

Appendix K

Noxious Weed Management Plan

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Noxious Weed Plan

1.0 Introduction

Noxious weed control practices for the proposed Greencore CO₂ Pipeline Project (Project), as described in this plan, have been developed from the following sources: 1) coordination with BLM technical staff and local Weed Control District Supervisors, 2) existing Noxious Weed Management Plans, and 3) experience gained from other noxious weed control programs in Colorado, Nebraska, Montana, South Dakota, North Dakota, Utah, and Wyoming.

1.1 Summary of Contacts

Weed Control District Supervisors in Wyoming and Montana were contacted to discuss issues related to noxious weed mitigation in their counties (Refer to Appendix A for correspondence summaries). Information gathered during these conversations has been used to write this mitigation plan. A brief description of meetings and conversations that have taken place regarding noxious weed mitigation for the proposed Project is as follows:

- 9/14/10 telephone conversations were held with Weed Coordinators for Campbell County, Wyoming (Quade Schmelzle);
- 9/15/10 telephone conversations were held with Weed Coordinators for Fremont County, Wyoming (Lars Baker);
- 9/17/10 telephone conversations were held with Weed Coordinators for Johnson County, Wyoming (Rod Litzel);
- 10/28/10 telephone conversations were held with Weed Coordinators for Natrona County, Wyoming (Brian Connely);
- 11/1/2010 conversations were held with Weed Coordinators for Powder River County, Montana (Mary Rumph);
- 4/30/2010 telephone conversations were held with Weed Coordinators for Natrona County, Wyoming (Brian Connely).

1.2 Plan Purpose

The purpose of the plan is to prescribe methods to prevent and control the spread of noxious weeds during and following construction of the Project on Federal, State, and private lands. Greencore Pipeline Company, LLC (Greencore), a wholly owned subsidiary of Denbury Resources, Inc. (Denbury), based in Plano, Texas, and their contractors would be responsible for carrying out the methods described in this plan.

This plan is applicable to the construction of the right-of-way (ROW), as well as any areas where new ground disturbing activities would occur due to construction of the project.

1.3 Goals and Objectives

The goals of weed control are to implement preventative measures to eliminate the spread of noxious weeds during construction of the pipeline system. Monitoring and treatment both prior to construction and during the operational phase, as applicable, would ensure that goals are achieved.

2.0 Noxious Weed Inventory

Noxious weeds that are known to occur in the Project area, as identified by the local Weed Districts and BLM offices, are presented in Table 1. In 2009-2010, field surveys were conducted by field biologists from AECOM and Hayden Wing Associates for noxious weed populations located along the entire proposed Project ROW. The surveys identified existing noxious weed infestations located within the 200-foot-wide pipeline survey corridor and along proposed access roads where vegetation clearing may be required. Weed locations were identified and documented via Trimble GeoXH (submeter accuracy) Global Positioning System (GPS) devices. Results of these ground surveys have been incorporated into the Noxious Weed Plan and have been summarized in **Table 1**. Additional field surveys for weeds would be conducted for any new areas of disturbance and/or where surveys weren't completed in 2009-2010 (e.g. previously denied access tracts, new reroutes, additional access roads, etc.). Information collected during future noxious weed surveys (including species identified, proximity to the Project area, locations of infestations, and extent of infestations) would be submitted to the jurisdictional BLM offices and local Weed Districts. Early identification of existing infestations would help to minimize the spread of noxious weeds with the implementation of preventative measures.

Natrona County Weed and Pest added cheatgrass to the county list noxious weeds due to its pervasive nature and to encourage ranchers and private landowners (through financial/resource incentives) to manage populations. However, the Project would not be required to survey or document cheatgrass occurrence as agreed to by Natrona County Weed and Pest supervisor Brian Connelly.

3.0 Noxious Weed Management

Weeds are spread by a variety of means including vehicles, construction equipment, livestock, and wildlife. Implementation of preventative measures to control the spread of noxious weeds is the most cost-effective management approach. Noxious weed controls would be included in each phase of the Project development and would be implemented within the 110-foot-wide construction ROW and ancillary facilities associated with the Project

3.1 Preventative Measures

The following preventative measures would be used to prevent the spread of noxious weeds where ground disturbing activities might occur during construction:

- All construction vehicles and equipment would arrive at the work site clean and weed free. Prior to being allowed access to the ROW or ancillary facilities, the Environmental Inspector (EI) would ensure that vehicles and equipment are free of soil and debris capable of transporting noxious weed seeds, roots, or rhizomes.

- Noxious weed wash stations or any other preventative measures on private lands would be discussed with individual landowners.
- Wash stations would be designed and constructed adhering to the specifications outlined in Appendix C.
- The pipeline ROW and ancillary facilities would be inspected for noxious weeds by the EI, Weed and Pest District, or a qualified botanist, prior to the clearing of vegetation on the ROW and ancillary facilities. Any infestation would be recorded via GPS for pre-treatment and post-construction monitoring purposes.
- Greencore would be responsible for the treatment and eradication of any weed infestation within the 110-foot-wide construction ROW. The BLM, County Weed and Pest Districts, and associated landowners would be responsible for controlling weed infestations outside of the 110-foot-wide construction ROW.
- Chemical pre-treatment would be used prior to ground clearing activities, as appropriate. Pretreatment methods are discussed in Section 3.2 of this plan.
- Selective vegetation clearing and soil stripping methods would be used to minimize the transport of noxious weed seeds, rhizomes, or roots from infested areas into areas where weeds are not present. The contractor would clear vegetation from the 110-foot-wide construction ROW in all vegetation communities, with the exception of forested areas, shelterbelts, and saturated wetlands, where the ROW may be reduced to less than 110 feet.
- In areas that have been pre-treated for noxious weeds the stripped topsoil would be segregated from topsoil that is weed-free. The EI would decide where to place topsoil that has noxious weeds so it can remain separated from the rest of the weed-free topsoil. The topsoil containing noxious weeds would be placed back in the same location it was excavated from.
- During the Reclamation phase of the Project all areas disturbed by construction would be reseeded. The ROW would be with reseeded with an approved seed mix within the proper growing season to ensure appropriate vegetative cover/species would be established to further reduce the establishment of noxious weeds. Seed mixes used during Reclamation may vary due to requests from landowners, BLM, and other agencies.
- Greencore would verify that all straw hay bales and seed shall be certified noxious weed free before being used on the Project.
- All gravel and fill material imported on-site must be source-identified Greencore to ensure that the originating site is noxious weed free.

3.2 Treatment Methods

Methods used to reduce the spread and establishment of noxious weeds would be discussed with the BLM, landowners and county weed districts. Chemical treatments would be based on species-specific and site-specific (e.g., proximity to water or wetlands, time of year) conditions and would be coordinated with the local BLM offices, landowners and County Weed and Pest Districts. .

