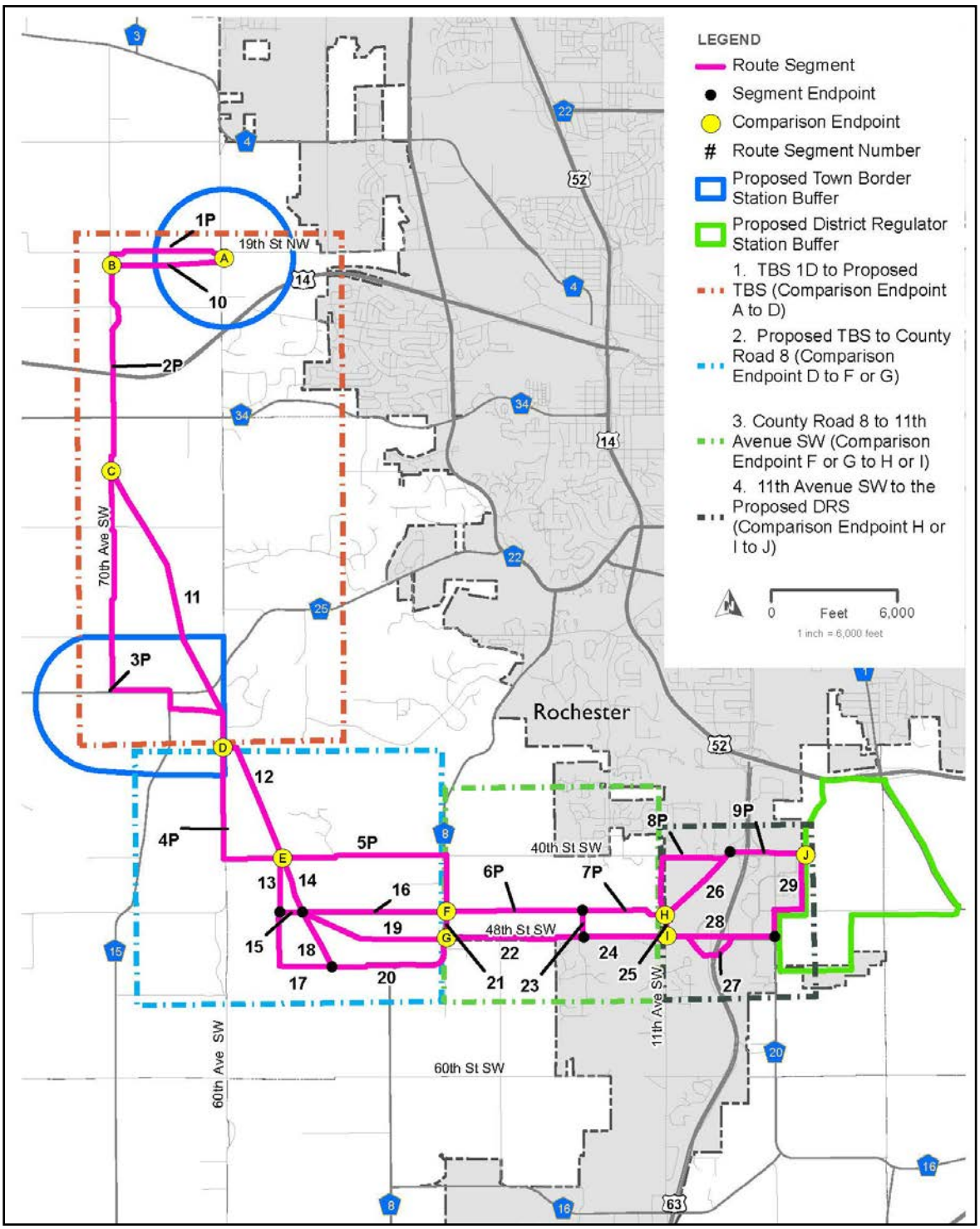
Rochester Natural Gas Pipeline Project
eDockets No. G-011/GP-15-858

Reply to Substantive Comments

October 25, 2016



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MINNESOTA DEPARTMENT OF
COMMERCE

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AN EQUAL OPPORTUNITY EMPLOYER

October 25, 2016

Mr. Daniel P. Wolf, Executive Secretary
Minnesota Public Utilities Commission
127 Seventh Place East, Suite 350
Saint Paul, MN 55101-2147

RE: Reply to Substantive Comments Received
Rochester Natural Gas Pipeline Project
eDocket No. G-011/GP-15-858

Dear Mr. Wolf:

In its Order of February 3, 2016, the Minnesota Public Utilities Commission requested the Department of Commerce reply to substantive comments received on the comparative environmental analysis prepared for the proposed project as pre-filed testimony at least 14 days prior to the public hearing.

Energy Environmental Review and Analysis staff herein provide responses to the substantive comments received during the public comment period on the draft comparative environmental analysis prepared for the Rochester Natural Gas Pipeline Project.

Staff is available to answer any questions the Commission might have.

Sincerely,

/s/

Larry Hartman
Environmental Review Manager

Enclosure

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Before the Minnesota Office of Administrative Hearings

For the Minnesota Public Utilities Commission

In the Matter of the Application of
Minnesota Energy Resources Corporation
for a Route Permit for the
Rochester Natural Gas Pipeline Project in Olmsted County

OAH Docket No. 8-2500-33180
PUC Docket No. G-011/GP-15-858

Energy Environmental Review and Analysis staff within the Minnesota Department of Commerce submits the following responses to substantive comments received during the public comment period on the draft comparative environmental analysis prepared for the Rochester Natural Gas Pipeline Project. This document constitutes the whole of the Department's response. Staff will not revise and re-issue the CEA.[1]

Additional documents and information can be found on eDockets by searching "15" for year and "858" for number at: https://www.edockets.state.mn.us/EFiling/search.jsp, and on the EERA webpage at: http://mn.gov/commerce/energyfacilities/Docket.html?Id=34318.

This document can be made available in alternative formats, that is, large print or audio, by calling 651-539-1530 (voice).

Background

In its Order of February 3, 2016,[2] the Minnesota Public Utilities Commission (Commission) requested that Energy Environmental Review and Analysis (EERA) staff within the Minnesota Department of Commerce "issue the comparative environmental analysis [(CEA)] in draft form for public comment and reply to substantive comments received as pre-filed testimony at least 14 days prior to the public hearing."[3]

Notice

EERA staff issued the CEA in draft form on September 16, 2016.[4] Staff also posted a *Notice of Draft Comparative Environmental Analysis Availability and Public Comment Meeting*.[5]

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[1] *See* Minnesota Department of Commerce (September 16, 2016) *Draft Comparative Environmental Analysis*, eDockets Nos. 20169-124972-01, 20169-124972-02, 20169-124972-03, 20169-124972-04, 20169-124972-05, 20169-124972-06, 20169-124973-01, 20169-124973-02, 20169-124973-03, 20169-124973-04, 20169-124973-05 (Hereinafter "CEA"), at page 8.

[2] Minnesota Public Utilities Commission (February 3, 2016) *Order Finding Application Complete and Granting Variance; Notice of Public Hearing*, eDockets No. 20162-117966-01 (Hereinafter "Commission Order").

[3] Commission Order, page 8.

[4] CEA.

Availability of the draft CEA and notice of public meetings were also noticed through a September 9, 2016, letter to affected landowners,[6] the *Environmental Quality Board Monitor* on September 19, 2016,[7] and the *Rochester Post-Bulletin* on September 17, 2016.[8]

CEA Availability

An electronic version of the draft CEA is available on the EERA webpage[9] and the eDocket electronic filing system.[10] Printed copies are available at the Rochester Township Hall (4111 SW 11th Avenue) and the Rochester Public Library (101 2nd Street SE).[11] Display copies were available at the public meetings discussed below.

Public Meetings

Two public meetings were held on September 28, 2016, at the Kahler Apache Hotel in Rochester. Rochester is in Olmsted County. These meetings occurred at 2:00 p.m. and 6:00 p.m. The format of the meetings was the same. All meetings started with an overview presentation provided by EERA staff (**Appendix A**). The presentation was followed by public questions and comments and responses from EERA and Minnesota Energy Resources Corporation (MERC or Applicant) staff as appropriate.[12]

Comment Period

A public comment period, as provided for in the published notice, closed October 7, 2016. The public could submit comments in multiple ways. Verbal comments were accepted at the public meetings. A pre-addressed comment form was provided at the public meetings. Interested persons could submit this form at the public meeting, mail the form after affixing appropriate postage, or mail the form in a separate envelope. An electronic comment form was available on the EERA webpage. Persons could also provide comments by fax or email.

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5 Minnesota Department of Commerce (September 16, 2016) *Notice of Draft Comparative Environmental Analysis and Public Meeting*, eDockets No. 20169-124976-01.

6 Minnesota Department of Commerce (September 9, 2016) *Landowner Letter*, eDockets No. 20169-124695-01.

7 Minnesota Department of Commerce (October 3, 2016) *EQB Monitor Notice*, eDockets No. 201610-125376-01

8 Minnesota Energy Resources Corporation (September 27, 2016) Affidavit of Publication of Notice, eDockets No. 20169-125200-01.

9 *See* http://mn.go0/commerce/energyfacilities/Docket.html?Id=34318.

10 CEA.

11 Minnesota Energy Resources Corporation (September 27, 2016) *Affidavit of Mailing Draft Comparative Environmental Analysis*, eDockets No. 20169-125201-01.

12 Minnesota Department of Commerce (October 17, 2016) *Public Comments Received on the Comparative Environmental Analysis*, eDockets No. 201610-125737-01.

Public Comments Received

EERA staff received verbal comments at the public meetings and written comments in multiple formats.[13] The total number and type of written comments in provided in **Table 1**. Comments covered a variety of issues, many of which focused on the location of the proposed project. Several comments related directly to the CEA.

Table 1 Written Comments Received

Type	Number
Letter	2
Email	5
Comment Form	1
Electronic Comment Form	2
Total	**9**

All public comments received on the draft CEA were posted to the eDockets electronic filing system[14] consistent with the *Fifth Pre-Hearing Order* in this matter.[15] Comments were also posted to the EERA webpage.[16] We encourage interested persons to review the public comments received in their entirety on either of these webpages.

Responses to Substantive Comments

Substantive comments and EERA staff responses are organized by the format in which the comment was received. Staff provides no response to comments regarding location.

Public Meetings

Substantive comments specific to the draft CEA were provided. These included concerns regarding future road projects, Conservation Reserve Program (CRP) lands, and potential impacts to property values.

<u>Commenter Michael Sheehan (Meeting Minutes, pages 23 through 32)</u>

Mr. Sheehan Comment 1:, and I guess we have a real concern about what this 500-foot-width route means in the preliminary property rights that MERC is obtaining.

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[13] Minnesota Department of Commerce (October 17, 2016).

[14] Minnesota Department of Commerce (October 14, 2016) *Public Comments Received on the Draft CEA*, eDockets No. 201610-125737-01.; Minnesota Department of Commerce (October 24, 2016) *Additional Public Comments Received*, eDockets No. 20 .

[15] Office of Administrative Hearings (August 11, 2016) *Fifth Pre-Hearing Order*, eDockets No. 20168-124057-01.

[16] *See* http://mn.gov/commerce/energyfacilities/Docket.html?Id=34318.

Sheehan Response 2: (From meeting minutes.) Under our rules, the Commission can issue a route up to one and a quarter miles in width, which is pretty wide. For the most part, [the Commission tries] to make it as… small as possible. So, in this instance, when MERC came in they applied for a route width of 500 feet, which meant they would like to locate their right-of-way, or let's say alignment within that 500-foot zone. So while the purple line might be 500 feet in width, and there's a scale in the lower right-hand corner of the map, you can see how wide 1,000 feet is. So that purple, just for discussion purposes, that purple line is around 500 feet in width. That red line is an approximation of what 50 feet in a temporary work space might be. So when I say route, the right-of-way, which means the permanent 50-foot wide right-of-way and that 50-foot wide temporary work space would be located someplace within that purple boundary north to south or east to west, if that one is selected.

Mr. Sheehan Comment 2: Our concern is, especially on County Road 117, is existing right-of-way is 33 feet on each side of the centerline, or 66 feet total. The roadway sometime in the future needs to be reconstructed for a minimum of 100 to 120 feet right-of-way. The Applicant needs to work with Olmsted County to ensure that the pipeline does not need to be relocated due to future road construction activities.

