval: _____ m

Pt.	Top Layer	Lower Canopy Layers Code1	Code2	Code3	Soil Surface	Pt.	Top Layer	Lower Canopy Layers Code1	Code2	Code3	Soil Surface
1					S	26					S
2					S	27					S
3					S	28					S
4					S	29					S
5					S	30					S
6					R	31					S
7					S	32					S
8					S	33					S
9					R	34					R
10					S	35					S
11					S	36	HAGL				S
12					S	37	ACHY			L	S
13					S	38					S
14					S	39					S
15					S	40					S
16					S	41					S
17					S	42					R
18					S	43					S
19					S	44					R
20					R	45					R
21					S	46					R
22					S	47					S
23					S	48					S
24					R	49					S
25					S	50					R

% Foliar Cover = 2 top layer pts (1st col) x 2= 4 %

% Bare Ground* = 38 pts (w/NONE)) x 2= 76 %

% Basal Cover = 0 plant base pts (last col) x 2= 0 %

**Bare ground only occurs when Top Layer = None, Lower Layers are empty (no L), and Soil Surface = S.*

Top Layer Codes:
- Species code
- Common name
- NONE (no cover)

Lower Layer Codes:
- Species code
- Common name
- L (herbaceous litter)
- WL (woody litter, >5 mm (~1/4 in) diameter)

Unknown Species Codes:
- AF#= annual forb
- PF#= perennial forb
- AG#= annual graminoid
- PG#+perennial graminoid
- SH#= shrub
- TR#= tree

Soil Surface (do not use litter):
- Species Code (for basal intercept)
- R= rock fragment (>5 mm (~1/4 in) diameter)
- BR= bedrock
- M= moss
- LC= visible biotic crist on soil
- S= soil w/o any other soil surface code
- EL= embedded litter
- D= Duff

Attachment D

Vegetative Species Inventory Form

Encana Oil & Gas (USA), Inc.

Project Name: EF South Portal

Site: T3

Observer/Recorder: GRK **Date:** 6/24/13 **Weather:** _____

Code	Nox?	Species	Code	Nox?	Species
ACHY		Indian ricegrass			
		Halogeton			
GUSA		Snakeweed			
		Shadscale			
		Small wirelettuce			

% Tree Cover_____ **Dominant Tree Species:** _____

% Shrub Cover_____ **Dominant Shrub Species:** _____

Page _____ **of** _____

South Portal Tract 3

Attachment E

Invasive Species Inventory Form

Project Name: T3 Site/UTM: _____

Observer: _____ Ownership: BLM STATE OTHER Photo: Y / N Date _____

Noxious Weed Species, Cover, Phenological Stage, and Estimated Density WITHIN Project				
Species	Cover (%)	Phenology	Infested Area (ft x ft)	Estimated Density (stem/0.01 ac, i.e. 21 ft^2)
Halogeton	<5%	Rose Bolt Bud Flwr Seed	10 X 10	<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
Noxious Weed Species, Cover, Phenological Stage, and Estimated Density ADJACENT to Project				
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100

GPS Locations of Invasions:

Site Conditions (adjacent land use, existing disturbance including wildife, vehicular, pipelines, erosion)

Weed Origination, if known (adjacent, elsewhere from project, other)

Comments/Recommendations: No Action_____ Monitor_____ Weed Control_____

Flagged Site? Y / N

Hand-pulled weeds within project during inventory? Y / N

Attachment C

Line-Point Intercept Data Form

Page ____ of ____ Site: South Portal Line: T4

Observer: ERK Recorder: VKG Line Length: _____ m

Direction (Azimuth): 275° Date: 06/24/13 (mm/dd/yyyy) Intercept (Point) Spacing Interval: _____ m

Pt.	Top Layer	Lower Canopy Layers Code1	Code2	Code3	Soil Surface	Pt.	Top Layer	Lower Canopy Layers Code1	Code2	Code3	Soil Surface
1	JUOS			L	S	26					S
2				L	S	27				L	S
3	JUOS			L	S	28					R
4				L	S	29	PLSA			L	S
5	CHER			L	S	30	GUSA			L	S
6					S	31				L	S
7					S	32	GUSA	PLSA		L	S
8					S	33					S
9				L	S	34				WL	S
10					S	35					R
11	GUSA			L	S	36					R
12					S	37	JUOS				S
13				L	S	38					R
14	PLJA			L	S	39				L	S
15					S	40	JUOS			L	S
16					S	41				L	S
17				L	S	42					S
18	GUSA				S	43					R
19					S	44					S
20					S	45					S
21					S	46					R
22					S	47					R
23					S	48					S
24					S	49					S
25					S	50					S

% Foliar Cover = 11 top layer pts (1st col) x 2= 22 %

% Bare Ground* = 22 pts (w/NONE)) x 2= 44 %

% Basal Cover = 0 plant base pts (last col) x 2= 0 %

**Bare ground only occurs when Top Layer = None, Lower Layers are empty (no L), and Soil Surface = S.*

Top Layer Codes:
- Species code
- Common name
- NONE (no cover)

Lower Layer Codes:
- Species code
- Common name
- L (herbaceous litter)
- WL (woody litter, >5 mm (~1/4 in) diameter)

Unknown Species Codes:
- AF#= annual forb
- PF#= perennial forb
- AG#= annual graminoid
- PG#+perennial graminoid
- SH#= shrub
- TR#= tree

Soil Surface (do not use litter):
- Species Code (for basal intercept)
- R= rock fragment (>5 mm (~1/4 in) diameter)
- BR= bedrock
- M= moss
- LC= visible biotic crist on soil
- S= soil w/o any other soil surface code
- EL= embedded litter
- D= Duff

Attachment D

Vegetative Species Inventory Form

Encana Oil & Gas (USA), Inc.