Cheatgrass in Natrona County would be controlled through proper reclamation procedures and techniques (e.g., adequate reclamation seed mixture, seed application rate and timing, topsoil

stockpiling, and equipment/vehicle cleaning procedures, etc). During post-construction monitoring, if cheatgrass infestations are identified within Natrona County, consultation with Natrona County Weed and Pest would be conducted to develop additional control measures.

3.2.1 Herbicide Pre-treatment

Prior to construction activities that disturb soil and vegetation, noxious weeds would be treated with chemical herbicides at the appropriate time (spring, summer, or fall spraying) dependant on the targeted weed species. The use of herbicides that break down and de-toxify relatively rapidly is necessary to prevent adverse effects on germination and growth of reseeded species. Only approved, short-lived herbicides would be used for pre-treatment of noxious weeds. Only approved herbicides would be used to control noxious weeds near water, wetlands, and riparian areas.

Pre-spraying would be conducted prior to any clearing to reduce the spread of noxious weeds by equipment used during clearing. All treatment methods would vary due to site-specific conditions and the type of species that are encountered. Methods used to reduce the spread and establishment of noxious weeds would be discussed with landowners and county weed districts.

Prior to the initial application of chemical herbicides on public land, a three year Pesticide Use Proposal (PUP) would be prepared and submitted to the BLM Authorized Officer. Following herbicide application, a Pesticide Application Record (PAR) would be submitted to the BLM and the County Weed and Pest District supervisor.

TABLE 1 DESIGNATED NOXIOUS WEED SPECIES AND KNOWN POPULATIONS WITHIN THE PROJECT AREA

Common Name	Scientific Name	Species Designations					Known Populations within the Project Area ⁴ (20100720 CL)
		Montana ¹	Wyoming ²	Fremont County, Wyoming ³	Natrona County, Wyoming ³	Johnson County, Wyoming ³	
Quackgrass	<i>Agropyron repens</i>	N/A	x	N/A	N/A	N/A	N/A
Common burdock	<i>Arctium minus</i>	N/A	x	N/A	N/A	N/A	Two (2) populations: MP 190.02-190.04; 194.94-194.97
Showy milkweed	<i>Asclepias speciosa</i>	N/A	N/A	N/A	x	N/A	N/A
Hoary alyssum	<i>Berteroa incana</i>	x (Category 1)	N/A	N/A	N/A	N/A	N/A
Cheatgrass or downy brome	<i>Bromus tectorum</i>	N/A	N/A	N/A	x	N/A	N/A
Flowering rush	<i>Butomus umbellatus</i>	x (Category 3)	N/A	N/A	N/A	N/A	N/A
Whitetop or hoary cress	<i>Cardaria draba</i>	x (Category 1)	x	N/A	N/A	N/A	N/A
Plumeless thistle	<i>Carduus acanthoides</i>	N/A	x	N/A	N/A	N/A	N/A
Musk thistle	<i>Carduus nutans</i>	N/A	x	N/A	N/A	N/A	Four (4) populations: MP 154.42-154.44; 158.22; 189.70-189.78; 189.87-189.99
Diffuse knapweed	<i>Centaurea diffusa</i>	x (Category 1)	x	N/A	N/A	N/A	N/A
Spotted knapweed	<i>Centaurea maculosa</i>	x (Category 1)	x	N/A	N/A	N/A	N/A
Russian knapweed	<i>Centaurea repens</i>	x (Category 1)	x	N/A	N/A	N/A	N/A
Yellow starthistle	<i>Centaurea solstitialis</i>	x (Category 3)	N/A	N/A	N/A	N/A	N/A
Rush skeletonweed	<i>Chondrilla juncea</i>	x (Category 2)	N/A	N/A	N/A	N/A	N/A
Oxeye-daisy	<i>Chrysanthemum leucanthemum</i>	x (Category 1)	x	N/A	N/A	N/A	N/A

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Canada thistle	<i>Cirsium arvense</i>	x (Category 1)	x	N/A	N/A	N/A	Six (6) populations: MP 44.71-44.86; 44.92-44.98; 95.32-95.67; 96.63; 98.14-98.17; 158.34
Field bindweed	<i>Convolvulus arvensis</i>	x (Category 1)	x	N/A	N/A	N/A	N/A
Common crupina	<i>Crupina vulgaris</i>	x (Category 3)	N/A	N/A	N/A	N/A	N/A
Houndstongue	<i>Cynoglossum officinal</i>	x (Category 1)	x	N/A	N/A	N/A	N/A
Scotch broom	<i>Cytisus scoparius</i>	x (Category 4)	N/A	N/A	N/A	N/A	N/A
Tall larkspur	<i>Delphinium occidentale</i>	N/A	N/A	N/A	N/A	x	N/A
Blueweed	<i>Echium vulgare</i>	x (Category 2)	N/A	N/A	N/A	N/A	N/A
Russian olive	<i>Elaeagnus angustifolia</i>	N/A	N/A	x	N/A	N/A	N/A
Leafy spurge	<i>Euphorbia esula</i>	x (Category 1)	x	N/A	N/A	N/A	N/A
Skeletonleaf bursage	<i>Franseria discolor</i>	N/A	x	N/A	N/A	N/A	N/A
Wild licorice	<i>Glycyrrhiza lepidota</i>	N/A	N/A	N/A	x	x	Two (2) populations: MP 36.71-36.74; 36.97-36.99
Curlycup gumweed	<i>Grindelia squarrosa</i>	N/A	N/A	N/A	x	N/A	One (1) population: MP 28.43-28.48
Halogeton	<i>Halogeton glomerata</i>	N/A	N/A	N/A	x	N/A	Three (3) populations: MP 69.72-70.65; 72.05-72.17; 75.24-75.37
Orange hawkweed	<i>Hieracium aurantiacu</i>	x (Category 2)	N/A	N/A	N/A	N/A	N/A
Meadow hawkweed	<i>Hieracium pratense</i> , <i>H. floribundum</i> , <i>H. piloselloides</i>	x (Category 2)	N/A	N/A	N/A	N/A	N/A
Black henbane	<i>Hyoscyamus niger</i>	N/A	N/A	N/A	x	N/A	N/A