Sheehan Response 2: (From meeting minutes.) All right-of-ways pretty much serve a dedicated use. Generally that road right-of-way has its own right-of-way for safety to the motoring public. So generally you don't find utilities, with the exception maybe of phone lines, fiber-optic, in road rights-of-way. So basically, you aren't going to have right-of-way sharing, you might have right-of-way paralleling, but you will not find one longitudinal facility in the same right-of-way as another longitudinal facility. It happens in certain cases and can happen maybe where an entity owns both rights-of-way or something else, but for the most part rights-of-way have their own interests they serve.

The pipeline could then perhaps be located adjacent to the edge of that anticipated road right-of-way. It… presents an opportunity for [the Applicant] as well as the county and the city and other governmental units to work together to coordinate the location.

<u>Commenter Mary Pyfferoem (Meeting Minutes, pages 100 through 106)</u>

Ms. Pyfferoem Comment 1: How will lands currently enrolled in CRP be affected by a pipeline crossing?

Pyfferoem Response 1: EERA staff contacted Tom Lauth with the United States Department of Agriculture, Farm Service Agency Office, in Olmsted County. Mr. Lauth indicated that page 18-5 from the Agricultural Resource Conservation Program 2-CRP (Revision 5) Amendment 1, dated 6-04-12, states that CRP payment may continue so long as certain requirements are met (**Appendix B**).

Ms. Pyfferoem Comment 2: Dealt with concerns regarding the impact to the value of properties crossed by the pipeline, and how landowners are compensated.

Pyfferoem Response 2: "The empirical literature on the effects of proximity to… natural gas pipelines on property values based on sales data is small in terms of number of papers

(published or unpublished) and narrow in terms of subject matter."[17] Generally, impacts to property values resulting from the occurrence of a natural gas pipeline are associated with encumbrances to future land use and the perceived risk associated with different pipeline hazards.[18] "If you go online you could find any number of studies. A number of them conclude, [yes, natural gas pipelines] affect property values. On the other hand, you can find a handful [that conclude] no they don't."[19]

The impact to property values from the presence of an energy facility such as a natural gas pipeline can be measured in three ways: sale price, marketing time and sales volume.[20] These measures are influenced by a complex interaction of factors. A majority of these factors are parcel specific, and can include: condition, size, improvements, acreage and neighborhood characteristics; the proximity to schools, parks and other amenities; and the presence of existing infrastructure, for example, highways or railways. In addition to property-specific factors, local and national market trends, as well as interest rates can affect all three measures. The presence of a natural gas pipeline becomes one of many interacting factors that could affect a specific property value.

[Given] the fact that [the project area] is kind of transitioned from… semirural to rural residential… it makes it hard to determine what property values are. [S]ome of the developments… proposed around [the project area] were scheduled in 2007, 2008, and then the bottom fell out of the real estate market. Well I don't know where property values are in relation to what they were then, whether they're higher, lower. So when you have something that is probably changing on a fairly regular basis, I think it's really hard to come and state something and being able to say, well, based on this study or that study, because it's a dynamic area.[21]

Conclusions can be inferred from similar studies conducted on impacts to property values from high voltage transmission lines. Often, negative effects from these facilities are the result of impacts that extend beyond the immediate footprint. Unlike transmission lines, the installation of a natural gas pipeline will not create a visual impact beyond vegetation clearing—unless in a forested area, this impact is likely unnoticeable. In agricultural areas the right-of-way can be farmed after installation.

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[17] Wilde, Louis, Loos, Christopher, and Williamson, Jack. (2012) *Pipelines and Property Values: An Eclectic Review of the Literature*, Journal of Real Estate Literature 20(2):245-59, Retrieved October 21, 2016, from EBSCO MegaFILE at http://www.elm4you.org/.

[18] *See* Hansen, Julia; Benson, Earl and Hagen, Daniel. (November 2006) *Environmental Hazards and Residential Property Values: Evidence from a Major Pipeline Event*, Land Economics 82(4):529-541, Retrieved October 17, 2016, from EBSCO MegaFILE at http://www.elm4you.org/ (the standard expectation is that any change in the level of perceived risk due to an adverse event will be capitalized into house prices).

[19] Minnesota Department of Commerce (October 17, 2016) *Meeting Minutes*, eDockets No. 201610-125737-01 at page 105.

[20] Kinnard, William and Dickey, Sue Ann (April 1995) *A Primer on Proximity Impact Research: Residential Values Near High-Voltage Transmission Lines*, Real Estate Issues 20(1):23-29, Retrieved December 23, 2015, from: http://www.cre.org/memberdata/pdfs/high_voltage_transmission.pdf.

[21] Minnesota Department of Commerce (October 17, 2016) at pages 106-107.

The use of multiple regression statistical analysis is generally accepted as the current professional and academic standard for evaluating potential property value impacts, as it reflects the actual behavior of property buyers and sellers in terms of recorded sales prices, while controlling for other factors, for example, home size.[22] This type of analysis allows researchers to identify "revealed preferences" or what people actually did, in contrast to survey research, which identifies what people say they would do.[23] This type of research requires large data sets; therefore, it is less subjective and more reliable than paired sales studies.[24] The results are often reported as an average change over a number of properties; however, the effect to individual properties can vary—increase or decrease—widely.[25]

The results of these studies can be summarized, generally, as follows:

- Over time, there is a consistent pattern with about half of the studies finding negative property value effects and half finding none.
- When effects have been found, they tend to be small; almost always less than 10 percent and usually in the range of 3 percent to 6 percent.
- Where effects are found, they decay rapidly as distance to the lines increases and usually disappear at about 200 feet to 300 feet.
- Two studies investigating the behavior of the effect over time find that, where there are effects, they tended to dissipate over time.[26]

Potential Impacts

The proposed project is in an area previously impacted by infrastructure, such as roads, transmission lines, and an existing oil products pipeline. Generally, the proposed project will not change the aesthetics within comparison areas. Within the permanent right-of-way the proposed project will limit future land development; in certain instances the potential impact may be significant.

Direct impacts to property values within 1,600 feet of the proposed project could occur; however, any specific change to a property's value is difficult to determine. Short-term impacts will likely occur; however, these impacts will likely vary between properties. Long-term impacts may or may not occur.

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[22] Kinnard and Dickey (April 1995), page 25; Chalmers, James and Voorvaart, Frank (2009) *High-Voltage Transmission Lines: Proximity, Visibility, and Encumbrance Effects*, The Appraisal Journal 77(3):227-245, Retrieved December 28, 2015, from: http://www.myappraisalinstitute.org/webpac/pdf/TAJ2009/TAJSU09pg.227-245.pdf, page 228.

[23] *See* Kinnard and Dickey (April 1995); *see also* Jackson, Thomas and Pitts, Jennifer (2010) *The Effects of Electric Transmission Lines on Property Values: A Literature Review*, Journal of Real Estate Literature 18(2):239-259, Retrieved December 24, 2015, from: http://www.real-analytics.com/.

[24] Chalmers and Voorvaart (2009), page 228; Kinnard and Dickey (April 1995), page 25 (a paired sales study involves an appraiser comparing the value of two similar properties, one of which is not impacted by an HVTL).

[25] Electric Power Research Institute (November 2003) *Transmission Lines and Property Values: State of the Science*, Retrieved December 23, 2015, from: http://www.epri.com/abstracts/Pages/ProductAbstract.aspx?ProductId=000000000001005546.

[26] Chalmers and Voorvaart (2009).

Mitigation

Impacts to property values can be reduced by mitigating potential risks and encumbrances to future land use. Property values can also be mitigated through inclusion of specific conditions in individual easement agreements with landowners. These agreements are not within the scope of this CEA.

* * * * *

Select non-substantive comments are included below. These comments are not considered substantive because they require no change to the analysis within the CEA; however, the provided responses do help to clarify information within the CEA. Repetitious comments or questions are not repeated, but are discussed at first occurrence.

Commenter Gary Meyer (Meeting Minutes, pages 38 through 44)

Mr. Meyer Comment 1: Mr. Meyer expressed concerns regarding his tile lines.

Meyer Response 1: (From meeting minutes.) The pipeline would be located a minimum depth of cover over [agricultural] land [of] 54 inches. If [the Applicant does] encounter tile lines… they try to maintain a foot of separation between the pipe and the tile lines. In your case they'd be underneath the tile lines.

In many cases it's common that tile lines are cut, but then the company also replaces the tile lines. You'll find in the CEA that there's an agricultural mitigation plan, which is… approved by the [Minnesota Department of Agriculture], and they have guideline in there for crossing tile lines…. It's fairly common to have tile lines cut, but then also replaced, also, to the satisfaction of the landowner.

Commenter Walt Hruska (Meeting Minutes, pages 44 through 52)

Mr. Hruska Comment 1: If I have a lot [paralleled by the pipeline] can I build on it?

Hruska Response 1: (From meeting minutes.) Typically [applicants] would look for a 50-foot-wide permanent right-of-way adjacent to [the] road right-of-way, if not further in. So depending on what the setback requirements might be for new structures, if there's a pipeline right-of-way there, nothing inside that right-of-way, so that right-of-way is 50 feet and you can have your home at 51 feet if you choose to do so. The company will try to come to an easement agreement with you where you can kind of agree on a satisfactory location for the right-of-way as it crosses your property. Now, to a certain degree that might be dictated by what your neighbors either side of you think, also.

Commenter John Donovan (Meeting Minutes, pages 53 through 58)

Mr. Donovan Comment 1: Who monitors the installation to make sure it's at the depth that it's supposed to be at and that it's done as proposed?

Donovan Response 1: (From meeting minutes.) The federal government did not regulate or have pipeline standards until 1969. There are two sets of standards. The federal standard is a minimum of 36 inches. However, there's an exception. If you're in rocky areas, it's only 18 or 20 inches, I believe, it may be 24. Now, in Minnesota we have the standard of 54 inches across all agricultural land, as well as roads, ditches… from the top of the pipeline to the top of the ground. MnDOT has a five-foot standard under the depth of their road.

Mr. Donovan Comment 2: When a road is paralleled, do companies try to stay as close as possible to the right-of-way, or does it just go out and get in the field?

Donovan Response 2: (From meeting minutes.) That's one of those paradoxes as you can tell from your representative from Olmsted County, you know, where they are going to expand the roads and they prefer it be further away to avoid relocating the pipeline. I know sometimes landowners in the past want it as close to the road, the same as you do, but sometimes they say, well, I got my tile lines there, I don't really want those disrupted, so go out in the field 30 feet. That's the type of thing you can negotiate with the company, also.

Commenter Edie Cranston (Meeting Minutes, pages 85 through 87)

Ms. Cranston Comment 1: Town border station. Is there some sort of a space out around that 200 feet by 200 feet that something is going to happen? It appears the little outlines on the map are considerably bigger than that.

Cranston Response 1: (From meeting minutes.) Yes. [The Applicant has] identified an area in which they would like to locate it. So the area is considerably—the geographic area which they would like to locate that town border station is, in some cases, a mile and a quarter wide, and it'll be 200 feet by 200 feet.

Commenter Jerry Dee (Meeting Minutes, pages 90 through 92)

Mr. Dee Comment 1: So what conditions would it mean it would go back to the alternative routing routes and scoping routes?

Dee Response 1: (From meeting minutes.) [T]hat decision would be made by the Commission once they get the ALJ report. And his report [is] based on information in the record, which would be everything that comes in at a public hearing record to be held on November 9th. So, again, I'd encourage all of you, if you have concerns about the location, it's fine to talk about them tonight, but it really counts when you come before the Administrative Law Judge.

So, again, the application appendices are kind of designed to assist you in presenting your position, opinion, thoughts on it to the ALJ. So if you can consider this kind of a toolbox with information in it, you can use whatever information you want to make your case to the Judge on one route versus the other, for your reasons, whatever they might be.

Commenter Rick Lutzi (Meeting Minutes, pages 97 through 100)

Mr. Lutzi Comment 1: I'm on the township board, Salem Township. I guess I'm more concerned about our right-of-ways and the depths and the maintenance of them once they put them in. Also tile lines and other concerns with ditches.

Lutzi Response 1: (From meeting minutes.) Depth of burial is 54 inches in agricultural land. [Landowners] can sign a waiver for that. Where tile lines, other underground utilities are encountered, and I'm not speaking for MERC, but it's traditional practice that they maintain a foot of separation. Say, for example, your tile line might be 36 inches in depth, it may be 48, maybe your gradient is one inch per 100 feet on slope or something like that, so they would probably maintain a foot of separation to be below the tile line by at least one foot.