Project Name: EF South Portal

Site: T4

Observer/Recorder: ERK **Date:** 6/24/13 **Weather:**

Code	Nox?	Species	Code	Nox?	Species
		Mormon tea			
GUSA		Snakeweed			
		Cheatgrass			
		Galleta grass			
		Utah Juniper			
ACHY		Indian ricegrass			
		Rose heath			
		Pricklypear cactus			
		Desert 4 o'clock			

% Tree Cover_____ **Dominant Tree Species:** _____

% Shrub Cover_____ **Dominant Shrub Species:** _____

Page _____ **of** _____

Attachment E

Invasive Species Inventory Form

Project Name: EF South Portal Site/UTM: Transect 4

Observer: ZK-12 Ownership: BLM STATE OTHER Photo: Y / N Date

Noxious Weed Species, Cover, Phenological Stage, and Estimated Density WITHIN Project				
Species	Cover (%)	Phenology	Infested Area (ft x ft)	Estimated Density (stem/0.01 ac, i.e. 21 ft^2)
None observed		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
Noxious Weed Species, Cover, Phenological Stage, and Estimated Density ADJACENT to Project				
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100

GPS Locations of Invasions:

Site Conditions (adjacent land use, existing disturbance including wildife, vehicular, pipelines, erosion)

Weed Origination, if known (adjacent, elsewhere from project, other)

Comments/Recommendations: No Action_____ Monitor_____ Weed Control_____

Flagged Site? Y / N

Hand-pulled weeds within project during inventory? Y / N

Attachment C

Line-Point Intercept Data Form

Page ___ of ___ Site: Bullseye Line: T1

Observer: VKG Recorder: ERic Line Length: 50 m

Direction (Azimuth): 42° Date: 6/24/13 (mm/dd/yyyy) Intercept (Point) Spacing Interval: ___ m

Pt.	Top Layer	Lower Canopy Layers Code1	Code2	Code3	Soil Surface	Pt.	Top Layer	Lower Canopy Layers Code1	Code2	Code3	Soil Surface
1					S	26					S
2					S	27	SALA				S
3					S	28					S
4					S	29					S
5					S	30					S
6	HAGL			L	S	31					S
7					S	32					S
8					S	33					S
9					S	34					S
10					S	35					S
11					S	36					R
12					S	37					S
13					S	38					S
14					S	39					S
15					S	40					R
16					S	41					R
17					S	42					R
18					S	43					S
19					S	44					S
20					S	45					S
21					S	46					S
22					S	47	HAGL				S
23					S	48					S
24					S	49					S
25					S	50					S

% Foliar Cover = 3 top layer pts (1st col) x 2= 6 %

% Bare Ground* = 43 pts (w/NONE)) x 2= 86 %

% Basal Cover = 0 plant base pts (last col) x 2= 0 %

**Bare ground only occurs when Top Layer = None, Lower Layers are empty (no L), and Soil Surface = S.*

Top Layer Codes:
- Species code
- Common name
- NONE (no cover)

Lower Layer Codes:
- Species code
- Common name
- L (herbaceous litter)
- WL (woody litter, >5 mm (~1/4 in) diameter)

Unknown Species Codes:
- AF#= annual forb
- PF#= perennial forb
- AG#= annual graminoid
- PG#+perennial graminoid
- SH#= shrub
- TR#= tree

Soil Surface (do not use litter):
- Species Code (for basal intercept)
- R= rock fragment (>5 mm (~1/4 in) diameter)
- BR= bedrock
- M= moss
- LC= visible biotic crist on soil
- S= soil w/o any other soil surface code
- EL= embedded litter
- D= Duff

Attachment D

Vegetative Species Inventory Form

Encana Oil & Gas (USA), Inc.

Project Name: EF Bullseye

Site: T-1

Observer/Recorder: ERK **Date:** 6/24/13 **Weather:** _____

Code	Nox?	Species	Code	Nox?	Species
		Eriogonum corymbosum			
GUSA		Snakeweed			
		Shadscale saltbush			
		UNKN Cheno			
		Indian grass			
		Halogeton			
CHNA		Rubber rabbitbrush			
SAKA		Russian-thistle			
		Eriogonum rotundifolium			

% Tree Cover_____ **Dominant Tree Species:** _____

% Shrub Cover_____ **Dominant Shrub Species:** _____

Page _____ **of** _____

Attachment E

Invasive Species Inventory Form

Project Name: EF Bullseye **Site/UTM:** T-1

Observer: ERIC **Ownership:** BLM STATE OTHER **Photo:** Y / N **Date** 6/24/13

Noxious Weed Species, Cover, Phenological Stage, and Estimated Density WITHIN Project				
Species	Cover (%)	Phenology	Infested Area (ft x ft)	Estimated Density (stem/0.01 ac, i.e. 21 ft^2)
Halogeton	25	Rose Bolt Bud Flwr Seed	10 X 10	<1 1-5 5-10 10-20 20-50 50-100 >100
Russian thistle	25	Rose Bolt Bud Flwr Seed	10 X 10	<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
Noxious Weed Species, Cover, Phenological Stage, and Estimated Density ADJACENT to Project				
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100