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		Montana ¹	Wyoming ²	Fremont County, Wyoming ³	Natrona County, Wyoming ³	Johnson County, Wyoming ³	
St. Johnswort	<i>Hypericum perforatum</i>	x (Category 1)	x	N/A	N/A	N/A	N/A
Yellowflag iris	<i>Iris pseudacorus</i>	x (Category 2)	N/A	N/A	N/A	N/A	N/A
Dyer's woad	<i>Isatis tinctoria</i>	x (Category 3)	x	N/A	N/A	N/A	N/A
Perennial pepperweed	<i>Lepidium latifolium</i>	x (Category 2)	x	N/A	N/A	N/A	Three (3) populations: MP 160.04; 183.05-183.08; 202.20-202.95
Dalmatian toadflax	<i>Linaria dalmatica</i>	x (Category 1)	x	N/A	N/A	N/A	N/A
Yellow toadflax	<i>Linaria vulgaris</i>	x (Category 1)	x	N/A	N/A	N/A	N/A
Purple loosestrife	<i>Lythrum salicaria, L. virgatum</i>	x (Category 2)	x	N/A	N/A	N/A	N/A
Eurasian watermilfoil	<i>Myriophyllum spicatum</i>	x (Category 3)	N/A	N/A	N/A	N/A	N/A
Scotch thistle	<i>Onopordum acanthium</i>	N/A	x	N/A	N/A	N/A	One (1) population: MP 218.75-218.76
Japanese knotweed	<i>Polygonum cuspidatum, sachalinense and polystachyum</i>	x (Category 3)	N/A	N/A	N/A	N/A	N/A
Sulfur cinquefoil	<i>Potentilla recta</i>	x (Category 1)	N/A	N/A	N/A	N/A	N/A
Tall buttercup	<i>Ranunculus acris</i>	x (Category 2)	N/A	N/A	N/A	N/A	N/A
Tansy ragwort	<i>Senecio jacobea</i>	x (Category 2)	N/A	N/A	N/A	N/A	N/A
Buffalobur	<i>Solanum rostratum</i>	N/A	N/A	N/A	x	x	N/A
Perennial sowthistle	<i>Sonchus arvensis</i>	N/A	x	N/A	N/A	N/A	N/A
Swainson pea	<i>Splaerophysa salsula</i>	N/A	N/A	x	N/A	N/A	N/A
Tamarisk or saltcedar	<i>Tamarix spp.</i>	x (Category 2)	x	N/A	N/A	N/A	Three (3) populations: MP 97.42-97.44; 125.64-125.65; 138.80-138.81

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Common tansy	<i>Tanacetum vulgare</i>	x (Category 1)	N/A	N/A	N/A	N/A	N/A
Puncturevine	<i>Tribulus terrestris</i>	N/A	N/A	N/A	x	x	N/A
Common mullein	<i>Verbascum thapsus</i>	N/A	N/A	N/A	N/A	x	N/A
Common cocklebur	<i>Xanthium strumarium</i>	N/A	N/A	N/A	N/A	x	N/A

¹Montana Department of Agriculture 2008.

²Wyoming Department of Agriculture (no date).

³Wyoming Weed and Pest Council 2008.

⁴Noxious weed populations identified during field surveys conducted in 2009 and 2010.

3.2.2 Post-construction Herbicide Treatment

Post-construction treatment of noxious weeds, if required, would likely require use of more persistent herbicides (upland sites that are more than 100 feet from water bodies, wetlands, or riparian areas). As discussed in Section 3.2.1 only approved herbicides would be used to control noxious weeds near water, wetlands, and riparian areas.

Supplemental seeding would be based on the criteria in the Project’s Reclamation Plan. The timing of subsequent revegetation efforts would be based on the life of the selected herbicide. In areas of dense infestation, a broader application may be used and a follow-up seeding program implemented.

3.3 Education

Information regarding noxious weed identification, management, and impacts on livestock and wildlife would be provided to all Project personnel. Additionally, workers would be informed of the critical importance of preventing the spread of noxious weeds in areas not infested, and controlling the proliferation of weeds already present. The importance of adhering to measures to prevent the spread of noxious weeds (e.g. not driving off the cleared ROW, cleaning vehicles that collect soil and plant seeds prior to entering the ROW, and quickly identifying new infestations of noxious weeds) would be emphasized.

4.0 Monitoring

Greencore would be directly responsible for monitoring the ROW and ancillary facilities for noxious weeds for five years annually after construction is complete. Site specific field surveys would be conducted every year to include: 1) invasion or infestation sites on the ROW or ancillary facilities, as identified by local BLM offices, Districts, or the Project EIs prior to construction; and 2) areas previously treated for noxious weeds.

TABLE 2 – PROPOSED MONITORING SCHEDULE FOR THE GREENCORE CO2 PIPELINE PROJECT

Task Description	2012	2013	2014	2015	2016	2017
2011 Construction Season (Spreads 2 and 3)	Full ROW (115 Miles)	Known Infestation Areas Only	Full ROW (115 Miles)	Known Infestation Areas Only	Full ROW (115 Miles)	None
2012 Construction Season (Spreads 1 and 4)	None	Full ROW (115 Miles)	Known Infestation Areas Only	Full ROW (115 Miles)	Known Infestation Areas Only	Full ROW (115 Miles)

Based on agency requirements, noxious weed monitoring would commence in the summer of 2012 and thereafter would occur every year for five years. Greencore would use a stratified monitoring approach which would entail full ROW monitoring every other year (1st, 3rd, and 5th years), and monitoring in known populations only during the 2nd and 4th years. Table 2 provides a summary of this proposed monitoring schedule and Appendix D presents the construction schedule by spread (spreads 1-4).

Data collected during monitoring events would include: the noxious weed species, location information (GPS documentation and accompanying map products), the extent of the infestation, results of previous control measures implemented (if any), and recommendations for further control (if needed). Estimates would be made for the entire problem area, comparing disturbed and adjacent areas, and include the range of species cover and density values. AECOM will consult with local weed districts and land management agencies to determine the most appropriate control measures. All noxious weeds identified within the construction corridor will be delineated via Trimble GeoXH global positioning system units (sub meter accuracy).

5.0 Herbicide and Pesticide Application and Handling

5.1 Herbicide Application and Handling

The use of herbicides would be in compliance with all Federal and State laws on proper use, storage, and disposal. Prior to herbicide application, Greencore would obtain the required permits from the local BLM office and District, as appropriate. The chemical application would be done by the operations personnel or an independent, licensed contractor in accordance with all applicable laws and regulations. The contractor would either prove knowledge in noxious weed identification, or be accompanied by a qualified botanist to ensure that the appropriate species are treated on site.

All guidelines by the U.S. Environmental Protection Agency (USEPA) herbicide label instructions would be strictly followed. Applications of herbicides would not be permitted when the instructions on the herbicide label indicate conditions that are not optimal

Application of herbicides would be suspended if the following conditions exist:

- Wind velocity exceeds 20 miles per hour;
- Snow or ice covers the foliage of noxious weeds; or
- Precipitation is occurring or imminent.