Now, again, if townships, other entities maintain ditches and you have plans for those ditches being deepened going forward, you'd want to let MERC know before the construction begins. 'Cause they'd bury the pipeline deeper. Let's say if you've got a ditch six feet deep and for some reason you wanted to go to 12. Well, they'd want to be below that bottom of the anticipated ditch line. With regard to township roads, for example, assuming nominal width of 66 feet, 33 feet obviously at centerline, they would typically be located outside of the existing road right-of-way rather than inside of the right-of-way. And as you know, all rights-of-ways are kind of individual entities and they're operated, or, you know, for movement of goods and services as well as public safety, also. And, again, when you start to kind of mix existing rights-of-ways with one another, you use some of that safety element, whether it be for the motoring public or safety of the pipeline. So those issues are related but kind of separate.

Letters

Olmsted County

Olmsted County Comment 1: Olmsted County had questions regarding the route width and concerns regarding future road development.

Olmsted County Response 1: See **Sheehan Response 1 and 2** above.

Minnesota Energy Resources Corporation (MERC)

MERC Comment 1: MERC requested a discussion of the potential effects and proposed mitigation measures related to property values.

MERC Response 1: See **Pyfferoem Response 1** above.

MERC Comment 2: While the CEA correctly notes that Route Segment 5P runs adjacent to this property, it omits that Route Segment 16 also runs adjacent to this property. Route Segment 5P follows County Road 8 and the anticipated alignment is located on the east side of the road whereas the Group Home is located on the west side of that road. Route Segment 16 follows the southern property line of the Von Wald Group Home.

MERC Response 2: Staff appreciates this clarification. Route Segment 16 will cross the Group Home's driveway; therefore, potential impacts to the Group Home associated with Route Segment 16 are anticipated to be minimal.

MERC Comment 3: MERC may place the proposed pipeline anywhere within the 50-foot permanent right-of-way, so long as a minimum of five feet between the pipeline centerline and the edge of the permanent right-of-way are maintained. This may be done to accommodate existing underground or aboveground infrastructure, potential future road right-of-way expansion, or to provide sufficient room to locate a future natural gas service pipeline.

MERC Response 3: Staff appreciates this clarification.

MERC Comment 4: MERC will comply with all National Pollution Discharge Elimination System construction Stormwater Best Management Practices required for the proposed Project, which do not require covering topsoil spoil piles. MERC does not, however, intend to cover all topsoil piles during construction activities. MERC does not intend to remove topsoil until the welded pipe is ready for placement in the trench. MERC intends to clear the right-of-way, stage and weld the pipe, excavate the trench (including separating topsoil and sub-soil), place the pipe in the trench, replace sub-soil and topsoil, and then complete revegetation.

MERC Response 4: Staff appreciates this clarification, which is consistent with the Agricultural Protection Plan prepared for the proposed project. Staff anticipates that potential impacts to topsoil will remain minimal.

MERC Comment 5: The CEA explains, correctly, that two works spaces are needed for each area where HDD is to be used along the proposed Project. MERC wishes to clarify, however, that the area to be excavated at each HDD work space is anticipated to be approximately 225 square feet. MERC will require a work space larger than 225 square feet to stage equipment for the drilling, but only 225 square feet will be excavated. MERC will work with the underlying landowner on negotiating permission for an area of appropriate size for staging equipment for each HDD work space. These work spaces will need to be at least 20,000 square feet in total size, although some HDD work spaces may need to be larger depending on the length, depth, and angle of the HDD.

MERC Response 5: Staff understands it is the Applicant's intention to co-locate all temporary workspaces for HDD within the construction right-of-way. Staff requests the following information be provided prior to the public hearing: Are there any features (road or waterbody) constraints that would require the temporary workspace be located outside that construction right-of-way but within the route width? Are there any circumstances where the temporary workspace may be required outside the route width? If so, we request these locations be identified on a map and a written description describing the intended use of the temporary workspace be included. Moreover, staff requests the Applicant describe how an easement would be acquired outside of the construction right-of-way should temporary work spaces be required.

MERC Comment 6: While it is MERC's intent to use boring or HDD to minimize impacts to both roadways and paved driveways, if a landowner (paved driveway) or a local road authority (unpaved road) is agreeable, trenching will be used instead of HDD or boring to reduce overall construction costs for the proposed Project. If a landowner (paved driveway) or a local road authority (unpaved road) is not agreeable to trenching, HDD or boring will be used. If HDD of a wetland or waterway is not reasonable, the trench method may be used and MERC will coordinate with the Minnesota Department of Natural Resources and the U.S. Army Corps of Engineers as appropriate.

MERC Response 6: Staff appreciates this clarification.

MERC Comment 7: MERC intends to acquire only easements for the proposed Project, but may acquire fee ownership of Town Border Station or District Regulator Station sites if agreeable by the landowner. Prior to acquiring fee ownership, MERC would complete necessary Phase 1 environmental site assessments to evaluate the likelihood or presence of existing contamination and would address any existing contamination as part of fee ownership negotiations for those three sites. For the 13- mile pipeline for the Project, MERC will acquire easements across property and the landowner would be responsible for potential cleanup costs associated with any existing contamination. In the event that, during construction activities undertaken by MERC or its contractor result in contamination of property, MERC or its contractor would then be responsible for cleanup costs associated with that contamination.

MERC Response 7: Staff appreciates this clarification.

MERC Comment 8: In the event HDD is utilized through an area with woody vegetation, all woody vegetation would be removed in an area measuring five feet on either side of the pipeline centerline, at a minimum. Certain shrub species may be allowed to remain in this area. The vegetation in the remainder of the permanent right-of-way (approximately 40 feet) would be left unless removal was required due to placement of a service natural gas pipeline in the future.

MERC Response 8: Staff appreciates this clarification. Staff anticipates that potential impacts to woody vegetation would remain minimal.

MERC Comment 9: The CEA states that "Burning of slash, brush, stumps, or other project debris is prohibited." While this language is consistent with the language found on page 51 of MERC's Route Permit Application for the proposed Project, MERC would like to retain the ability to burn slash, brush, or stumps due to clearing of the Project right-of-way in the event it is requested by, or agreeable to, the landowner. Burning of these materials would not occur unless agreed to by the landowner.

MERC Response 9: Staff appreciates this clarification. Should burning of slash, brush, and stump materials occur, it may increase the potential for impacts to aesthetics or air quality. These impacts are anticipated to be of a short duration and small size. Potential impacts are anticipated to be minimal.

MERC Comment 10: MERC provided comments regarding the cost and accessibility of the different pipeline segment alternatives.

MERC Response 10: Staff appreciates this clarification. However, we will not address this comment until after the public hearing.

Emails

Minnesota Pollution Control Agency

The Minnesota Pollution Control Agency (MPCA) provided comments that focused on the informational needs associated with the MPCA 401 Water Quality Certification (WQC) for the proposed project and the potential requirements MPCA may require through the 401 Certification. These comments are best addressed through a subsequent Section 401 Water Quality Certification permit should such a permit be required. MPCA did provide several comments specific to the draft CEA.

Before addressing MPCA's comments, it may be helpful for the reader to have a better understanding of the 401 water certification requirements by providing a brief overview of process.

401 Water Quality Certification

Under Section 404 of the Clean Water Act (CWA), the U.S. Army Corps of Engineers (COE) has the authority to issue or deny permits for placement of dredge or fill material in the waters of the United States, including adjacent wetlands. Section 401 of the CWA requires any applicant for a federal license or permit conducting an activity that may result in a discharge of a pollutant into waters of the United States to obtain a certification from the state in which the discharge originates. Discharge must comply with applicable state water quality standards. The 401 certification becomes a condition of Federal permits including Coast Guard Section 10 permits, Federal Energy Regulatory Commission (FERC) permits, and COE Section 404 permits.

The Minnesota Pollution Control Agency has Section 401 Water Quality Certification authority to review the COE's Section 404 permit actions in Minnesota. MPCA has responsibility for Section 401 certification on non-reservation lands in Minnesota, and the Environmental Protection Agency for lands within Indian Reservations. If a project proposal qualifies for a COE General Permit which the MPCA has pre-certified, no further 401 certification actions by the MPCA is required. The Section 404 COE permit is the most common federal permit issued in Minnesota that requires a Section 401 determination from the MPCA.

Where a COE Section 404 Individual Permit is required from the COE, a Section 401 WQC is required from the MPCA. When the COE receives an application for an Individual Permit, the COE prepares a public notice of the application which also serves as the notice for the MPCA Section 401 WQC review. Through its review, MPCA will seek assurance that the COE Individual Permit adequately protects state water quality through proper avoidance,

minimization, or compensatory mitigation. **Appendix C** provides a schematic of MPCA's 401 Water Quality Certification process for federal 404 permits.

MPCA Comment 1: Two Calcareous Fens were mentioned in Section 5.6.5 of the CEA and are within one mile of the Project area. If no Outstanding Resource Value Waters (ORVW), impaired waters, trout waters, and wild rice waters are crossed, please state the Project will not cross any of these areas in the construction of the pipeline.

MPCA Response 1: As noted in the CEA, "calcareous fens are highly sensitive to groundwater disruption and surface water contamination. Direct and indirect impacts to the two calcareous fens identified in the vicinity of the proposed project would likely be avoided since both fens are located more than 0.5 miles from the proposed route segments." The CEA states: "The Applicant would continue to work with DNR staff to identify an appropriate location for the Proposed DRS, with the intention that direct and indirect impacts to the fen(s) would be avoided." If necessary, a fen management plan may be required to insure that the two fens (Rochester 23 and Marion 30) will not be affected.

Several of the water bodies crossed by the proposed project are classified as impaired waters. No Outstanding Resource Value Waters, trout waters or wild rice waters are crossed by any of the route segments. As noted in the CEA, horizontal directional drilling (HDD) or boring will used at road, paved driveway, wetland, and waterway crossings. These sections account for approximately 2.2 miles of the route as proposed by the Applicant.

MPCA Comment 2: Please provide details of the crossing method and best management practices used when crossing the Zumbro River, and Cascade and Willow Creeks.

MPCA Response 2: As discussed in the CEA, direct impacts to surface water resources are expected to be short-term and minimal with use of general permit conditions, proposed construction practices and best management practices. Surface waters are proposed to be crossed by HDD. Typically the HDD would occur 10 feet or more below the stream and river bed unless rock is encountered. Final depth would be determined in consultation with the appropriate resource agencies, such as the DNR or COE, as appropriate. Application of Best Management Practices (BMP's) are discussed later in these reply comments.

MPCA Comment 3: The CEA states that for all temporary wetland impacts, MERC will return each location to pre-construction contours and wetland quality. Please describe how this requirement will be met.

MPCA Response 3: The rolling topography and network of bluffs and stream valley generally restrict wetlands to the low elevations of stream valleys and along riparian corridors. Consequently, most of the National Wetlands Inventory (NWI) wetland crossings are associated with water crossing, where the wetlands are relatively narrow and restricted to the immediate vicinity of the waterway. The use of HDD methods generally minimizes or avoids impact to wetlands. Because MERC proposes to cross wetlands using the HDD method, to the greatest extent practicable the direct and indirect impact on wetlands is anticipated to be short-term and minimal.

When the use of boring or HDD to cross a wetland may not be practical or reasonable because of site conditions or engineering constraints a wetland may be crossed by using the traditional trench method that. Trenching across a wetland requires excavation and fill. This meets the definition of an impact under both the Minnesota Wetland Conservation Act and the United States Army Corps of Engineers Section 404 permit and requires the need to obtain all the necessary permits. The Generic Route Permit at Sections 5.5.12 and 5.5.21 also requires that certain mitigation measures be followed, which includes restoration of wetlands to pre-construction contours and wetland quality. This is also addressed in the BMP's discussion.

MPCA Comment 4: Describe how MERC will stabilize and return each stream bank impacted during crossing to its original form and function. Please state if MERC does not anticipate impacts to stream banks.

MPCA Response 4: As stated above, the Applicant anticipates that all streams, rivers, wetlands, and floodways are to be crossed by use of HDD, where possible. Therefore, no impacts to streambanks are anticipated. If streambanks are affected, the Applicant will coordinate with DNR and the Army Corps of Engineers, as appropriate, and secure all necessary permits. Streambank setbacks may also be addressed by route permit conditions or through compliance with appropriate BMP's.