GPS Locations of Invasions:

Site Conditions (adjacent land use, existing disturbance including wildife, vehicular, pipelines, erosion)

Weed Origination, if known (adjacent, elsewhere from project, other)

Comments/Recommendations: **No Action**_____ **Monitor**_____ **Weed Control**_____

Flagged Site? Y / N

Hand-pulled weeds within project during inventory? Y / N

Attachment C

Line-Point Intercept Data Form

Page ____ of ____ Site: Bullseye Line: T2

Observer: ERK Recorder: Graham Line Length: 50 m

Direction (Azimuth): 223° Date: 6/24/13 (mm/dd/yyyy) Intercept (Point) Spacing Interval: _____ m

Pt.	Top Layer	Lower Canopy Layers Code1	Code2	Code3	Soil Surface	Pt.	Top Layer	Lower Canopy Layers Code1	Code2	Code3	Soil Surface
1				L	S	26	GUSA			L	S
2	PLJA			L	S	27				L	S
3				L	S	28	GUSA			L	S
4					S	29					S
5				L	S	30					S
6	GUSA			L	S	31	GUSA			L	S
7				L	S	32				L	S
8				L	S	33				L	S
9					S	34	GUSA			L	S
10					S	35				L	S
11					S	36	ATCA			L	S
12					S	37				L	S
13					S	38					S
14				L	S	39					S
15					S	40	CHNA			L	S
16				L	S	41	GUSA			L	S
17					S	42				L	S
18	SAKA			L	S	43				L	S
19	ATCA			L	S	44	ERIN4			L	S
20					S	45					S
21					S	46				WL	S
22	SAKA				S	47					S
23	SAKA				S	48					S
24				L	S	49					S
25					S	50	CHNA			L	S

% Foliar Cover = 15 top layer pts (1st col) x 2= 30 %

% Bare Ground* = 25 pts (w/NONE)) x 2= 50 %

% Basal Cover = 0 plant base pts (last col) x 2= 0 %

**Bare ground only occurs when Top Layer = None, Lower Layers are empty (no L), and Soil Surface = S.*

Top Layer Codes:
- Species code
- Common name
- NONE (no cover)

Lower Layer Codes:
- Species code
- Common name
- L (herbaceous litter)
- WL (woody litter, >5 mm (~1/4 in) diameter)

Unknown Species Codes:
- AF#= annual forb
- PF#= perennial forb
- AG#= annual graminoid
- PG#+perennial graminoid
- SH#= shrub
- TR#= tree

Soil Surface (do not use litter):
- Species Code (for basal intercept)
- R= rock fragment (>5 mm (~1/4 in) diameter)
- BR= bedrock
- M= moss
- LC= visible biotic crist on soil
- S= soil w/o any other soil surface code
- EL= embedded litter
- D= Duff

Attachment D

Vegetative Species Inventory Form

Encana Oil & Gas (USA), Inc.

Project Name: EF Bullseye

Site: T2

Observer/Recorder: ERL **Date:** 6/24/13 **Weather:**

Code	Nox?	Species	Code	Nox?	Species
		4-wing saltbush			
		galleta grass			
		Aristida purpurea			
		Arizona fescue			
GUSA		Snakeweed			
		Astragalus spp.			
		Small wire lettuce			
CHNA		Rubber rabbitbrush			
		Eriogonum corymbosum			
ACHY		Indian ricegrass			
		Russian thistle			
		[illegible]			
		Cheat grass			
		Narrowleaf yucca			
		[illegible]			
		[illegible]			
SPCR		Sand dropseed			
		Eriogonum inflatum			

% Tree Cover_____ **Dominant Tree Species:** _____

% Shrub Cover_____ **Dominant Shrub Species:** _____

Page ____ **of** ____

Attachment E

Invasive Species Inventory Form

Project Name: EF Bullseye **Site/UTM:** T2

Observer: ERK **Ownership:** BLM STATE OTHER **Photo:** Y / N **Date** 6/24/13

Noxious Weed Species, Cover, Phenological Stage, and Estimated Density WITHIN Project				
Species	Cover (%)	Phenology	Infested Area (ft x ft)	Estimated Density (stem/0.01 ac, i.e. 21 ft^2)
Russian thistle	<5	Rose Bolt Bud Flwr Seed	20x20	<1 1-5 5-10 10-20 20-50 50-100 >100
Cheat grass	<5	Rose Bolt Bud Flwr Seed	20x20	<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
Noxious Weed Species, Cover, Phenological Stage, and Estimated Density ADJACENT to Project				
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100

GPS Locations of Invasions:

Site Conditions (adjacent land use, existing disturbance including wildife, vehicular, pipelines, erosion)

Weed Origination, if known (adjacent, elsewhere from project, other)

Comments/Recommendations: **No Action**_____ **Monitor**_____ **Weed Control**_____

Flagged Site? Y / N

Hand-pulled weeds within project during inventory? Y / N

Line-Point Intercept Data Form

Page ___ of ___ Site: Bullseye Line: T3

Observer: ERK Recorder: Graham Line Length: 50 m

Direction (Azimuth): 355 Date: 6/24/13 (mm/dd/yyyy) Intercept (Point) Spacing Interval: _____ m