Vehicle-mounted sprayers (e.g., handgun, boom, and injector) would be used primarily in open areas that are readily accessible by vehicle. Hand application methods (e.g., backpack spraying) that target individual plants would be used to treat small scattered weed populations in rough terrain. Application of herbicides or herbicides would follow these restrictions: boom and hand gun sprayers would not be used within 25 feet of surface water; broadcast backpack spraying would not occur within 10 horizontal feet of water; only wipe applications (or hand-directed spray using a backpack sprayer) would be allowed within 10 horizontal feet of surface water; and herbicides would not be mixed in an area where an accidental spill could enter a water body. Fertilizers, lime, or mulch would not be used in wetlands unless required by agencies.

Herbicides would be transported to the Project site with the following provisions:

- Concentrate would be transported only in containers in a manner that would prevent tipping or spilling and in a compartment that is isolated from food, clothing, and safety equipment; and
- Mixing would only be conducted on-site and more than 200 feet from open or flowing water, wetlands, or other sensitive resources.

5.2 Worker Safety and Spill Reporting

All herbicide contractors would obtain and have readily available copies of the appropriate USEPA Material Safety Data Sheets (MSDS) for the herbicides being used. Herbicide spills would be reported in accordance with all applicable laws and requirements.

5.3 Herbicide Use

The use of herbicides shall comply with the Federal and state laws governing their proper use and storage, and disposal. Further, their use shall only occur within any limitations imposed by the Secretary of the Interior.

The following is the sequence of events to be followed for using herbicides on BLM administered lands:

- An onsite reconnaissance shall occur between the company personnel, or their contractor, and County Weed and Pest District personnel certified in pesticide application. A treatment plan would be formulated.
- The primary species targeted for control on BLM and private lands would include the Wyoming Noxious Weed list as well as specific species of concern from the designated County Weed and Pest districts.
- Individual and habitat loss to special status plant species due to weed control measures during ROW maintenance would be avoided by consultation between the special status plant species jurisdictional agency and weed control specialists.
- A three year Pesticide Use Proposal (PUP) form would be completed, for herbicide application, by the permit holder and submitted to the BLM certified pesticide applicator (Authorized Officer) at the appropriate office. The PUP would be developed with assistance from Natrona County Weed and Pest Supervisor Brian Connelly.
- The permit holder would be notified by this office of approval of the PUP and be furnished a copy of the document with any changes noted and explained.
- Any special conditions, such as sign posting requirements or notice to livestock grazers, would be noted.
- The appropriate BLM office would be notified at least 72 hours prior to pesticide application so that application operations can be inspected.
- All herbicides, both restricted use and nonrestrictive use, shall be applied only by personnel certified in the use of these herbicides or under the direct supervision of certified applicators (State of Wyoming Commercial Applicator's License). A Pesticide Application Record (PAR) form shall be completed within 24 hours of ceasing herbicide application. The PAR shall be submitted by the permit holder to the certified BLM pesticide applicator and the County Weed and Pest District supervisors, within 7 days of completion of field treatment operations for the season.

6.0 References

- Baker, L. 2010. Fremont County Weed and Pest District. Personal communication with P. Swartzinski, AECOM, Fort Collins, Colorado. September 15, 2010.
- Johnson, K. 2010. Fremont County Weed and Pest District. Personal communication with P. Swartzinski, AECOM, Fort Collins, Colorado. September 16, 2010.
- Litzel, R.. 2010. Johnson County Weed and Pest District. Personal communication with P. Swartzinski, AECOM, Fort Collins, Colorado. September 17, 2010
- Montana Weed Control Association (MWCA). 2008. Montana Weed Management Plan. Internet website: <http://www.mtweed.org/threatsImpacts.html>. Reviewed November 6, 2008
- Schmelzle, Q. 2010. Campbell County Weed and Pest District. Personal communication with P. Swartzinski. AECOM, Fort Collins, Colorado. September 14, 2010.
- Sheley, R.L., M. Manoukin, and G. Marks. 1999. Preventing Noxious Weed Invasion, pages 69-72 in, R.L. Sheley and J.K. Petroff, editors. Biology and Management of Noxious Rangeland Weeds. Oregon State University Press, Corvallis, OR.
- USFR (U.S. Federal Register), 1999. Presidential Document, Executive Order 13112. Invasive Species, Federal Register 64:6183-6186.
- Wyoming State Weed Team Wyoming. 2003. Weed Management Strategic Plan.

Attachment 1

Correspondence Summaries from County Week Supervisors

Brian Connelly, Supervisor, Natrona County Weed and Pest Control District. Personal Communication April 30, 2010

Recommendations:

Due to its pervasive nature, cheatgrass was added to the Natrona County list to encourage ranchers and private landowners (through financial/resource incentives) to manage populations. For the proposed Project, pre-construction surveys are *not* required. Cheatgrass can be mitigated through proper reclamation procedures and techniques (e.g., adequate reclamation seed mixture, seed application rate and timing, topsoil stockpiling, and equipment/vehicle wash stations, etc).

During post-construction monitoring, if cheatgrass infestations are identified within Natrona County, consultation with Natrona County Weed and Pest would be conducted and mitigation stipulations may be developed to address additional control measures.

Lars Baker, Supervisor, Fremont County Weed and Pest Control District. Personal Communication, September 15, 2010

Recommendations:

1. Aggressive pre-treatment of identified noxious weeds along ROW and construction corridor where traffic will be traveling.
 - a. Concerned with spreading weeds up and down the line. Specifically, Knapweed as it readily attaches to trucks and construction equipment.
 - b. Knapweed has a 40 year seed dormancy so if not effectively pretreated can be problem throughout the lifetime of the project.
 - c. BLM may require wash stations in highly infected areas.
2. When applying herbicide to population should extend spraying or buffer the spraying to capture potential outlying plants.
3. Post construction monitoring should be done during July, August and September to capture the different flowering times of potential weeds.
4. Potential use of the Weed district as a contractor for spraying weeds within their own districts.
 - a. District staff are more experienced with weed species and effective measures to control them including timing of application and identification of weed plants.
 - b. Too often herbicide contractors are not familiar with weed species and effective measures to control them, as they do not have enough experience.
 - c. Example cited was a contractor he knew of had just hired a guy to spray weeds along a ROW. The person's previous job was driving a Schwan's truck the week before. He sees inexperienced people applying herbicide too often in the herbicide contractor business.
5. Recommended contacting Kim Johnson in the Riverton office. She is the GIS person who updates the weed database for Fremont County as well as other counties. Good place to get existing weed data locations for our project area.