Best Management Practices (BMP's)

MPCA's comments, in part, addressed BMP's that may be used when crossing sensitive resource features. BMP's, as defined by the Environmental Protection Agency (EPA) are "methods that have been determined to be the most effective, practical means of preventing or reducing pollution from nonpoint sources." There are numerous types of BMP's that cover specific types of construction related activities associated with pipeline projects.

The Comparative Environmental Analysis, Volume II of II, Appendix G includes several BMP's proposed by MERC and they are as follows:

- G-1 Dewatering
- G-2 Erosion Control Mats
- G-3 Sediment Control
- G-4 Mulching, Seeding and Sod; and
- G-5 Frac Out Response Plan and Report Form

Although the BMP's identified by MERC are representative of several BMP's or plans and practices, it is not intended to be an inclusive list of BMP's that may be appropriate for this this project. Not all BMP's are applicable to all pipeline projects. BMP's may be specifically designed or existing ones modified for certain project conditions or projects. BMP's have been included as requirements in route permits issued by the Commission.

For illustrative purpose, Appendix G-5, "Example Frac out Response Plan and Report Form" provides for the basic requirements in response to a frac out, but is less prescriptive than other plans that address the same topic. This point is illustrated in **Appendix D**, identified as a "Sample Fraction Mitigation Contingency Plan for Directional Drilling" that provides a more descriptive narrative of what to do when a frac out occurs that could be blended with MERC's proposed plan to minimize the adverse effect of frac outs.

As discussed in the CEA, there is an upstream component of this project that will require Northern Natural Gas (NNG) to construct approximately 11 miles of high pressure natural gas pipeline that will provide natural gas to MERC's new proposed town border station. That project will be reviewed by the Federal Energy Regulatory Commission (FERC), as are all other inter-state natural gas pipeline projects. When FERC issues a certificate authorizing approval of an inter-state natural gas pipeline project the entity constructing the project must comply with FERC's requirements for:

- Wetland and Waterbody Construction and Mitigation Procedures (**See Appendix E**);
- Upland Erosion Control, Revegetation, and Maintenance Plan (See **Appendix F)**

These Plans and Procedures (P &P), similar to BMP's represent FERC's "baseline mitigation measures for minimizing the environmental impacts of the full lifespan of natural gas projects. These Plans and Procedures were updated by FERC in May 2013. **Appendix G**, "What the May 2013 Revisions to the FERC Plan and Procedures Mean to You" summarizes the changes and modifications made to the Wetland and Waterbody Construction and Mitigation Procedures and the Erosion Control, Revegetation, and Maintenance Plan and should be reviewed in conjunction with the specific requirements of the plans.

MERC's proposed BMP's did not include examples of "wetland and waterbody crossings and mitigation procedures" or "upland erosion control, revegetation and maintenance plans" that cover these two areas. Upland erosion control, revegetation and maintenance may be covered, in part, by the requirement for an erosion and sedimentation control plan pursuant to the MPCA NPDES Construction Stormwater Discharge Permit and Minnesota Rules 7852.3600.

FERC will require NNG to comply with its "Wetland and Waterbody Construction and Mitigation Procedures" and "Upland Erosion Control, Revegetation, and Maintenance Plan" Because of this requirement, it is reasonable to adopt similar requirements or BMP's for MERC's proposed pipeline project to insure that the two pipeline projects (NNG and MERC) will use the same construction and restoration standards and requirements for the proposed projects, as opposed to two different standards.

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Appendix A

Meeting Presentation

MINNESOTA DEPARTMENT OF COMMERCE

Comparative Environmental Analysis

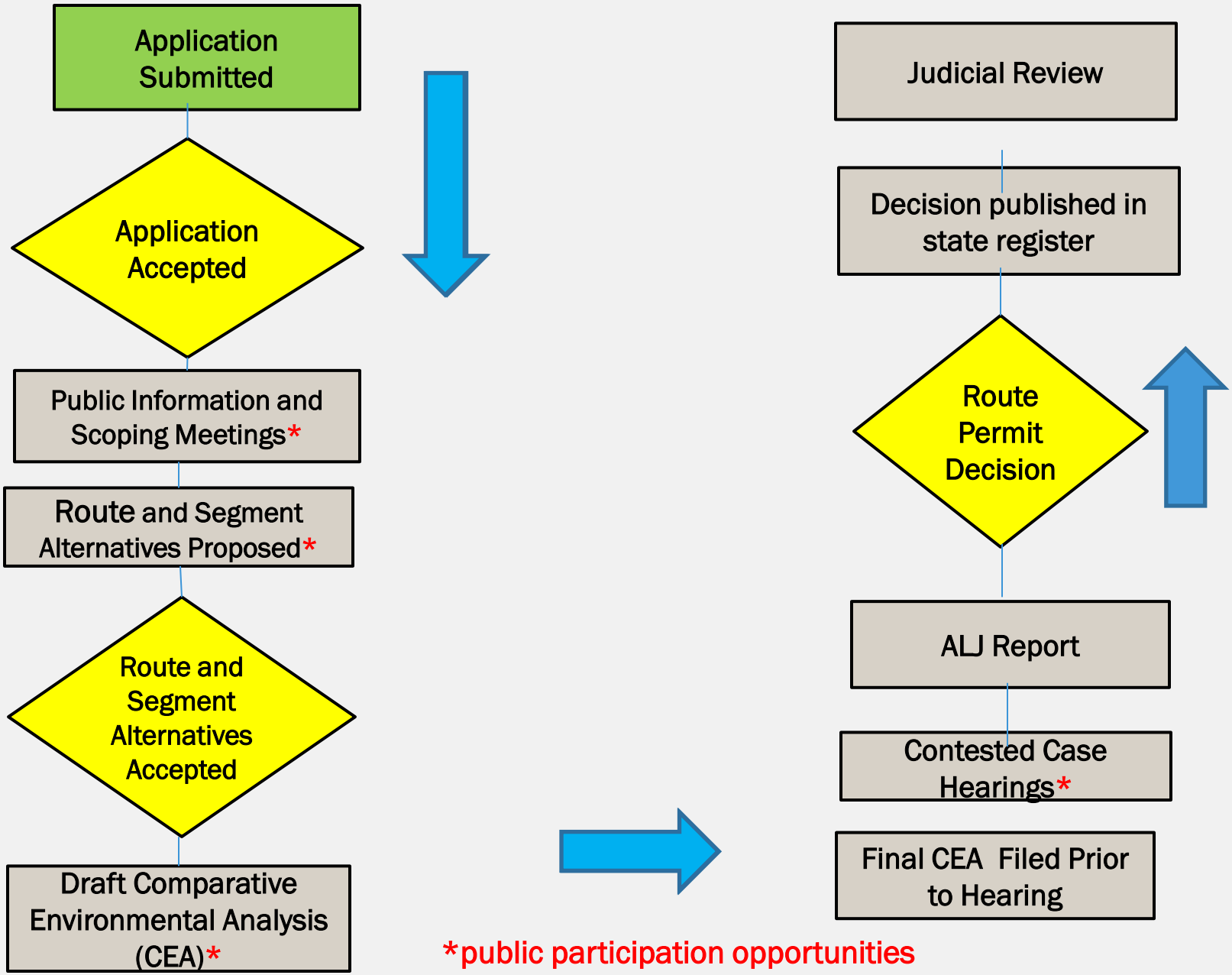
Comment Meeting

ROCHESTER NATURAL GAS PIPELINE PROJECT

G-011/GP-15-858

Pipeline Routing Process

- Routing of pipelines governed by Minn Statute 216.G and Minn Rule7852
- Rochester Natural Gas Pipeline Project is a full review process (7852.0800-7852-1900)
- Includes preparation of an environmental document
- Public hearings presided by an Administrative Law Judge from the Office of Administrative Hearings



*public participation opportunities

Scoping the Environmental Document

Scoping meetings provide the public, agencies, tribes, and local governments the opportunity to:

1. Identify issues and impacts (human and environmental) for analysis
2. Participate in the development of route and segment alternatives
3. Route alternatives approved by PUC

What is a Comparative Environmental Analysis?

- Environmental document for pipelines
- Alternative form of environmental review approved by EQB to meet MEPA requirements
- Objective Analysis of the Project
  - Impacts and Mitigation Measures
  - Does not Advocate – Just the Facts
  - Goal = Informed Decision Making

RESPONSIBILITIES OF STATE AGENCIES FOR PIPELINE PERMITTING & REGULATION

Minnesota Department of Agriculture

Minnesota Department of Natural Resources

Minnesota Pollution Control Agency

Office of Pipeline Safety/Minnesota Department of Public Safety

Anticipated Route Permitting Schedule

Milestone		
Application Acceptance	February 3, 2016	
Public Information and Scoping Meetings	February 29, 2016	
Comment period on routes and route alternatives	April 13, 2016	
Routes Accepted for Consideration by PUC	July 2016	
Draft Comparative Environmental Analysis Released & Public Comment Meeting on CEA	September 2016	
Public Hearing (Rochester) Evidentiary Hearing (St. Paul)	November 9, 2016 November 10, 2016	
Commission Route Permit Decision	March 2017	

Comments

- Verbal Comments at CEA meeting
- Complete and Submit a Comment Sheet
- Comment On-Line http://mn.gov/commerce/energyfacilities

- Mail, Fax, or Email a Comment:

  Larry Hartman, Environmental Review Manager
  Minnesota Department of Commerce
  85 7th Place East, Suite 500
  St. Paul, MN 55101-2198

  fax: 651-539-0109
  Toll Free: 1-800-657-3794
  larry.hartman@state.mn.us

Comment Period Ends: October 6, 2016

Comments

- One Speaker at a Time (Please Fill out Speaker Card)
- Please State and Spell Your Name for the Court Reporter
- Please Limit Comments to a Few Minutes
- Maintain Respect for Others
- Direct Your Comments to Questions about the CEA

Public Hearing November 9, 2016

- Presided Over by Administrative Law Judge
  - At all hearing conducted pursuant to part 1405.0200 to 1405.2800, all persons will be allowed and encourage to participate without the necessity of intervening as parties. Participation shall include, but not be limited to:

A. Offering direct testimony with or without benefit of oath or affirmation and without the necessity of prefiling as required by part 1405.1900.

B. Offering direct testimony or other written form at or following the hearing. However, testimony, which is offered without benefit of oath or affirmation, or written direct testimony which is not subject to cross-examination, shall be given such weight as the administrative law judge deems appropriate.

c. Questioning all persons testifying. Any person who wishes to cross-examine a witness but who does not want to ask questions, orally, may submit questions in writing to the administrative law judge, who will then ask the questions of the witness. Questions may be submitted before or during the hearings.

Appendix B

Agricultural Resource Conservation Program 2-CRP

631 Guidelines for Public Use of CRP Land

A Public Use of CRP Land Guidelines

The following is the procedure for continuing CRP-1 on land temporarily being used by public utilities for installing gas lines, pipes, cable, telephone poles, etc., materials used by an entity of the State for road building or Federally funded pipeline projects.

CRP-1's may be continued without reduction in payment if:

- the participant gives COC or CED details of proposed temporary use, including length of use

- COC authorizes the use

  Note: Use is **not** authorized during the primary nesting season.

- NRCS or TSP certifies usage will have minimal effect, such as:

  - erosion is kept to a minimum
  - minimum effect on wildlife and wildlife habitat
  - minimum effect on water and air quality

- the participant restores cover, at the participant's expense, to disturbed land in timeframe set by COC or CED.

  Note: No payment reduction will be made for compensation received by the participant from the public agency.

NRCS or TSP will determine whether the disturbance will have an adverse effect on the land. If NRCS or TSP determines that public use will have an adverse effect on CRP acreage, affected acreage shall be terminated and refunds assessed.

632 Carbon Sequestration Credits

A Selling Carbon Sequestration Credits

CRP participants may sell carbon sequestration credits associated with land enrolled in CRP. Selling carbon sequestration credits is not considered commercial use and is not, therefore, a violation of CRP-1.