Pt.	Top Layer	Lower Canopy Layers Code1	Code2	Code3	Soil Surface	Pt.	Top Layer	Lower Canopy Layers Code1	Code2	Code3	Soil Surface
1	PLJA			L	S	26					S
2				L	S	27					S
3				L	S	28				L	S
4					S	29	GUSA			L	S
5				L	S	30					S
6	GUSA			L	S	31					S
7					S	32					R
8					S	33					R
9				L	S	34					S
10				L	S	35					S
11				WL	S	36					S
12	PLJA			L	S	37					R
13					S	38					S
14					S	39				L	S
15					S	40					S
16				L	S	41				L	S
17					S	42					S
18	PLJA				S	43					R
19					S	44					S
20				L	S	45					S
21					S	46	GUSA			L	S
22					S	47					R
23					S	48					R
24					S	49	PLJA				S
25	GUSA			L	S	50					S

% Foliar Cover = 8 top layer pts (1st col) x 2= 16 %

% Bare Ground* = 26 pts (w/NONE)) x 2= 52 %

% Basal Cover = 0 plant base pts (last col) x 2= 0 %

**Bare ground only occurs when Top Layer = None, Lower Layers are empty (no L), and Soil Surface = S.*

Top Layer Codes:
- Species code
- Common name
- NONE (no cover)

Lower Layer Codes:
- Species code
- Common name
- L (herbaceous litter)
- WL (woody litter, >5 mm (~1/4 in) diameter)

Unknown Species Codes:
- AF#= annual forb
- PF#= perennial forb
- AG#= annual graminoid
- PG#+perennial graminoid
- SH#= shrub
- TR#= tree

Soil Surface (do not use litter):
- Species Code (for basal intercept)
- R= rock fragment (>5 mm (~1/4 in) diameter)
- BR= bedrock
- M= moss
- LC= visible biotic crist on soil
- S= soil w/o any other soil surface code
- EL= embedded litter
- D= Duff

Attachment D

Vegetative Species Inventory Form

Encana Oil & Gas (USA), Inc.

Project Name: EF Bullseye

Site: T-3

Observer/Recorder: RRK **Date:** 6/24/13 **Weather:**

Code	Nox?	Species	Code	Nox?	Species
GUSA		Snakeweed			
		Shadscale saltbush			
ATCA		4-wing saltbush			
		Galleta grass			
ACHY		Indian ricegrass			
		Ephedra torreyana			
		Mormon tea			
		Utah Juniper			
		Yucca			
		Astragalus spp.			
		Wyoming sage			
CHNA		Rubber rabbitbrush			
		Lemon Scurfpea			
		claret cup cactus			
		Mahonia fremontii			
		Rose heath			
		Opuntia polycantha			
		Spruce (UNKN)			
		Batibida columnifera			

% Tree Cover_____ **Dominant Tree Species:** _____

% Shrub Cover_____ **Dominant Shrub Species:** _____

Page _____ **of** _____

Attachment E

Invasive Species Inventory Form

Project Name: EF Bullseye **Site/UTM:** T-3

Observer: VKG **Ownership:** BLM STATE OTHER **Photo:** Y / N **Date** 6/24/13

Noxious Weed Species, Cover, Phenological Stage, and Estimated Density WITHIN Project				
Species	Cover (%)	Phenology	Infested Area (ft x ft)	Estimated Density (stem/0.01 ac, i.e. 21 ft²)
TOMANSK	<5	Rose Bolt Bud Flwr Seed	2 X 2	<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
Noxious Weed Species, Cover, Phenological Stage, and Estimated Density ADJACENT to Project				
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100
		Rose Bolt Bud Flwr Seed		<1 1-5 5-10 10-20 20-50 50-100 >100

GPS Locations of Invasions:

Waypoint 002

Site Conditions (adjacent land use, existing disturbance including wildife, vehicular, pipelines, erosion)

Weed Origination, if known (adjacent, elsewhere from project, other)

Comments/Recommendations: **No Action**_____ **Monitor**_____ **Weed Control**_____

Flagged Site? Y / N

Hand-pulled weeds within project during inventory? Y / N

Daneros Mine Soil and Vegetation Sampling

Denison Mines USA Corp

July 2012

DANEROS SOIL AND VEGETATION DATA

Energy Fuels personnel collected soil samples and surveyed vegetation within the proposed Bullseye and South portal areas on June 27, 2012. Four soil samples were collected at the Bullseye site (DB prefix series) and six soil samples were collected at the South site (Daneros prefix). The vegetation was photographed and assessed at each soil sample location and GPS coordinates were recorded.

The soil samples were analyzed by the Colorado State University Soil, Water and Plant Testing Laboratory. Edge Environmental, Inc. evaluated the results and rated all of soil samples as having good suitability for topsoil using the Utah Division of Oil, Gas and Mining's "The Practical Guide to Reclamation in Utah." Edge's evaluation and the laboratory results immediately follow this summary.

The vegetation at the Bullseye and South portal areas is sparse due to the arid climate. Vegetation cover estimates ranged from 10 to 50 percent at the Bullseye site and 0 to 60 percent at the South site. The average vegetation cover was approximately 27 percent at both sites. The vegetation survey estimates and photographs are provided at the end of this attachment. Sample/survey locations for the Bullseye and South sites are provided in Figures 1 and 2, respectively. No sampling or surveys were collected within those areas impacted by historic mining.