Quade Scmelzle, Supervisor, Campbell County Weed and Pest Control District. Personal Communication September 14, 2010

Recommendations:

1. Campbell County is most concerned with the spread of Knapweed and Leafy Spurge.
 - a. Pre-treatment of infected areas is preferred and will most likely have the biggest impact in eradication of these species
 - b. Proper timing of herbicide application is critical for eradication of any species.
 - i. Fall spraying for Knapweed, spring spraying for Whitetop are examples of preferred spray times for particular species.
 - ii. Biennial thistles (Musk thistle and Plumeless thistle) should be sprayed in the fall and perennial thistles (Canada thistle) in early summer.
 - iii. Whitetop should be sprayed in the spring.
2. New species of concern in Campbell County include the spread of Halogeton and Buffalo Bur
3. Currently there are no wash station requirements from the Campbell County weed districts guidance
4. Recommended using Milestone herbicide for Knapweeds and Thistles. Milestone is not an approved herbicide for BLM lands but can be used on private lands. For BLM lands, he recommends 2,4_D.

Rod Litzel, Supervisor, Johnson County Weed and Pest Control District. Personal Communication September 17, 2010

Recommendations:

1. Johnson County is most concerned with Scotch thistle, Knapweed, Whitetop leafy spurge and Salt cedar.
 - a. Herbicide recommendations for these species:
 - i. Whitetop: Escort
 - ii. Thistles: Milestone/Tardon mix
 - iii. Knpweed: Milestone
 - iv. Leafy Spurge: Tardon/Plateau
2. Aggressive pre-treatment of weeds before construction starts is highly recommended.
 - a. Pre-treatment would help alleviate the spread of weeds up and down the ROW once construction occurs.
3. Recommends utilizing expertise of local weed districts for herbicide application methods and timing. Would be able to recommend local herbicide companies that are experienced and capable.
 - a. This would help local economies
 - b. Local experience helped when dealing with landowners.
4. Monitoring and herbicide application should be done yearly for a minimum of 5 years.
 - a. First year after construction is most critical time as this will be when the big flush of weeds will occur. Need to be aggressive with herbicide to ensure that weed problems will be lessened in the future.
5. Will give permission to Kim Johnson (weed mapping) to release shapefiles of known infestations along the pipeline ROW.

Brian Connelly, Supervisor, Natrona County Weed and Pest Control District. Personal Communication October 28, 2010

Recommendations:

1. Priority species of concern include Russian knapweed, leafy spurge, diffuse knapweed, spotted knapweed, Scotch thistle and salt cedar.
 - a. All other State Designated Noxious weeds should be controlled
2. The NCW&P District will survey the right of way in the County in a timely manner to identify problem areas
3. Treatment of identified weed areas should be done pre-excavation and with the best applicable herbicides/timing labeled for control of that weed spp.
4. The NCW&P District would like copies of annual spray reports of areas treated in the County.
5. The NCW&P would like to collaborate on all aspects of noxious weed control involved in this project
 - a. Collaboration could include treatment recommendations, data sharing, mapping, efficacy oversight, weed treatment, and monitoring.
 - b. The NCW&P District retains the right to take over weed control on public lands if private entities are unable to gain and maintain control.

Attachment 2

Bureau of Land Management Pesticide Use Proposal

STATE: **WY**

COUNTY: **Fremont, Natrona, Johnson, Campbell, Powder River**

FIELD OFFICE: **CFO 060 (Casper)**

DURATION OF PROPOSAL: **5 Years**

LOCATION:

ORIGINATOR – NAME: **Paul Swartzinski**

ORIGINATOR – COMPANY: **Greencore Pipeline LLC**

ORIGINATOR – CONTACT INFORMATION:

DATE:

PROPOSAL NUMBER:

EA REFERENCE NUMBER:

DECISION RECORD (DR) NUMBER:

.....

I. APPLICATION INFORMATION – (Including mixtures and adjuvants): **See Attached Tables for 1-9.**

1. TRADE NAME(S):
2. COMMON NAME(S):
3. EPA REGISTRATION NUMBER(S):
4. MANUFACTURER(S):
5. METHOD OF APPLICATION:
6. MAXIMUM RATE OF APPLICATION – AS STATED ON THE LABEL:
 - a. Formulated Product:
 - b. Pounds Active Ingredient or Acid Equivalent/acre:
7. INTENDED RATE OF APPLICATION:
 - a. Formulated product:
 - b. Pounds Active Ingredient or Acid Equivalent/acre:
8. APPLICATION DATE(S):
9. NUMBER OF APPLICATIONS:

II. PEST [List specific pest(s) and reason(s) for the proposed application of the pesticide]: See attached Species Table.

III. DESIRED RESULTS OF THE APPLICATION - LINKED TO THE OBJECTIVES OF THE APPLICATION:

The goals of weed control are to implement preventative measures to eliminate the spread of noxious weeds during construction of the pipeline system. Monitoring and treatment both prior to construction and during the operational phase, as applicable, will ensure that goals are achieved.

IV. APPLICATION SITE DESCRIPTION:

1. ESTIMATED NUMBER OF ACRES: To be determined.
2. GENERAL DESCRIPTION (Describe land type or use, size, stage of growth of target species, soil characteristics, and any additional information that may be important in describing the area to be treated.)

The proposed Project area is located entirely within the Powder River Basin floristic region of northeastern Wyoming and southeastern Montana, and characterized by flat to low rolling terrain with intermittent terraces, steep slopes, and rocky ridges.

Approximately 226.9 miles (97.8 percent) of the proposed route would cross grassland/shrubland habitat. Grassland/shrubland habitats most commonly occupy valley bottoms, plains, foothills, plateaus, and benches. This vegetation cover type is dominated by big sagebrush (*Artemisia tridentata*), black sagebrush (*Artemisia nova*), and bud sagebrush (*Picrothamnus desertorum*), and codominated by antelope bitterbrush (*Purshia tridentata*) and rabbitbrush species (*Chrysothamnus* sp.). Common graminoid species include western wheatgrass (*Pascopyrum smithii*), needlegrass (*Achnatherum* sp.), needle-and-thread (*Hesperostipa comata*), Sandberg bluegrass (*Poa secunda*), threadleaf sedge (*Carex filifolia*), bluebunch wheatgrass (*Pseudoroegneria spicata*), little bluestem (*Schizachyrium scoparium*), and Indian ricegrass (*Achnatherum hymenoides*). Common forb species include buckwheat (*Erigonum* sp.), bluebells (*Mertensia* sp.), broom snakeweed (*Gutierrezia sarothrae*), and soapweed yucca (*Yucca glauca*). Perennial herbaceous components typically contribute less than 25 percent vegetative cover.

V. SENSITIVE ASPECTS AND PRECAUTIONS (Describe sensitive areas - marsh, endangered, threatened, candidate, and sensitive species habitat - and distance to application site. List measures to be taken to avoid impact to these areas):

No sensitive plant species have been identified within the Project area there for there is no expected loss of sensitive plants due to herbicide treatment. Habitat loss to special status plant species due to weed control measures during ROW maintenance would be avoided by consultation between the special status plant species jurisdictional agency and weed control specialists.