Appendix C

Schematic of 401 Water Quality Certification Process

MINNESOTA POLLUTION CONTROL AGENCY
401 WATER QUALITY CERTIFICATION PROCESS
FOR FEDERAL 404 PERMITS

401 Certification Application

- Individual 401 Application - Combined Project Application (CPA)

Review for Compliance with Water Quality Standards, Policies and Guidelines

- Assessment of Designated Uses
- Numerical Limits for Discharge of Effluent
- Wetland Impact/Alteration Evaluation
  * Water Dependency Test
  * Individual and Cumulative Impacts
  * Satisfy Non-Degradation
  * No-Net Loss Policy for Wetlands
- Sequence Mitigation for Wetland Impact
  * Avoid the Wetland Impact
  * Minimize the Wetland Impact
  * Mitigate Unavoidable Impact with Wetland Compensation

Request Additional Information and/or Negotiate Conditions

- Letters/Meetings/Site Inspection with Applicant

Public Notice of Certification

- Public Notice of 401 Certification is Contained in 404 Public Notice

or

- Individual 401 Public Notice by MPCA

MPCA Final Action
- Certification
- Waiver
- Deny

- Certification or Waiver May Contain Conditions

Appendix D

Sample Fraction Mitigation Plan

SAMPLE
FRACTION MITIGATION
CONTINGENCY PLAN
FOR DIRECTIONAL DRILLING

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FRAC-OUT CONTINGENCY PLAN (FCP)

1.0 Introduction and Purpose

Directional bore operations have a potential to release drilling fluids into the surface environment through frac-outs (A frac-out is the condition where drilling mud is released through fractured bedrock into the surrounding rock and sand and travels toward the surface.) Because drilling muds consist largely of a bentonite clay-water mixture, they are not classified as toxic or hazardous substances. However, if it is released into water bodies, bentonite has the potential to adversely impact fish and invertebrates.

While drilling fluid seepage associated with a frac-out is most likely to occur near the bore entry and exit points where the drill head is shallow, frac-outs can occur in any location along a directional bore. This Frac-Out Contingency Plan (FCP) establishes operational procedures and responsibilities for the prevention, containment, and clean-up of frac-outs associated with the proposed directional drilling utility project of _____. All personnel and Sub-Contractors responsible for the work must adhere to this plan during the directional drilling process.

The specific objectives of this plan are to:

1. Minimize the potential for a frac-out associated with directional drilling activities;
2. Provide for the timely detection of frac-outs;
3. Protect the environmentally sensitive riverbed and associated riparian vegetation;
4. Ensure an organized, timely, and "minimum-impact" response in the event of a frac-out and release of drilling bentonite; and
5. Ensure that all appropriate notifications are made immediately to the customer, management and safety personnel.

2.0 Description of Work:

The proposed project consists of: *(Explain work task in detail to crew members.)*

Drilling operations will be halted by the drill rig operators immediately upon detection of a drop in drilling pressure or other evidence of a frac-out. The clean-up of all spills shall begin immediately. Management & safety department shall be notified immediately of any spills and shall be consulted regarding clean-up procedures. A spill kit shall be on-site and used if a frac-out occurs. A vacuum truck and containment materials, such as straw bales, shall also be on-site prior to and during all operations. The Site Supervisor will be immediately notified. In the event of a frac-out, the on-site foreman/supervisor will conduct an evaluation of the situation and direct recommended mitigation actions, based on the following guidelines:

a. If the frac-out is minor, easily contained. has not reached the surface and is not threatening sensitive resources, drilling operations may resume after use of a leak stopping compound or redirection of the bore;

b. If the frac-out has reached the surface, any material contaminated with Bentonite shall be removed by hand to a depth of 2-feet, contained and properly disposed of, as required by law. The drilling contractor shall be responsible for ensuring that the bentonite is either properly disposed of at an approved disposal facility or properly recycled in an approved manner. The Site Supervisor shall notify and take any necessary follow-up response actions in coordination with agency representatives. The Site Supervisor will coordinate the mobilization of equipment stored at off-site locations (e.g., vacuum trucks) on an as needed basis;

3.0 Site Supervisor/Foremen Responsibilities:

The Site Supervisor/Foremen has overall responsibility for implementing this FCP. The Site Supervisor/Foremen will ensure that all employees are trained prior to all drilling. The Site Supervisor/Foremen shall be notified immediately when a frac-out is detected. The Site Supervisor/Foremen will be responsible for ensuring that the safety department is aware of the frac-out, coordinating personnel, response, cleanup, regulatory agency notification and coordination to ensure proper clean-up, disposal of recovered material and timely reporting of the incident. The Site Supervisor/Foremen shall ensure all waste materials are properly containerized, labeled, and removed from the site to an approved disposal facility by personnel experienced in the removal, transport and disposal of drilling mud.

The Site Supervisor/Foremen shall be familiar with all aspects of the drilling activity, the contents of this Frac-out Contingency Plan and the conditions of approval under which the activity is permitted to take place. The Site Supervisor/Foremen shall have the authority to stop work and commit the resources (personnel and equipment) necessary to implement this plan. The Site Supervisor/Foremen shall assure that a copy of this plan is available (onsite) and accessible to all construction personnel. The Site Supervisor/Foremen shall ensure that all workers are properly trained and familiar with the necessary procedures for response to a frac-out, prior to commencement of drilling operations.

4.0 Equipment:

The Site Supervisor shall ensure that:

- All equipment and vehicles are be checked and maintained daily to prevent leaks of hazardous materials;
- Spill kits and spill containment materials are available on-site at all times and that the equipment is in good working order;
- Equipment required to contain and clean up a frac-out release will either be available at the work site or readily available at an offsite location within 15-minutes of the bore site; and
- If equipment is required to be operated near a riverbed, absorbent pads and plastic sheeting for placement beneath motorized equipment shall be used to protect the riverbed from engine fluids;

5.0 Training

Prior to the start of construction, the Site Supervisor/Foremen, shall ensure that the crew members receive training in the following:

- The provisions of the Frac-out Contingency Plan, equipment maintenance and site specific permit and monitoring requirements;
- Inspection procedures for release prevention and containment equipment and materials;
- Contractor/crew obligation to immediately stop the drilling operation upon first evidence of the occurrence of a frac-out and to immediately report any frac-out releases;
- Contractor/crew member responsibilities in the event of a release;
- Operation of release prevention and control equipment and the location of release control materials, as necessary and appropriate; and
- Protocols for communication with agency representatives who might be on-site during the clean-up effort.

6.0 Drilling Procedures

The following procedures shall be followed each day, prior to the start of work. The Frac-out Contingency Plan shall available on-site during **all** construction. The Site Supervisor/Foremen shall be on-site at any time that drilling is occurring or is planned to occur. The Site Supervisor/Foremen shall ensure that a Job Briefing meeting is held at the start of each day of drilling to review the appropriate procedures to be followed in case of a frac-out. Questions shall be answered and clarification given on any point over which the drilling crew or other project staff has concerns.

Drilling pressures shall be closely monitored so they do not exceed those needed to penetrate the formation. Pressure levels shall be monitored randomly by the operator. Pressure levels shall be set at a minimum level to prevent frac-outs. During the pilot bore, maintain the drilled annulus. Cutters and reamers will be pulled back into previously-drilled sections after each new joint of pipe is added.

Exit and entry pits shall be enclosed by silt fences a nd straw. A spill kit shall be on-site and used if a frac-out occurs. A vacuum truck shall be readily available on-site prior to and during all drilling operations. Containment materials (Straw, silt fencing, sand bags, frac-out spill kits, etc.) shall be staged on-site at location where they are readily available and easily mobilized for immediate use in the event of an accidental release of drilling mud (frac-out). If necessary, barriers (straw bales or sedimentation fences) between the bore site and the edge of the water source, shall be constructed, prior to drilling, to prevent released bentonite material from reaching the water.

Once the drill rig is in place, and drilling begins, the drill operator shall stop work whenever the pressure in the drill rig drops, or there is a lack of returns in the entrance pit. At this time the Site Supervisor/Foremen shall be informed of the potential frac-out. The Site Supervisor/Foremen and the drill rig operator(s) shall work to coordinate the likely location of the frac-out. The location of the frac-out shall be recorded and notes made on the location and measures taken to address the concern. The following subsections shall be adhered to when addressing a frac-out situation.

Water containing mud, silt, bentonite, or other pollutants from equipment washing or other activities, shall not be allowed to enter a lake, flowing stream or any other water source. The Bentonite used in the drilling process shall be either disposed of at an approved disposal facility or recycled in an approved manner. Other construction materials and wastes shall be recycled, or disposed of, as appropriate.

6.1 Vac-Truck:

A vacuum truck shall be staged at a location from which it can be mobilized and relocated so that any place along the drill shot, can be reached by the apparatus, within 10 minutes of a frac-out.

6.2 Field Response to Frac-out Occurrence:

The response of the field crew to a frac-out release shall be immediate and in accordance with procedures identified in this Plan. All appropriate emergency actions that do not pose additional threats to sensitive resources will be taken, as follows:

a. Directional boring will stop immediately;
b. The bore stem will be pulled back to relieve pressure on frac-out;
c. The Site Supervisor/Foremen will be notified to ensure that management and the safety department is notified, adequate response actions are taken and notifications made;
d. The Site Supervisor/Foremen shall evaluate the situation and recommend the type and level of response warranted, including the level of notification required;
e. If the frac-out is minor, easily contained, has not reached the surface and is not threatening sensitive resources, a leak stopping compound shall be used to block the frac-out. If the use of leak stopping compound is not fully successful, the bore stem shall be redirected to a new location along the desired drill path where a frac-out has not occurred;
f. If the frac-out has reached the surface, any material contaminated with Bentonite shall be removed by hand, to a depth of 2-feet, contained and properly disposed of, as required by law. A dike or berm may be constructed around the frac-out to entrap released drilling fluid, if necessary. Clean sand shall be placed and the area returned to pre-project contours; and
g. If a frac-out occurs, reaches the surface and becomes widespread, the Site Supervisor/Foremen shall authorize a readily accessible vacuum truck and bulldozer stored off-site to be mobilized. The vacuum truck may be either positioned at either end of the line of the drill so that the frac-out can be reached by crews on foot, or may be pulled by a bulldozer, so that contaminated soils can be vacuumed up.

6.3 Response Close-out Procedures:

When the release has been contained and cleaned up, response closeout activities will be conducted at the direction of the Site Supervisor/Foremen and shall include the following:

a. The recovered drilling fluid will either be recycled or hauled to an approved facility for disposal. No recovered drilling fluids will be discharged into streams, storm drains or any other water source;
b. All frac-out excavation and clean-up sites will be returned to pre-project contours using clean fill, as necessary; and
c. All containment measures (fiber rolls, straw bale, etc.) will be removed, unless otherwise specified by the Site Supervisor/Foremen.

6.4 Construction Re-start:

For small releases not requiring external notification, drilling may continue, if 100 percent containment is achieved through the use of a leak stopping compound or redirection of the bore and the clean-up crew remains at the frac-out location throughout the construction period.

For releases requiring external notification and/or other agencies, construction activities will not restart without prior approval from the safety department.

6.5 Bore Abandonment:

Abandonment of the bore will only be required when all efforts to control the frac-out within the existing directional bore have failed.

7.0 Notification:

In the event of a Frac-out that reaches a water source, the Site Supervisor/Foremen will notify safety department so they can notify the appropriate resource agencies. All agency notifications will occur within 24 hours and proper documentation will be accomplished in a timely and complete manner. The following information will be provided:

1. Name and telephone number of person reporting;
2. Location of the release;
3. Date and time of release;
4. Type and quantity, estimated size of release;
5. How the release occurred;
6. The type of activity that was occurring around the area of the frac-out;
7. Description of any sensitive areas, and their location in relation to the frac-out;
8. Description of the methods used to clean up or secure the site; and
9. Listing of the current permits obtained for the project.

7.1 Communicating with Regulatory Agency Personnel:

All employees and subcontractors will adhere to the following protocols when permitting Regulatory Agency Personnel arrive on site. Regulatory Agency Personnel will be required to comply with appropriate safety rules. Only the Site Supervisor/Foremen and the safety department are to coordinate communication with Regulatory Agency Personnel.

7.2 Documentation:

The Site Supervisor/Foremen shall record the frac-out event in his or her daily log. The log will include the following: Details on the release event, including an estimate of the amount of bentonite released, the location and time of release, the size of the area impacted, and the success of the clean-up action. The log report shall also include the: Name and telephone number of person reporting; Date, How the release occurred; The type of activity that was occurring around the area of the free-out: Description of any sensitive areas, and their location in relation to the frac-out: Description of the methods used to clean up or secure the site; and a listing of the current permits obtained for the project.