February 12, 2013

Frank Filas
Director of Environmental Permitting and Compliance
Energy Fuels Resources (USA) Inc.
225 Union Blvd., Suite 600
Lakewood, CO 80228

Re: Review of Daneros Mine Soil Data

Dear Frank:

As you requested, I compared the soil sample analysis data you provided from the Daneros Mine with Table 3.1 (shown below) from the Utah Division of Oil Gas and Mining - The Practical Guide to Reclamation in Utah[1].

Table 3.1
Soils Suitability Table*

	Good	Fair	Difficult	Expect Problems
pH	6.1 to 8.2	5.1 to 6.1 8.2 to 8.4	4.5 to 5.0 8.5 to 9.0	less than 4.5 >9.0
EC (mmhos/cm)	0 to 4	4 to 8	8 to 15	>15
SAR	0 to 4	5 to 10	10 to 12	>12
texture**	sl, l, sil, scl, vfsl, fsl	c, sicl, sc, ls, fs	sic, s, sc, c, cos, fs, vfs	g, vcos
avail water holding	>0.10 moderate	0.05 to 0.10 low	<0.05 (very low)	

*Soil suitability rating may vary based on the pre-existing plant community and soil types and desired postmining plant community.
**s=sand, l= loam, si= silt, c= clay, v= very, f= fine, co=coarse, g=gravel

[1] https://fs.ogm.utah.gov/PUB/MINES/Coal_Related/RecMan/Reclamation_Manual.pdf

The results of the sampling efforts indicate:

- All of the soils have a sandy clay loam or sandy loam texture, which is rated as good for topsoil suitability.

- None of the soil samples are saline, because the electrical conductivity (EC) is less than 4.0 mhos/cm and they have a good rating for topsoil suitability.

- None of the soil samples are sodic because the sodium adsorption ratio (SAR) is less than 12. All of the soil samples, except one are rated good for topsoil suitability in regards to SAR values. One sample (R49 - Daneros A-7) had a SAR of 4.2 which is rated as fair for topsoil suitability.

- All of the soils samples, except for two, have pH values which are rated as good for topsoil suitability. The other two samples (R49, Daneros A-7, and R58 DB-4-4) have a pH of 8.4 which is rated as fair for topsoil suitability.

- All of the soil samples are non-acid producing because the acid base potential (A:B) is greater than 5 tons/1,000 tons of material.

- All of the soil samples appeared to have normal concentrations of nutrients for semi-arid rangeland soils.

In summary, all of the soil samples rated as having a good suitability for topsoil. Although several soils had a soil analysis parameter (pH, SAR) which is rated fair for topsoil suitability, the other soil parameters for these samples were rated good, and their higher pH ranges are expected for some semi-arid rangeland soils.

If you need any additional information regarding the soil analysis review please let me know.

Sincerely

Dan Duce

Dan Duce

Christy Woodward/Denison Mines (USA) Corp.
1050 17th St Ste 950
Denver CO 80265

Colorado State University
Soil, Water and Plant Testing Laboratory
Natural & Environmental Sciences Bldg - A319
Fort Collins, CO 80523-1120

(970) 491-5061 FAX: 491-2930

DATE RECEIVED: 07-03-2012
DATE REPORTED: 08-07-2012

BILLING:

RESEARCH SOIL ANALYSIS

Lab #	Sample ID #	paste pH	paste EC mmhos/cm	% OM	AB-DTPA ppm NO_3-N	P	K	Zn	Fe	Mn	Cu	CEC meq/100g
R49	Daneros A-7	8.4	0.5	0.7	0.1	1.2	512	2.8	3.3	2.1	69.2	21.6
R50	Daneros A-2	8.1	0.3	1.6	0.6	1.0	404	0.26	2.0	1.4	5.1	19.0
R51	Daneros A-3	8.2	0.3	1.1	0.9	2.0	349	0.23	2.4	0.88	2.9	20.9
R52	Daneros A-4	8.1	0.3	1.0	1.4	1.0	297	0.32	2.7	1.4	4.0	18.0
R53	Daneros A-5	8.1	0.6	1.4	1.1	1.0	373	0.12	1.3	1.2	1.4	19.9
R54	Daneros A-6	8.2	0.3	1.1	0.7	1.0	232	0.10	1.1	0.95	0.69	14.6
R55	DB1 6-27-12	6.9	1.4	0.2	0.7	1.5	107	3.6	3.7	0.75	47.4	10.5
R56	DB2-2 6-27-12	8.2	0.8	0.9	1.5	9.5	272	0.51	2.6	2.1	3.8	15.3
R57	DB 3 6-27-12	6.8	1.1	0.3	0.5	1.0	120	3.8	2.5	1.1	22.2	7.2
R58	DB-4-4	8.4	0.3	0.6	0.4	1.0	267	0.32	1.4	1.4	1.7	14.5