VI. NON-TARGET VEGETATION (Describe potential immediate and cumulative impacts to non-target pests in project area as a result of the pesticide application. Identify any planned mitigation measures that will be employed - BE GENERAL, SPECIFICS DISCUSSED IN THE EA):

Some non-target vegetation may be affected by proposed treatments. Spot treatments will be utilized in most circumstances, mitigating the potential for non-target control. Application rates will be tailored to the infestation and will be in compliance with label restrictions to minimize extended impacts. Cumulative impacts associated with isolated non-target species control should be minimal, as spot treatments will ensure any adversely affected areas will be small in size and easily re-established with surrounding native species.

VII. INTEGRATED PEST MANAGEMENT PRACTICES CONSIDERED IN THE OVERALL PROJECT: Mechanical and biological management practices were considered but dropped as viable for long term effectiveness of the project.



VIII. SIGNATURES:

Pesticide Use Proposal's Originator: _____ Date: _____

Company: _____

Certified Pesticide Applicator: _____ Date: _____

License Number: _____

Certifying Organization: _____

Field Office Pesticide/Noxious

Weed Coordinator: _____ Date: _____

Field Office Manager: _____ Date: _____

BLM State Pesticide

Coordinator: _____ Date: _____

Deputy State Director: _____ Date: _____

- Concur or Approved
- Not Concur or Disapproved
- Concur or Approved With Modifications

HERBICIDES AND TARGETED WEED SPECIES

Herbicide Trade Name	Herbicide Common Name	Manufacturer	EPA Registration #	Maximum Rate Of Application		Rate Of Application		Application Dates	Number of Applications	Targeted Weed Species(Numbers correspond to attached species list)	Application Method
				Formulated Product	Lbs Active Ingredient	Formulated Product	Lbs Active Ingredient				
Tordon/Outpost	Picloram (L)	Dow Agrosiences	62719-6	2 qt/acre	1 lb/acre	2 qt/acre	1 lb/acre	May-Sept	1	2,9,10,11,12,16,21,24,36	Ground based with calibrated equipment (L)
Telar XP	Chlorsulfuron (DF)	Dupont	352-654	1 1/3 oz/acre	0.1lb/acre	1 1/3 oz/acre	0.1lb/acre	May-June/ Aug-Sept	1	28,34,50,51	Ground based with calibrated equipment (DF)
Escort XP	metsulfuron methyl (DF)	Dupont	352-439	2 oz/acre	.075 lb/acre	2 oz/acre	.075 lb/acre	May-June/ Aug-Sept	1	7,19,28,35	Ground based with calibrated equipment (DF)
4 LB. Amine or equivalent	2,4-D Amine (L)	Cornbelt	11773-2	2 qt/acre	1.9 lb/acre	2 qt/acre	1.9 lb/acre	May-Sept		Labeled annual and biennial listed weeds	Ground based with calibrated equipment (L)
4 LB. Amine or equivalent	2,4-D Amine (L)	Cornbelt	11773-2	2 qt/acre	1.9 lb/acre	1 qt/acre	.95 lb/acre	May-Sept		Labeled annual and biennial listed weeds	Ground based with calibrated equipment (L)
4 LB. Amine or equivalent	2,4-D Amine (L)	Cornbelt	11773-2	2 qt/acre	1.9 lb/acre	1 pt/acre	.475 lb/acre	May-Sept		Labeled annual and biennial listed weeds	Ground based with calibrated equipment (L)
4 LB. Lovol Ester or equivalent	2,4-D Ester (L)	Cornbelt	11773-3	2 qt/acre	1.9 lb/acre	2 qt/acre	1.9 lb/acre	growing season		Labeled annual and biennial listed weeds	Ground based with calibrated equipment (L)
Redeem R&P	triclopyr, clopyralid (L)	Dow Agrosiences	62719-337	2 qt/acre	1.125 lb/acre triclopyr .375 lb/acre clopyralid	2 qt/acre	1.125 lb/acre triclopyr .375 lb/acre clopyralid	May-June/ Aug-Sept	1	9,10,11,12,16,40,46	Ground based with calibrated equipment (L)
Dicamba or equivalent	Dicamba (L)	AgriStar, Albaugh Inc	42750-40	2 qt/acre	2 lb/acre	2 qt/acre	2 lb/acre	May-Sept		Labeled annual and biennial listed weeds	Ground based with calibrated equipment (L)
Plateau	Imazapic (L)	BASF Corporation	541-365	8 oz/acre	.125 lb/acre	8 oz/acre	.125 lb/acre	Aug-Oct	1	5	in fall pre-emergent application only
Buccaneer Plus or equivalent	Glyphosate (L)	Tenkoz	55467-9	5 qt/acre	3.75 lb/acre	3 qt/acre	2.25 lb/acre	May-Sept		Pre-plant applications for labeled weeds, vegetation	Ground based with calibrated equipment (L)
Brewer 90 or equivalent	non-ionic surfactant (L)	Brewer International	N/a	1 qt/100 gal	N/A	1qt/100 gal	N/A	N/A	N/A	adjuvant w/ labeled herbicides	Ground based with calibrated equipment (L)