8.0 Project Completion and Clean-up:

a. All materials and any rubbish-construction debris shall be removed from the construction zone at the end of each workday;
b. Sump pits at bore entry and exits will be filled and returned to natural grade; and
c. All protective measures (fiber rolls, straw bale, silt fence, etc.) will be removed unless otherwise specified by the Site Supervisor/Foremen.

Appendix E

Wetland and Waterbody Construction and Mitigation Procedures

Federal Energy Regulatory Commission

Office of Energy Projects

May 2013

WETLAND AND WATERBODY CONSTRUCTION AND MITIGATION PROCEDURES

Washington, DC 20426

MAY 2013 VERSION

WETLAND AND WATERBODY CONSTRUCTION AND MITIGATION PROCEDURES

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WETLAND AND WATERBODY CONSTRUCTION AND MITIGATION PROCEDURES (PROCEDURES)

I. APPLICABILITY

A. The intent of these Procedures is to assist project sponsors by identifying baseline mitigation measures for minimizing the extent and duration of project-related disturbance on wetlands and waterbodies. Project sponsors shall specify in their applications for a new FERC authorization, and in prior notice and advance notice filings, any individual measures in these Procedures they consider unnecessary, technically infeasible, or unsuitable due to local conditions and fully describe any alternative measures they would use. Project sponsors shall also explain how those alternative measures would achieve a comparable level of mitigation.

Once a project is authorized, project sponsors can request further changes as variances to the measures in these Procedures (or the applicant's approved procedures). The Director of the Office of Energy Projects (Director) will consider approval of variances upon the project sponsor's written request, if the Director agrees that a variance:

1. provides equal or better environmental protection;

2. is necessary because a portion of these Procedures is infeasible or unworkable based on project-specific conditions; or

3. is specifically required in writing by another federal, state, or Native American land management agency for the portion of the project on its land or under its jurisdiction.

Sponsors of projects planned for construction under the automatic authorization provisions in the FERC's regulations must receive written approval for any variances in advance of construction.

Project-related impacts on non-wetland areas are addressed in the staff's Upland Erosion Control, Revegetation, and Maintenance Plan (Plan).

B. DEFINITIONS

1. "Waterbody" includes any natural or artificial stream, river, or drainage with perceptible flow at the time of crossing, and other permanent waterbodies such as ponds and lakes:

   a. "minor waterbody" includes all waterbodies less than or equal to 10 feet wide at the water's edge at the time of crossing;

   b. "intermediate waterbody" includes all waterbodies greater than 10 feet wide but less than or equal to 100 feet wide at the water's edge at the time of crossing; and

   c. "major waterbody" includes all waterbodies greater than 100 feet wide at the water's edge at the time of crossing.

2. "Wetland" includes any area that is not in actively cultivated or rotated cropland and that satisfies the requirements of the current federal methodology for identifying and delineating wetlands.

II. PRECONSTRUCTION FILING

A. The following information must be filed with the Secretary of the FERC (Secretary) prior to the beginning of construction, for the review and written approval by the Director:

1. site-specific justifications for extra work areas that would be closer than 50 feet from a waterbody or wetland; and

2. site-specific justifications for the use of a construction right-of-way greater than 75-feet-wide in wetlands.

B. The following information must be filed with the Secretary prior to the beginning of construction. These filing requirements do not apply to projects constructed under the automatic authorization provisions in the FERC's regulations:

1. Spill Prevention and Response Procedures specified in section IV.A;

2. a schedule identifying when trenching or blasting will occur within each waterbody greater than 10 feet wide, within any designated coldwater fishery, and within any waterbody identified as habitat for federally-listed threatened or endangered species. The project sponsor will revise the schedule as necessary to provide FERC staff at least 14 days advance notice. Changes within this last 14-day period must provide for at least 48 hours advance notice;

3. plans for horizontal directional drills (HDD) under wetlands or waterbodies, specified in section V.B.6.d;

4. site-specific plans for major waterbody crossings, described in section V.B.9;

5. a wetland delineation report as described in section VI.A.1, if applicable; and

6. the hydrostatic testing information specified in section VII.B.3.

III. ENVIRONMENTAL INSPECTORS

A. At least one Environmental Inspector having knowledge of the wetland and waterbody conditions in the project area is required for each construction spread. The number and experience of Environmental Inspectors assigned to each construction spread shall be appropriate for the length of the construction spread and the number/significance of resources affected.

B. The Environmental Inspector's responsibilities are outlined in the Upland Erosion Control, Revegetation, and Maintenance Plan (Plan).

IV. PRECONSTRUCTION PLANNING

A. The project sponsor shall develop project-specific Spill Prevention and Response Procedures that meet applicable requirements of state and federal agencies. A copy must be filed with the Secretary prior to construction and made available in the field on each construction spread. This filing requirement does not apply to projects constructed under the automatic authorization provisions in the FERC's regulations.

1. It shall be the responsibility of the project sponsor and its contractors to structure their operations in a manner that reduces the risk of spills or the accidental exposure of fuels or hazardous materials to waterbodies or wetlands. The project sponsor and its contractors must, at a minimum, ensure that:

a. all employees handling fuels and other hazardous materials are properly trained;

b. all equipment is in good operating order and inspected on a regular basis;

c. fuel trucks transporting fuel to on-site equipment travel only on approved access roads;

d. all equipment is parked overnight and/or fueled at least 100 feet from a waterbody or in an upland area at least 100 feet from a wetland boundary. These activities can occur closer only if the Environmental Inspector determines that there is no reasonable alternative, and the

project sponsor and its contractors have taken appropriate steps (including secondary containment structures) to prevent spills and provide for prompt cleanup in the event of a spill;

e. hazardous materials, including chemicals, fuels, and lubricating oils, are not stored within 100 feet of a wetland, waterbody, or designated municipal watershed area, unless the location is designated for such use by an appropriate governmental authority. This applies to storage of these materials and does not apply to normal operation or use of equipment in these areas;

f. concrete coating activities are not performed within 100 feet of a wetland or waterbody boundary, unless the location is an existing industrial site designated for such use. These activities can occur closer only if the Environmental Inspector determines that there is no reasonable alternative, and the project sponsor and its contractors have taken appropriate steps (including secondary containment structures) to prevent spills and provide for prompt cleanup in the event of a spill;

g. pumps operating within 100 feet of a waterbody or wetland boundary utilize appropriate secondary containment systems to prevent spills; and

h. bulk storage of hazardous materials, including chemicals, fuels, and lubricating oils have appropriate secondary containment systems to prevent spills.

2. The project sponsor and its contractors must structure their operations in a manner that provides for the prompt and effective cleanup of spills of fuel and other hazardous materials. At a minimum, the project sponsor and its contractors must:

a. ensure that each construction crew (including cleanup crews) has on hand sufficient supplies of absorbent and barrier materials to allow the rapid containment and recovery of spilled materials and knows the procedure for reporting spills and unanticipated discoveries of contamination;

b. ensure that each construction crew has on hand sufficient tools and material to stop leaks;

c. know the contact names and telephone numbers for all local, state, and federal agencies (including, if necessary, the U. S. Coast Guard and the National Response Center) that must be notified of a spill; and

d. follow the requirements of those agencies in cleaning up the spill, in excavating and disposing of soils or other materials contaminated by a spill, and in collecting and disposing of waste generated during spill cleanup.

B. AGENCY COORDINATION

The project sponsor must coordinate with the appropriate local, state, and federal agencies as outlined in these Procedures and in the FERC's Orders.

V. WATERBODY CROSSINGS

A. NOTIFICATION PROCEDURES AND PERMITS

1. Apply to the U.S. Army Corps of Engineers (COE), or its delegated agency, for the appropriate wetland and waterbody crossing permits.

2. Provide written notification to authorities responsible for potable surface water supply intakes located within 3 miles downstream of the crossing at least 1 week before beginning work in the waterbody, or as otherwise specified by that authority.

3. Apply for state-issued waterbody crossing permits and obtain individual or generic section 401 water quality certification or waiver.

4. Notify appropriate federal and state authorities at least 48 hours before beginning trenching or blasting within the waterbody, or as specified in applicable permits.

B. INSTALLATION

1. Time Window for Construction

Unless expressly permitted or further restricted by the appropriate federal or state agency in writing on a site-specific basis, instream work, except that required to install or remove equipment bridges, must occur during the following time windows:

a. coldwater fisheries - June 1 through September 30; and

b. coolwater and warmwater fisheries - June 1 through November 30.

2. Extra Work Areas

a. Locate all extra work areas (such as staging areas and additional spoil storage areas) at least 50 feet away from water's edge, except where

the adjacent upland consists of cultivated or rotated cropland or other disturbed land.

b. The project sponsor shall file with the Secretary for review and written approval by the Director, site-specific justification for each extra work area with a less than 50-foot setback from the water's edge, except where the adjacent upland consists of cultivated or rotated cropland or other disturbed land. The justification must specify the conditions that will not permit a 50-foot setback and measures to ensure the waterbody is adequately protected.

c. Limit the size of extra work areas to the minimum needed to construct the waterbody crossing.

3. General Crossing Procedures

a. Comply with the COE, or its delegated agency, permit terms and conditions.

b. Construct crossings as close to perpendicular to the axis of the waterbody channel as engineering and routing conditions permit.

c. Where pipelines parallel a waterbody, maintain at least 15 feet of undisturbed vegetation between the waterbody (and any adjacent wetland) and the construction right-of-way, except where maintaining this offset will result in greater environmental impact.

d. Where waterbodies meander or have multiple channels, route the pipeline to minimize the number of waterbody crossings.

e. Maintain adequate waterbody flow rates to protect aquatic life, and prevent the interruption of existing downstream uses.

f. Waterbody buffers (e.g., extra work area setbacks, refueling restrictions) must be clearly marked in the field with signs and/or highly visible flagging until construction-related ground disturbing activities are complete.

g. Crossing of waterbodies when they are dry or frozen and not flowing may proceed using standard upland construction techniques in accordance with the Plan, provided that the Environmental Inspector verifies that water is unlikely to flow between initial disturbance and final stabilization of the feature. In the event of perceptible flow, the project sponsor must comply with all applicable Procedure requirements for "waterbodies" as defined in section I.B.1.

4. Spoil Pile Placement and Control

a. All spoil from minor and intermediate waterbody crossings, and upland spoil from major waterbody crossings, must be placed in the construction right-of-way at least 10 feet from the water's edge or in additional extra work areas as described in section V.B.2.

b. Use sediment barriers to prevent the flow of spoil or silt-laden water into any waterbody.

5. Equipment Bridges

a. Only clearing equipment and equipment necessary for installation of equipment bridges may cross waterbodies prior to bridge installation. Limit the number of such crossings of each waterbody to one per piece of clearing equipment.

b. Construct and maintain equipment bridges to allow unrestricted flow and to prevent soil from entering the waterbody. Examples of such bridges include:

(1) equipment pads and culvert(s);
(2) equipment pads or railroad car bridges without culverts;
(3) clean rock fill and culvert(s); and
(4) flexi-float or portable bridges.

Additional options for equipment bridges may be utilized that achieve the performance objectives noted above. Do not use soil to construct or stabilize equipment bridges.

c. Design and maintain each equipment bridge to withstand and pass the highest flow expected to occur while the bridge is in place. Align culverts to prevent bank erosion or streambed scour. If necessary, install energy dissipating devices downstream of the culverts.

d. Design and maintain equipment bridges to prevent soil from entering the waterbody.

e. Remove temporary equipment bridges as soon as practicable after permanent seeding.

f. If there will be more than 1 month between final cleanup and the beginning of permanent seeding and reasonable alternative access to the right-of-way is available, remove temporary equipment bridges as soon as practicable after final cleanup.

g. Obtain any necessary approval from the COE, or the appropriate state agency for permanent bridges.

6. Dry-Ditch Crossing Methods

a. Unless approved otherwise by the appropriate federal or state agency, install the pipeline using one of the dry-ditch methods outlined below for crossings of waterbodies up to 30 feet wide (at the water's edge at the time of construction) that are state-designated as either coldwater or significant coolwater or warmwater fisheries, or federally-designated as critical habitat.

b. Dam and Pump

(1) The dam-and-pump method may be used without prior approval for crossings of waterbodies where pumps can adequately transfer streamflow volumes around the work area, and there are no concerns about sensitive species passage.