Lab #	Sample ID #	meq/L Ca	meq/L Mg	meq/L Na	meq/L K	SAR	% Sand	% Silt	% Clay	Texture	Total N %
R49	Daneros A-7	1.3	0.5	4.1	0.2	4.2	62	6	32	Sandy Clay Loam	0.090
R50	Daneros A-2	2.0	0.6	0.2	0.2	0.2	56	23	21	Sandy Clay Loam	0.100
R51	Daneros A-3	2.1	0.4	0.2	0.2	0.2	60	21	19	Sandy Loam	0.081
R52	Daneros A-4	2.0	0.4	0.3	0.2	0.3	60	14	26	Sandy Clay Loam	0.078
R53	Daneros A-5	5.1	1.0	0.8	0.4	0.5	50	26	24	Sandy Clay Loam	0.079
R54	Daneros A-6	2.7	0.7	0.3	0.3	0.2	61	21	18	Sandy Loam	0.056
R55	DB1 6-27-12	17.0	5.7	0.9	0.4	0.3	77	5	18	Sandy Loam	0.035
R56	DB2-2 6-27-12	4.8	1.6	3.5	0.8	2.0	58	21	21	Sandy Clay Loam	0.065
R57	DB 3 6-27-12	14.1	3.3	0.4	0.3	0.1	74	10	16	Sandy Loam	0.036
R58	DB-4-4	2.7	0.8	0.3	0.3	0.2	66	16	18	Sandy Loam	0.046

Christy Woodward/Denison Mines (USA) Corp.
1050 17th St Ste 950
Denver CO 80265

Colorado State University
Soil, Water and Plant Testing Laboratory
Natural & Environmental Sciences Bldg - A319
Fort Collins, CO 80523-1120

(970) 491-5061 FAX: 491-2930

DATE RECEIVED: 07-03-2012
DATE REPORTED: 08-07-2012

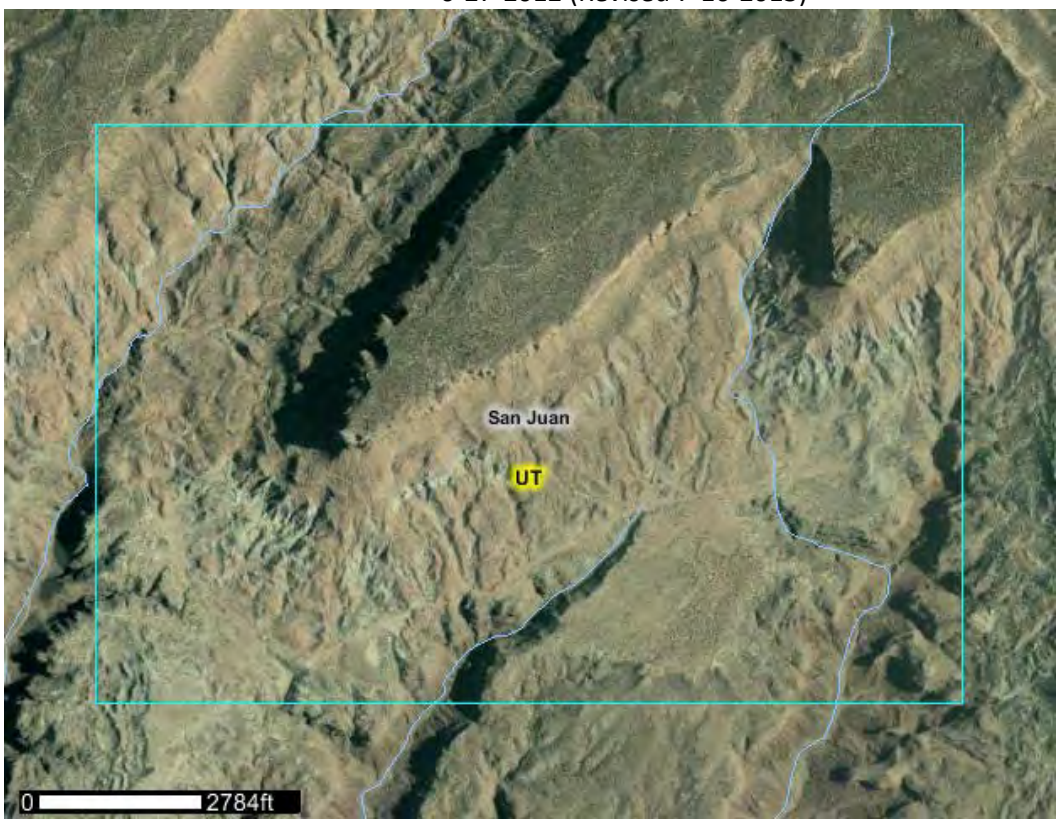
BILLING:

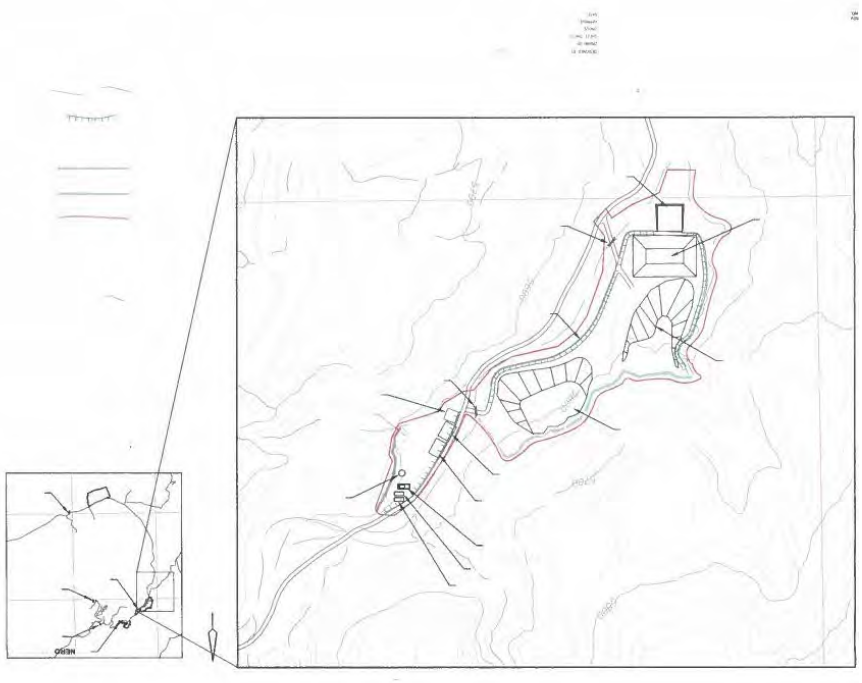
RESEARCH SOIL ANALYSIS

Lab #	Sample ID #	% $CaCO_3$ equiv	Total S %	A:B potential *
R49	Daneros A-7	4.11	0.038	39.9
R50	Daneros A-2	14.2	0.023	141
R51	Daneros A-3	6.41	0.062	62.2
R52	Daneros A-4	8.32	0.052	81.6
R53	Daneros A-5	7.76	0.066	75.6
R54	Daneros A-6	4.51	0.018	44.5
R55	DB1 6-27-12	1.73	0.117	13.6
R56	DB2-2 6-27-12	7.32	0.073	70.9
R57	DB 3 6-27-12	2.16	0.092	18.7
R58	DB-4-4	7.98	0.025	79.0

* Acid:Base potential based on (10)x(%$CaCO_3$ equiv.)-(31.25)x(%Total S)
** Acid:Base potential based on (10)x(%$CaCO_3$ equiv.)-(31.25)x(% pyritic S)
A:B potential calculated as: Tons of $CaCO_3$ per 1000 tons of material

Topsoil Samples
Vegetation Survey
Proposed Modifications Bullseye Site
6-27-2012 (Revised 7-16-2013)





The overall landscape of this site consists of a historic mint site with waste rock exposed. The topsoil is rocky with rock outcroppings and bedrock exposed on approximately 30% of the surface. 20% is pinion, sagebrush and juniper with some grasses and other vegetation as documented.

Elevation at the site is 5571ft. The site is located in a natural drainage and major erosion is evident.

Four soil samples were gathered from different areas throughout the site and these GPS locations and vegetation surveys were recorded. Vegetation surveys were conducted in 3' diameter areas.

The soil depths are also recorded for these locations.

DB1

N 37° 35' 38.9"

W110° 11' 57.4"

Soil mixed with small rocks

17 inches to bedrock

30% brush

20% rock and debris

50% bare soil

DB2

N 37° 35' 38.6"

W 110° 11' 57.4"

Rocky topsoil

20 inches to bedrock

20% grass

30% rabbit brush

20 % rock/debris

30% bare soil

DB3

N 37° 35’ 38.3”

W 110° 11’ 58.5”

6-8 inches to bedrock

10% grass

10% rock/debris

80% bare soil

DB4

N 37° 35’ 37.8”

W 110° 11’ 59.8”