SPECIES LIST

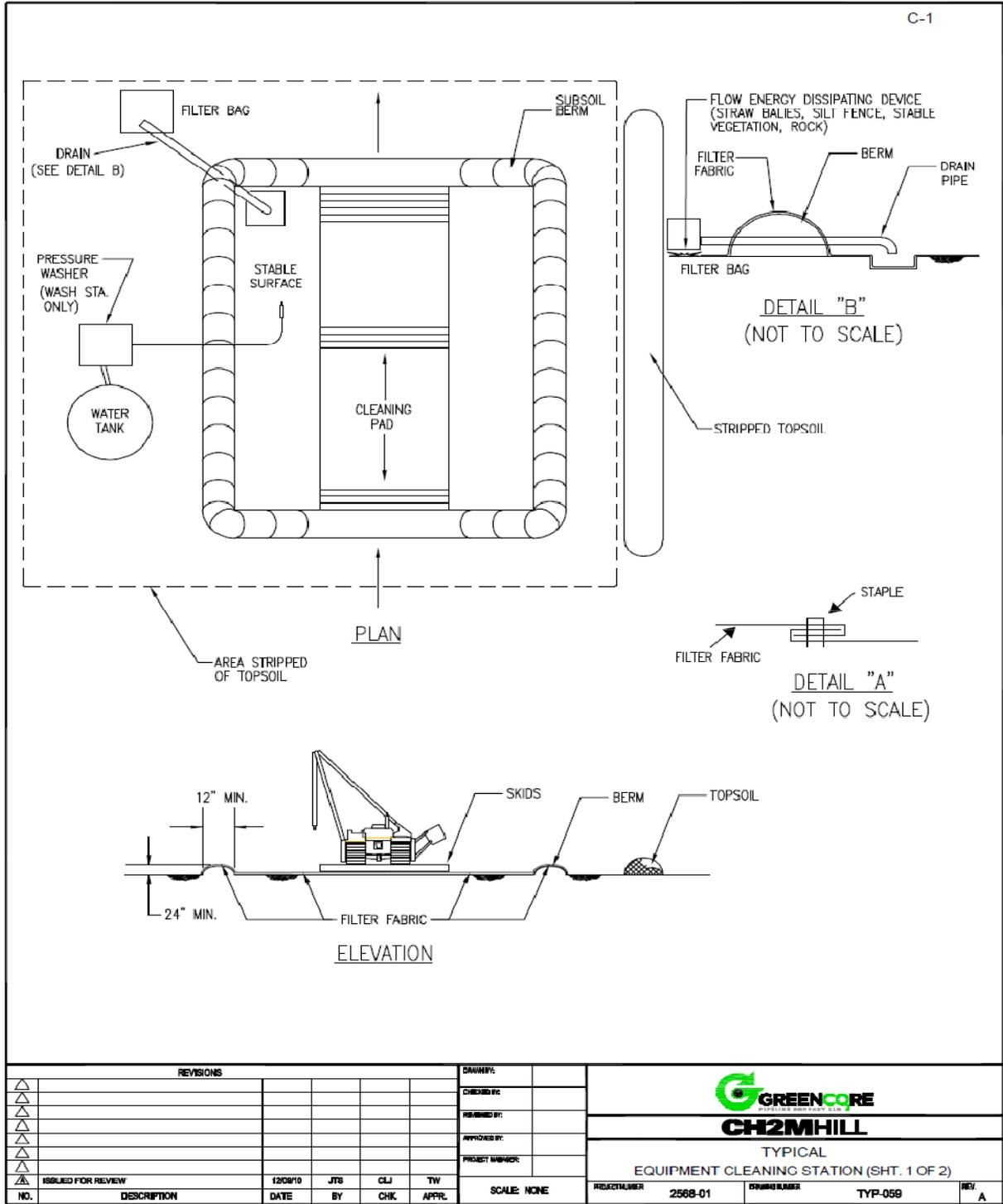
Species Number	Common Name	Scientific Name
1	Quackgrass	<i>Agropyron repens</i>
2	Common burdock	<i>Arctium minus</i>
3	Showy milkweed	<i>Asclepias speciosa</i>
4	Hoary alyssum	<i>Berteroa incana</i>
5	Cheatgrass or downy brome	<i>Bromus tectorum</i>
6	Flowering rush	<i>Butomus umbellatus</i>
7	Whitetop or hoary cress	<i>Cardaria draba</i>
8	Plumeless thistle	<i>Carduus acanthoides</i>
9	Musk thistle	<i>Carduus nutans</i>
10	Diffuse knapweed	<i>Centaurea diffusa</i>
11	Spotted knapweed	<i>Centaurea maculosa</i>
12	Russian knapweed	<i>Centaurea repens</i>
13	Yellow starthistle	<i>Centaurea solstitialis</i>
14	Rush skeletonweed	<i>Chondrilla juncea</i>
15	Oxeye-daisy	<i>Chrysanthemum leucanthemum</i>
16	Canada thistle	<i>Cirsium arvense</i>
17	Field bindweed	<i>Convolvulus arvensis</i>
18	Common crupina	<i>Crupina vulgaris</i>
19	Houndstongue	<i>Cynoglossum officinal</i>
20	Scotch broom	<i>Cytisus scoparius</i>
21	Tall larkspur	<i>Delphinium occidentale</i>
22	Blueweed	<i>Echium vulgare</i>
23	Russian olive	<i>Elaeagnus angustifolia</i>
24	Leafy spurge	<i>Euphorbia esula</i>
25	Skeletonleaf bursage	<i>Franseria discolor</i>
26	Wild licorice	<i>Glycyrrhiza lepidota</i>
27	Curlycup gumweed	<i>Grindelia squarrosa</i>
28	Halogeton	<i>Halogeton glomerata</i>
29	Orange hawkweed	<i>Hieracium aurantiacu</i>
30	Meadow hawkweed	<i>Hieracium pratense, H. floribundum, H. piloselloides</i>
31	Black henbane	<i>Hyoscyamus niger</i>
32	St. Johnswort	<i>Hypericum perforatum</i>
33	Yellowflag iris	<i>Iris pseudacorus</i>

SPECIES LIST

Species Number	Common Name	Scientific Name
34	Dyer's woad	<i>Isatis tinctoria</i>
35	Perennial pepperweed	<i>Lepidium latifolium</i>
36	Dalmatian toadflax	<i>Linaria dalmatica</i>
37	Yellow toadflax	<i>Linaria vulgaris</i>
38	Purple loosestrife	<i>Lythrum salicaria, L. virgatum</i>
39	Eurasian watermilfoil	<i>Myriophyllum spicatum</i>
40	Scotch thistle	<i>Onopordum acanthium</i>
41	Japanese knotweed	<i>Polygonum cuspidatum, sachalinense and polystachyum</i>
42	Sulfur cinquefoil	<i>Potentilla recta</i>
43	Tall buttercup	<i>Ranunculus acris</i>
44	Tansy ragwort	<i>Senecio jacobea</i>
45	Buffalobur	<i>Solanum rostratum</i>
46	Perennial sowthistle	<i>Sonchus arvensis</i>
47	Swainson pea	<i>Splaerophysa salsula</i>
48	Tamarisk or saltcedar	<i>Tamarix spp.</i>
49	Common tansy	<i>Tanacetum vulgare</i>
50	Puncturevine	<i>Tribulus terrestris</i>
51	Common mullein	<i>Verbascum thapsus</i>
52	Common cocklebur	<i>Xanthium strumarium</i>