(2) Implementation of the dam-and-pump crossing method must meet the following performance criteria:

(i) use sufficient pumps, including on-site backup pumps, to maintain downstream flows;
(ii) construct dams with materials that prevent sediment and other pollutants from entering the waterbody (e.g., sandbags or clean gravel with plastic liner);
(iii) screen pump intakes to minimize entrainment of fish;
(iv) prevent streambed scour at pump discharge; and
(v) continuously monitor the dam and pumps to ensure proper operation throughout the waterbody crossing.

c. Flume Crossing

The flume crossing method requires implementation of the following steps:

(1) install flume pipe after blasting (if necessary), but before any trenching;

(2) use sand bag or sand bag and plastic sheeting diversion structure or equivalent to develop an effective seal and to divert stream flow through the flume pipe (some modifications to the stream bottom may be required to achieve an effective seal);

(3) properly align flume pipe(s) to prevent bank erosion and streambed scour;

(4) do not remove flume pipe during trenching, pipelaying, or backfilling activities, or initial streambed restoration efforts; and

(5) remove all flume pipes and dams that are not also part of the equipment bridge as soon as final cleanup of the stream bed and bank is complete.

d. Horizontal Directional Drill

For each waterbody or wetland that would be crossed using the HDD method, file with the Secretary for the review and written approval by the Director, a plan that includes:

(1) site-specific construction diagrams that show the location of mud pits, pipe assembly areas, and all areas to be disturbed or cleared for construction;

(2) justification that disturbed areas are limited to the minimum needed to construct the crossing;

(3) identification of any aboveground disturbance or clearing between the HDD entry and exit workspaces during construction;

(4) a description of how an inadvertent release of drilling mud would be contained and cleaned up; and

(5) a contingency plan for crossing the waterbody or wetland in the event the HDD is unsuccessful and how the abandoned drill hole would be sealed, if necessary.

The requirement to file HDD plans does not apply to projects constructed under the automatic authorization provisions in the FERC's regulations.

7. Crossings of Minor Waterbodies

Where a dry-ditch crossing is not required, minor waterbodies may be crossed using the open-cut crossing method, with the following restrictions:

a. except for blasting and other rock breaking measures, complete instream construction activities (including trenching, pipe installation, backfill, and restoration of the streambed contours) within 24 hours.

Streambanks and unconsolidated streambeds may require additional restoration after this period;

b. limit use of equipment operating in the waterbody to that needed to construct the crossing; and

c. equipment bridges are not required at minor waterbodies that do not have a state-designated fishery classification or protected status (e.g., agricultural or intermittent drainage ditches). However, if an equipment bridge is used it must be constructed as described in section V.B.5.

8. Crossings of Intermediate Waterbodies

Where a dry-ditch crossing is not required, intermediate waterbodies may be crossed using the open-cut crossing method, with the following restrictions:

a. complete instream construction activities (not including blasting and other rock breaking measures) within 48 hours, unless site-specific conditions make completion within 48 hours infeasible;

b. limit use of equipment operating in the waterbody to that needed to construct the crossing; and

c. all other construction equipment must cross on an equipment bridge as specified in section V.B.5.

9. Crossings of Major Waterbodies

Before construction, the project sponsor shall file with the Secretary for the review and written approval by the Director a detailed, site-specific construction plan and scaled drawings identifying all areas to be disturbed by construction for each major waterbody crossing (the scaled drawings are not required for any offshore portions of pipeline projects). This plan must be developed in consultation with the appropriate state and federal agencies and shall include extra work areas, spoil storage areas, sediment control structures, etc., as well as mitigation for navigational issues. The requirement to file major waterbody crossing plans does not apply to projects constructed under the automatic authorization provisions of the FERC's regulations.

The Environmental Inspector may adjust the final placement of the erosion and sediment control structures in the field to maximize effectiveness.

10. Temporary Erosion and Sediment Control

Install sediment barriers (as defined in section IV.F.3.a of the Plan) immediately after initial disturbance of the waterbody or adjacent upland.

Sediment barriers must be properly maintained throughout construction and reinstalled as necessary (such as after backfilling of the trench) until replaced by permanent erosion controls or restoration of adjacent upland areas is complete. Temporary erosion and sediment control measures are addressed in more detail in the Plan; however, the following specific measures must be implemented at stream crossings:

a. install sediment barriers across the entire construction right-of-way at all waterbody crossings, where necessary to prevent the flow of sediments into the waterbody. Removable sediment barriers (or driveable berms) must be installed across the travel lane. These removable sediment barriers can be removed during the construction day, but must be re-installed after construction has stopped for the day and/or when heavy precipitation is imminent;

b. where waterbodies are adjacent to the construction right-of-way and the right-of-way slopes toward the waterbody, install sediment barriers along the edge of the construction right-of-way as necessary to contain spoil within the construction right-of-way and prevent sediment flow into the waterbody; and

c. use temporary trench plugs at all waterbody crossings, as necessary, to prevent diversion of water into upland portions of the pipeline trench and to keep any accumulated trench water out of the waterbody.

11. Trench Dewatering

Dewater the trench (either on or off the construction right-of-way) in a manner that does not cause erosion and does not result in silt-laden water flowing into any waterbody. Remove the dewatering structures as soon as practicable after the completion of dewatering activities.

C. RESTORATION

1. Use clean gravel or native cobbles for the upper 1 foot of trench backfill in all waterbodies that contain coldwater fisheries.

2. For open-cut crossings, stabilize waterbody banks and install temporary sediment barriers within 24 hours of completing instream construction activities. For dry-ditch crossings, complete streambed and bank stabilization before returning flow to the waterbody channel.

3. Return all waterbody banks to preconstruction contours or to a stable angle of repose as approved by the Environmental Inspector.

4. Install erosion control fabric or a functional equivalent on waterbody banks at the time of final bank recontouring. Do not use synthetic monofilament

mesh/netted erosion control materials in areas designated as sensitive wildlife habitat unless the product is specifically designed to minimize harm to wildlife. Anchor erosion control fabric with staples or other appropriate devices.

5. Application of riprap for bank stabilization must comply with COE, or its delegated agency, permit terms and conditions.

6. Unless otherwise specified by state permit, limit the use of riprap to areas where flow conditions preclude effective vegetative stabilization techniques such as seeding and erosion control fabric.

7. Revegetate disturbed riparian areas with native species of conservation grasses, legumes, and woody species, similar in density to adjacent undisturbed lands.

8. Install a permanent slope breaker across the construction right-of-way at the base of slopes greater than 5 percent that are less than 50 feet from the waterbody, or as needed to prevent sediment transport into the waterbody. In addition, install sediment barriers as outlined in the Plan.

   In some areas, with the approval of the Environmental Inspector, an earthen berm may be suitable as a sediment barrier adjacent to the waterbody.

9. Sections V.C.3 through V.C.7 above also apply to those perennial or intermittent streams not flowing at the time of construction.

D. POST-CONSTRUCTION MAINTENANCE

1. Limit routine vegetation mowing or clearing adjacent to waterbodies to allow a riparian strip at least 25 feet wide, as measured from the waterbody's mean high water mark, to permanently revegetate with native plant species across the entire construction right-of-way. However, to facilitate periodic corrosion/leak surveys, a corridor centered on the pipeline and up to 10 feet wide may be cleared at a frequency necessary to maintain the 10-foot corridor in an herbaceous state. In addition, trees that are located within 15 feet of the pipeline that have roots that could compromise the integrity of the pipeline coating may be cut and removed from the permanent right-of-way. Do not conduct any routine vegetation mowing or clearing in riparian areas that are between HDD entry and exit points.

2. Do not use herbicides or pesticides in or within 100 feet of a waterbody except as allowed by the appropriate land management or state agency.

3. Time of year restrictions specified in section VII.A.5 of the Plan (April 15 – August 1 of any year) apply to routine mowing and clearing of riparian areas.

VI. WETLAND CROSSINGS

A. GENERAL

1. The project sponsor shall conduct a wetland delineation using the current federal methodology and file a wetland delineation report with the Secretary before construction. The requirement to file a wetland delineation report does not apply to projects constructed under the automatic authorization provisions in the FERC's regulations.

   This report shall identify:

   a. by milepost all wetlands that would be affected;

   b. the National Wetlands Inventory (NWI) classification for each wetland;

   c. the crossing length of each wetland in feet; and

   d. the area of permanent and temporary disturbance that would occur in each wetland by NWI classification type.

   The requirements outlined in this section do not apply to wetlands in actively cultivated or rotated cropland. Standard upland protective measures, including workspace and topsoiling requirements, apply to these agricultural wetlands.

2. Route the pipeline to avoid wetland areas to the maximum extent possible. If a wetland cannot be avoided or crossed by following an existing right-of-way, route the new pipeline in a manner that minimizes disturbance to wetlands. Where looping an existing pipeline, overlap the existing pipeline right-of-way with the new construction right-of-way. In addition, locate the loop line no more than 25 feet away from the existing pipeline unless site-specific constraints would adversely affect the stability of the existing pipeline.

3. Limit the width of the construction right-of-way to 75 feet or less. Prior written approval of the Director is required where topographic conditions or soil limitations require that the construction right-of-way width within the boundaries of a federally delineated wetland be expanded beyond 75 feet. Early in the planning process the project sponsor is encouraged to identify site-specific areas where excessively wide trenches could occur and/or where spoil piles could be difficult to maintain because existing soils lack adequate unconfined compressive strength.

4. Wetland boundaries and buffers must be clearly marked in the field with signs and/or highly visible flagging until construction-related ground disturbing activities are complete.

5. Implement the measures of sections V and VI in the event a waterbody crossing is located within or adjacent to a wetland crossing. If all measures of sections V and VI cannot be met, the project sponsor must file with the Secretary a site-specific crossing plan for review and written approval by the Director before construction. This crossing plan shall address at a minimum:

   a. spoil control;

   b. equipment bridges;

   c. restoration of waterbody banks and wetland hydrology;

   d. timing of the waterbody crossing;

   e. method of crossing; and

   f. size and location of all extra work areas.

6. Do not locate aboveground facilities in any wetland, except where the location of such facilities outside of wetlands would prohibit compliance with U.S. Department of Transportation regulations.

B. INSTALLATION

1. Extra Work Areas and Access Roads

   a. Locate all extra work areas (such as staging areas and additional spoil storage areas) at least 50 feet away from wetland boundaries, except where the adjacent upland consists of cultivated or rotated cropland or other disturbed land.

   b. The project sponsor shall file with the Secretary for review and written approval by the Director, site-specific justification for each extra work area with a less than 50-foot setback from wetland boundaries, except where adjacent upland consists of cultivated or rotated cropland or other disturbed land. The justification must specify the site-specific conditions that will not permit a 50-foot setback and measures to ensure the wetland is adequately protected.

   c. The construction right-of-way may be used for access when the wetland soil is firm enough to avoid rutting or the construction right-of-way has been appropriately stabilized to avoid rutting (e.g., with timber riprap, prefabricated equipment mats, or terra mats).

      In wetlands that cannot be appropriately stabilized, all construction equipment other than that needed to install the wetland crossing shall

use access roads located in upland areas. Where access roads in upland areas do not provide reasonable access, limit all other construction equipment to one pass through the wetland using the construction right-of-way.

d. The only access roads, other than the construction right-of-way, that can be used in wetlands are those existing roads that can be used with no modifications or improvements, other than routine repair, and no impact on the wetland.

2. Crossing Procedures

a. Comply with COE, or its delegated agency, permit terms and conditions.

b. Assemble the pipeline in an upland area unless the wetland is dry enough to adequately support skids and pipe.

c. Use "push-pull" or "float" techniques to place the pipe in the trench where water and other site conditions allow.

d. Minimize the length of time that topsoil is segregated and the trench is open. Do not trench the wetland until the pipeline is assembled and ready for lowering in.

e. Limit construction equipment operating in wetland areas to that needed to clear the construction right-of-way, dig the trench, fabricate and install the pipeline, backfill the trench, and restore the construction right-of-way.

f. Cut vegetation just above ground level, leaving existing root systems in place, and remove it from the wetland for disposal.