Rocky topsoil

51 inches to bedrock

20% grass

10% rock/debris

70% bare soil

Legend

- Soil Sample Location

N

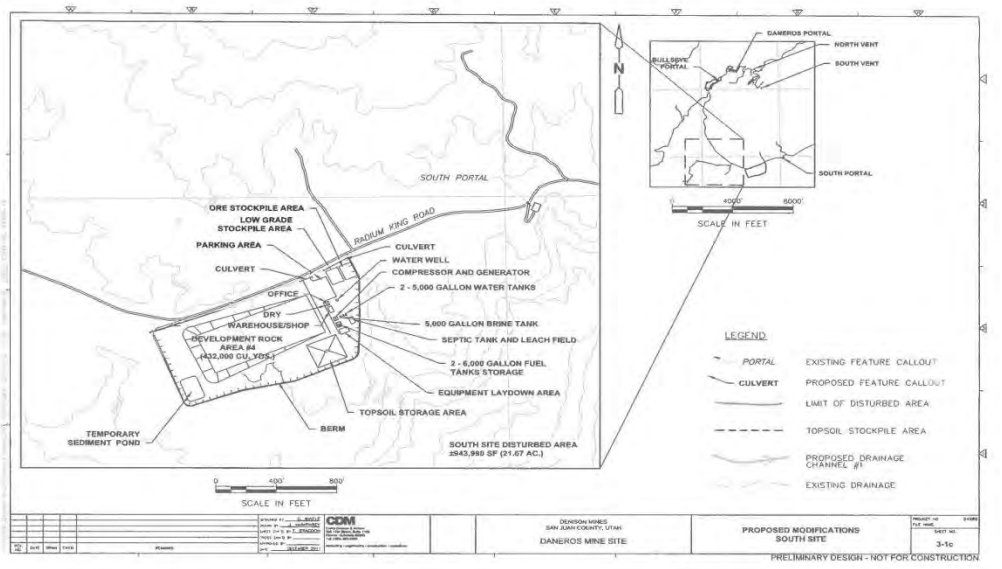
100 50 0 100

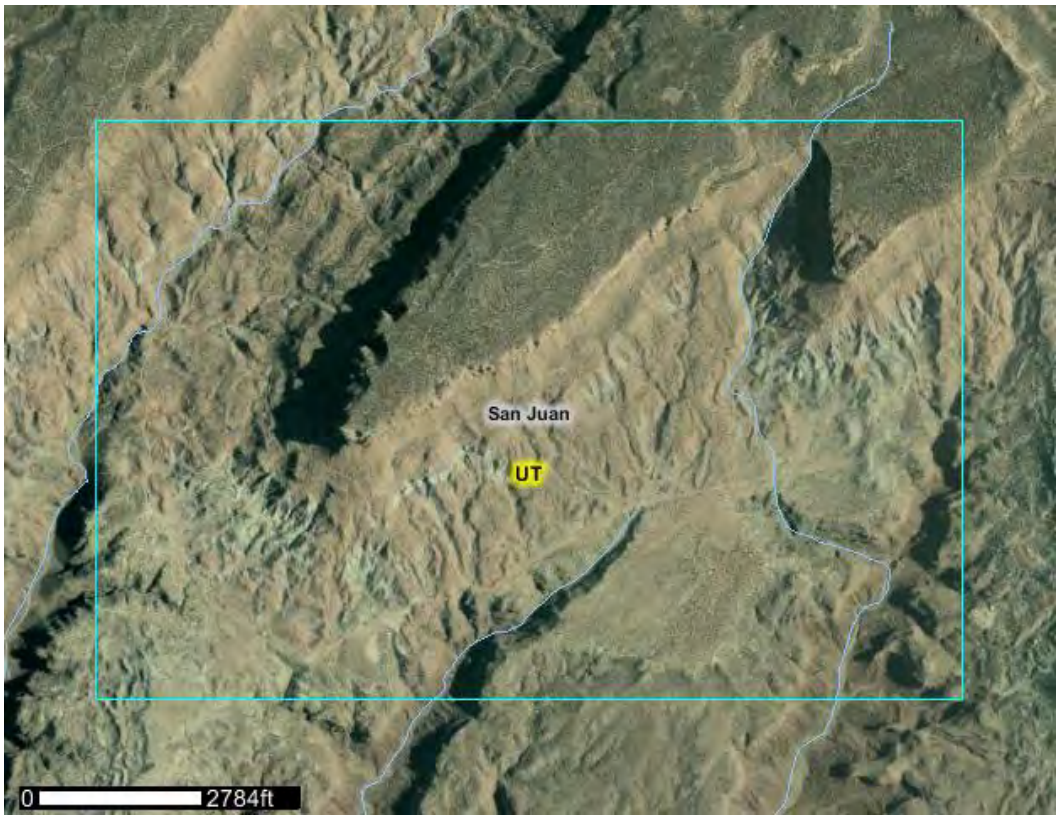
Feet

Figure 1

Bullseye Portal Area
Soil Sample Locations

Topsoil Samples
Vegetation Survey
Proposed Modifications South Site
Site DA
6-27-2012





Topsoil Samples
Vegetation Survey
Proposed Modifications South Site
Site DA
6-27-2012

The overall landscape of the South site consists of a historic mine site with waste rock exposed. The topsoil is rocky with rock outcroppings and bedrock exposed on approximately 20 to 30% of the surface. 10-20% is pinion, 35% sagebrush and juniper with some grasses and other vegetation as documented.

There is drainage running through the site. is located in a natural drainage and major erosion is evident.

six soil samples were gathered from different areas throughout the site and the following GPS locations and vegetation surveys were recorded. Vegetation surveys were conducted in 3’ diameter areas.

The soil depths are also recorded for these locations.

DA-1

N 37° 34’ 33.0”

W 110° 11’ 23.3”

Vegetation Survey

30% Rabbit Brush

10% grass

10% rock/debris

50% bare

Topsoil Samples
Vegetation Survey
Proposed Modifications South Site
Site DA
6-27-2012

DA-2

N 37° 34’ 30.9”

W 110° 11’ 23.3”

Vegetation Survey:

20% Brush

20% Grass

10% Rocks/Debris

50% Bare

37” of rocky soil to bedrock

Topsoil Samples
Vegetation Survey
Proposed Modifications South Site
Site DA
6-27-2012

DA-3

N 37° 34’ 31.3”

W 110° 11’ 25.0”

Vegetation Survey:

50% Rock/Debris

50% Bare

16” rocky soil to Bedrock

Topsoil Samples
Vegetation Survey
Proposed Modifications South Site
Site DA
6-27-2012

DA-4

In Drainage

N 37° 34’ 32.1”

W 110° 11’ 25.0”

Vegetation Survey:

10% Rock/Debris

5% Grass

5% Brush

10% Rocks/Debris

80% Bare

5” to Bedrock

Topsoil Samples
Vegetation Survey
Proposed Modifications South Site
Site DA
6-27-2012

DA-5

Above drainage

Drainage on both sides

N 37° 34” 31.4”

W 110° 11’ 28.0”

60% Grass

20% Rock/Debris

20% Bare

38” of soil/silt to bedrock

Topsoil Samples
Vegetation Survey
Proposed Modifications South Site
Site DA
6-27-2012

DA-6

High point on site.

N 37° 34” 27.4”

W 110° 11’ 30.5”

10% Grass

5% Rock/Debris

85% Bare soil

15” to Bedrock

Legend

- Soil Sample Location

N

10050 0 100 200 300

Feet

Figure 2

South Portal Area
Soil Sample Locations