Attachment 3

Wash Station Schematics



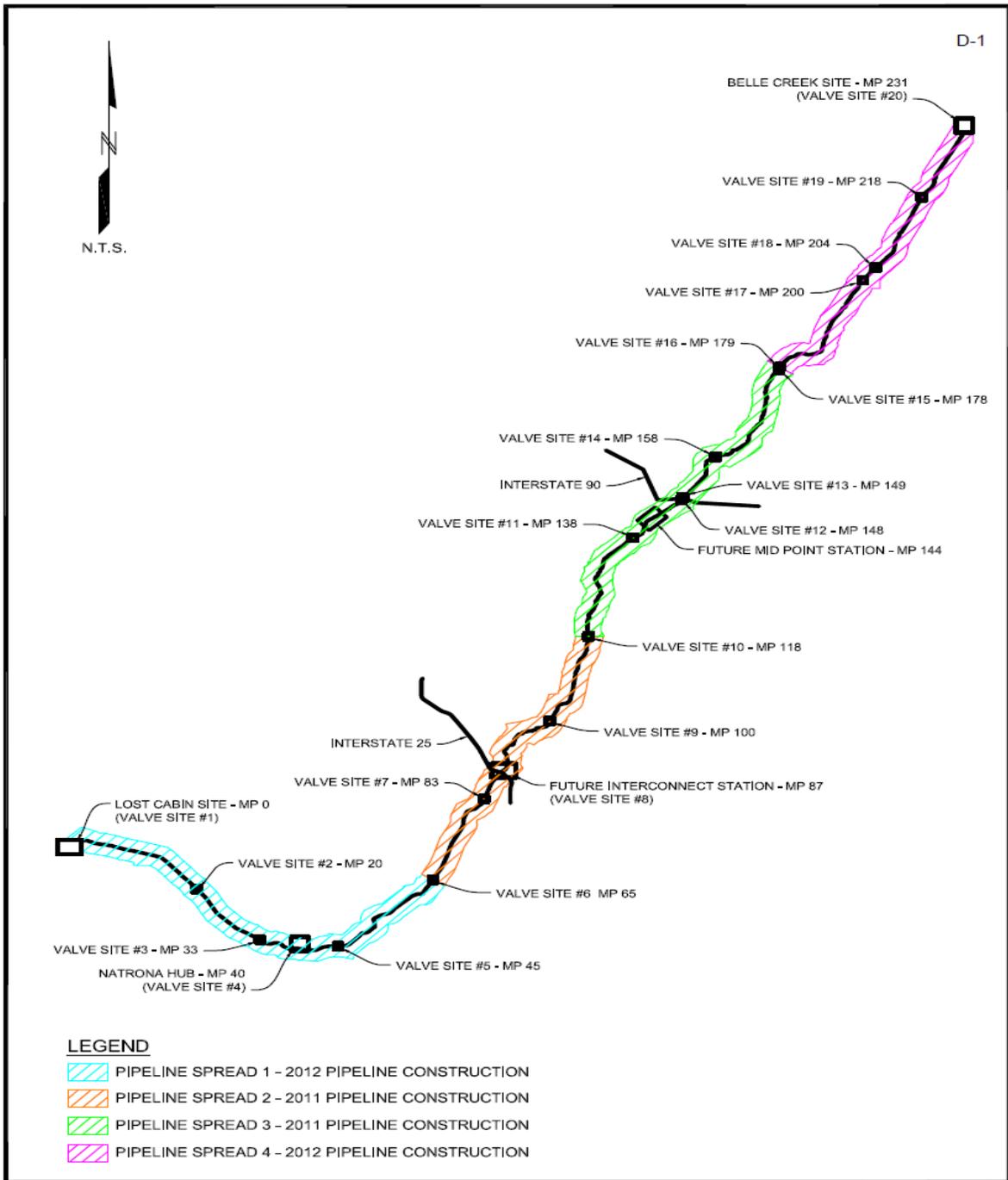
EQUIPMENT CLEANING STATION NOTES:

1. CLEANING SHALL BE CARRIED OUT UNDER THE SUPERVISION AND TO THE SATISFACTION OF THE ENVIRONMENTAL INSPECTOR.
2. STATION TO BE EQUIPPED WITH TIMBER MATS, SKID PADS, OR RACKS TO ELEVATE EQUIPMENT TRACKS/TIRES SO THAT SOIL AND WEEDS WILL BE CONTAINED IN THE STATION BASIN.
3. FILTER FABRIC TO BE INSTALLED AS A CONTINUOUS PIECE AND PLACED OVER THE TOP AND TO THE OUTSIDE EDGE OF THE BERMS AND FIRMLY FASTENED IN PLACE. THE EDGES OF PARALLEL PIECES SHALL BE OVERLAPPED A MINIMUM OF 12 INCHES (SHINGLE STYLE), AND FOLDED OVER (SEE DETAIL A). STAPLE THROUGH THE OVERLAPPED AREA EVERY 12 INCHES.
4. FILTER FABRIC SHALL BE NON-WOVEN POLYPROPYLENE, WITH AN APPARENT OPENING SIZE OF 70 TO 100 (U.S. SEIVE), 200-POUND GRAB STRENGTH, AND 8 OUNCES PER YARD UNIT WEIGHT, OR BETTER. IN AREAS THAT ARE NOT ROCKY, CONTRACTOR MAY CHOOSE TO USE NON WOVEN POLYPROPYLENE, 160 PCUND CRAB STRENGTH, AND 6 OUNCES PER YARD UNIT WEIGHT.
5. WATER USED FOR CLEANING SHALL NOT BE ALLOWED TO FLOW NTO ANY WATERBODY, WETLAND OR IRRIGATION CANAL/DITCH.
6. SIZE OF STATION SHALL BE ADEQUATE TO ACCOMMODATE THE MAXIMUM SIZE OF EQUIPMENT EXPECTED.
7. SKIDS ARE TO BE CLEANED BETWEEN WASHING INDEPENDENT PIECES OF EQUIPMENT.
8. FILTER FABRIC WILL BE REMOVED TO AN ACCEPTABLE LANDFILL WHEN THE WASH STATION S DISMANTLED.
9. THE DEPRESSION WILL BE BACKFILLED WITH BERMED MATERIAL. ANY SOILS CONTAMINATED BY PETROLEUM BASED OR OTHER UNDESIRABLE MATERIALS FROM CLEAN OFF STATIONS SHALL BE REMOVED IN ACCORDANCE WITH APPLICABLE REQUIREMENTS.
10. TOPSOIL WILL BE RETURNED AND THE AREA RECLAIMED.
11. CLEANING SITES WILL BE MONITORED DURING THE POST CONSTRUCTION MONITORING PROGRAM AND WEEDS CONTROLLED AS REQUIRED.

REVISIONS						OWNER:	 CH2MHILL TYPICAL EQUIPMENT CLEANING STATION (SHT. 2 OF 2)					
△						CHECKED BY:						
△						DESIGNED BY:						
△						APPROVED BY:						
△						PROJECT NUMBER:						
△	ISSUED FOR REVIEW	12/08/10	JTS	CLJ	TW	SCALE: NONE	PROJECT NUMBER	2568-01	DRAWING NUMBER	TYP-058A	REV.	A
NC.	DESCRIPTION	DATE	BY	CHK	APPR.							

Attachment 4

Construction Flow Diagram





GREENCORE



CH2MHILL

Greencore CO₂ Pipeline
Lost Cabin to Belle Creek

CONSTRUCTION FLOW DIAGRAM

2568-01 CONFLOW-01
REV E - NOVEMBER 5, 2010