The project sponsor can burn woody debris in wetlands, if approved by the COE and in accordance with state and local regulations, ensuring that all remaining woody debris is removed for disposal.

g. Limit pulling of tree stumps and grading activities to directly over the trenchline. Do not grade or remove stumps or root systems from the rest of the construction right-of-way in wetlands unless the Chief Inspector and Environmental Inspector determine that safety-related construction constraints require grading or the removal of tree stumps from under the working side of the construction right-of-way.

h. Segregate the top 1 foot of topsoil from the area disturbed by trenching, except in areas where standing water is present or soils are

saturated. Immediately after backfilling is complete, restore the segregated topsoil to its original location.

i. Do not use rock, soil imported from outside the wetland, tree stumps, or brush riprap to support equipment on the construction right-of-way.

j. If standing water or saturated soils are present, or if construction equipment causes ruts or mixing of the topsoil and subsoil in wetlands, use low-ground-weight construction equipment, or operate normal equipment on timber riprap, prefabricated equipment mats, or terra mats.

k. Remove all project-related material used to support equipment on the construction right-of-way upon completion of construction.

3. Temporary Sediment Control

Install sediment barriers (as defined in section IV.F.3.a of the Plan) immediately after initial disturbance of the wetland or adjacent upland. Sediment barriers must be properly maintained throughout construction and reinstalled as necessary (such as after backfilling of the trench). Except as noted below in section VI.B.3.c, maintain sediment barriers until replaced by permanent erosion controls or restoration of adjacent upland areas is complete. Temporary erosion and sediment control measures are addressed in more detail in the Plan.

a. Install sediment barriers across the entire construction right-of-way immediately upslope of the wetland boundary at all wetland crossings where necessary to prevent sediment flow into the wetland.

b. Where wetlands are adjacent to the construction right-of-way and the right-of-way slopes toward the wetland, install sediment barriers along the edge of the construction right-of-way as necessary to contain spoil within the construction right-of-way and prevent sediment flow into the wetland.

c. Install sediment barriers along the edge of the construction right-of-way as necessary to contain spoil and sediment within the construction right-of-way through wetlands. Remove these sediment barriers during right-of-way cleanup.

4. Trench Dewatering

Dewater the trench (either on or off the construction right-of-way) in a manner that does not cause erosion and does not result in silt-laden water flowing into any wetland. Remove the dewatering structures as soon as practicable after the completion of dewatering activities.

C. RESTORATION

1. Where the pipeline trench may drain a wetland, construct trench breakers at the wetland boundaries and/or seal the trench bottom as necessary to maintain the original wetland hydrology.

2. Restore pre-construction wetland contours to maintain the original wetland hydrology.

3. For each wetland crossed, install a trench breaker at the base of slopes near the boundary between the wetland and adjacent upland areas. Install a permanent slope breaker across the construction right-of-way at the base of slopes greater than 5 percent where the base of the slope is less than 50 feet from the wetland, or as needed to prevent sediment transport into the wetland. In addition, install sediment barriers as outlined in the Plan. In some areas, with the approval of the Environmental Inspector, an earthen berm may be suitable as a sediment barrier adjacent to the wetland.

4. Do not use fertilizer, lime, or mulch unless required in writing by the appropriate federal or state agency.

5. Consult with the appropriate federal or state agencies to develop a project-specific wetland restoration plan. The restoration plan shall include measures for re-establishing herbaceous and/or woody species, controlling the invasion and spread of invasive species and noxious weeds (e.g., purple loosestrife and phragmites), and monitoring the success of the revegetation and weed control efforts. Provide this plan to the FERC staff upon request.

6. Until a project-specific wetland restoration plan is developed and/or implemented, temporarily revegetate the construction right-of-way with annual ryegrass at a rate of 40 pounds/acre (unless standing water is present).

7. Ensure that all disturbed areas successfully revegetate with wetland herbaceous and/or woody plant species.

8. Remove temporary sediment barriers located at the boundary between wetland and adjacent upland areas after revegetation and stabilization of adjacent upland areas are judged to be successful as specified in section VII.A.4 of the Plan.

D. POST-CONSTRUCTION MAINTENANCE AND REPORTING

1. Do not conduct routine vegetation mowing or clearing over the full width of the permanent right-of-way in wetlands. However, to facilitate periodic corrosion/leak surveys, a corridor centered on the pipeline and up to 10 feet wide may be cleared at a frequency necessary to maintain the 10-foot corridor in an herbaceous state. In addition, trees within 15 feet of the pipeline with roots that could compromise the integrity of pipeline coating may be selectively cut and removed from the permanent right-of-way. Do not conduct any routine vegetation mowing or clearing in wetlands that are between HDD entry and exit points.

2. Do not use herbicides or pesticides in or within 100 feet of a wetland, except as allowed by the appropriate federal or state agency.

3. Time of year restrictions specified in section VII.A.5 of the Plan (April 15 – August 1 of any year) apply to routine mowing and clearing of wetland areas.

4. Monitor and record the success of wetland revegetation annually until wetland revegetation is successful.

5. Wetland revegetation shall be considered successful if all of the following criteria are satisfied:

    a. the affected wetland satisfies the current federal definition for a wetland (i.e., soils, hydrology, and vegetation);

    b. vegetation is at least 80 percent of either the cover documented for the wetland prior to construction, or at least 80 percent of the cover in adjacent wetland areas that were not disturbed by construction;

    c. if natural rather than active revegetation was used, the plant species composition is consistent with early successional wetland plant communities in the affected ecoregion; and

    d. invasive species and noxious weeds are absent, unless they are abundant in adjacent areas that were not disturbed by construction.

6. Within 3 years after construction, file a report with the Secretary identifying the status of the wetland revegetation efforts and documenting success as defined in section VI.D.5, above. The requirement to file wetland restoration reports with the Secretary does not apply to projects constructed under the automatic authorization, prior notice, or advance notice provisions in the FERC's regulations.

    For any wetland where revegetation is not successful at the end of 3 years after construction, develop and implement (in consultation with a

professional wetland ecologist) a remedial revegetation plan to actively revegetate wetlands. Continue revegetation efforts and file a report annually documenting progress in these wetlands until wetland revegetation is successful.

VII. HYDROSTATIC TESTING

A. NOTIFICATION PROCEDURES AND PERMITS

1. Apply for state-issued water withdrawal permits, as required.

2. Apply for National Pollutant Discharge Elimination System (NPDES) or state-issued discharge permits, as required.

3. Notify appropriate state agencies of intent to use specific sources at least 48 hours before testing activities unless they waive this requirement in writing.

B. GENERAL

1. Perform 100 percent radiographic inspection of all pipeline section welds or hydrotest the pipeline sections, before installation under waterbodies or wetlands.

2. If pumps used for hydrostatic testing are within 100 feet of any waterbody or wetland, address secondary containment and refueling of these pumps in the project's Spill Prevention and Response Procedures.

3. The project sponsor shall file with the Secretary before construction a list identifying the location of all waterbodies proposed for use as a hydrostatic test water source or discharge location. This filing requirement does not apply to projects constructed under the automatic authorization provisions of the FERC's regulations.

C. INTAKE SOURCE AND RATE

1. Screen the intake hose to minimize the potential for entrainment of fish.

2. Do not use state-designated exceptional value waters, waterbodies which provide habitat for federally listed threatened or endangered species, or waterbodies designated as public water supplies, unless appropriate federal, state, and/or local permitting agencies grant written permission.

3. Maintain adequate flow rates to protect aquatic life, provide for all waterbody uses, and provide for downstream withdrawals of water by existing users.

4. Locate hydrostatic test manifolds outside wetlands and riparian areas to the maximum extent practicable.

D. DISCHARGE LOCATION, METHOD, AND RATE

1. Regulate discharge rate, use energy dissipation device(s), and install sediment barriers, as necessary, to prevent erosion, streambed scour, suspension of sediments, or excessive streamflow.

2. Do not discharge into state-designated exceptional value waters, waterbodies which provide habitat for federally listed threatened or endangered species, or waterbodies designated as public water supplies, unless appropriate federal, state, and local permitting agencies grant written permission.

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Appendix F

Upland Erosion Control, Revegetation, and Maintenance Plan

Federal Energy Regulatory Commission

Office of
Energy Projects

May 2013

UPLAND EROSION CONTROL, REVEGETATION, AND MAINTENANCE PLAN

Washington, DC 20426

MAY 2013 VERSION

UPLAND EROSION CONTROL, REVEGETATION, AND MAINTENANCE PLAN

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UPLAND EROSION CONTROL, REVEGETATION, AND MAINTENANCE PLAN (PLAN)

I. APPLICABILITY

A. The intent of this Plan is to assist project sponsors by identifying baseline mitigation measures for minimizing erosion and enhancing revegetation. Project sponsors shall specify in their applications for a new FERC authorization and in prior notice and advance notice filings, any individual measures in this Plan they consider unnecessary, technically infeasible, or unsuitable due to local conditions and fully describe any alternative measures they would use. Project sponsors shall also explain how those alternative measures would achieve a comparable level of mitigation.

Once a project is authorized, project sponsors can request further changes as variances to the measures in this Plan (or the applicant's approved plan). The Director of the Office of Energy Projects (Director) will consider approval of variances upon the project sponsor's written request, if the Director agrees that a variance:

1. provides equal or better environmental protection;

2. is necessary because a portion of this Plan is infeasible or unworkable based on project-specific conditions; or

3. is specifically required in writing by another federal, state, or Native American land management agency for the portion of the project on its land or under its jurisdiction.

Sponsors of projects planned for construction under the automatic authorization provisions in the FERC's regulations must receive written approval for any variances in advance of construction.

Project-related impacts on wetland and waterbody systems are addressed in the staff's Wetland and Waterbody Construction and Mitigation Procedures (Procedures).

II. SUPERVISION AND INSPECTION

A. ENVIRONMENTAL INSPECTION

1. At least one Environmental Inspector is required for each construction spread during construction and restoration (as defined by section V). The number and experience of Environmental Inspectors assigned to each construction spread shall be appropriate for the length of the construction spread and the number/significance of resources affected.

2. Environmental Inspectors shall have peer status with all other activity inspectors.

3. Environmental Inspectors shall have the authority to stop activities that violate the environmental conditions of the FERC's Orders, stipulations of other environmental permits or approvals, or landowner easement agreements; and to order appropriate corrective action.

B. RESPONSIBILITIES OF ENVIRONMENTAL INSPECTORS

At a minimum, the Environmental Inspector(s) shall be responsible for:

1. Inspecting construction activities for compliance with the requirements of this Plan, the Procedures, the environmental conditions of the FERC's Orders, the mitigation measures proposed by the project sponsor (as approved and/or modified by the Order), other environmental permits and approvals, and environmental requirements in landowner easement agreements.

2. Identifying, documenting, and overseeing corrective actions, as necessary to bring an activity back into compliance;

3. Verifying that the limits of authorized construction work areas and locations of access roads are visibly marked before clearing, and maintained throughout construction;

4. Verifying the location of signs and highly visible flagging marking the boundaries of sensitive resource areas, waterbodies, wetlands, or areas with special requirements along the construction work area;

5. Identifying erosion/sediment control and soil stabilization needs in all areas;

6. Ensuring that the design of slope breakers will not cause erosion or direct water into sensitive environmental resource areas, including cultural resource sites, wetlands, waterbodies, and sensitive species habitats;

7. Verifying that dewatering activities are properly monitored and do not result in the deposition of sand, silt, and/or sediment into sensitive environmental resource areas, including wetlands, waterbodies, cultural resource sites, and sensitive species habitats; stopping dewatering activities if such deposition is occurring and ensuring the design of the discharge is changed to prevent reoccurrence; and verifying that dewatering structures are removed after completion of dewatering activities;

8. Ensuring that subsoil and topsoil are tested in agricultural and residential areas to measure compaction and determine the need for corrective action;

9. Advising the Chief Construction Inspector when environmental conditions (such as wet weather or frozen soils) make it advisable to restrict or delay construction activities to avoid topsoil mixing or excessive compaction;

10. Ensuring restoration of contours and topsoil;

11. Verifying that the soils imported for agricultural or residential use are certified as free of noxious weeds and soil pests, unless otherwise approved by the landowner;

12. Ensuring that erosion control devices are properly installed to prevent sediment flow into sensitive environmental resource areas (e.g., wetlands, waterbodies, cultural resource sites, and sensitive species habitats) and onto roads, and determining the need for additional erosion control devices;

13. Inspecting and ensuring the maintenance of temporary erosion control measures at least:

    a. on a daily basis in areas of active construction or equipment operation;

    b. on a weekly basis in areas with no construction or equipment operation; and

    c. within 24 hours of each 0.5 inch of rainfall;

14. Ensuring the repair of all ineffective temporary erosion control measures within 24 hours of identification, or as soon as conditions allow if compliance with this time frame would result in greater environmental impacts;

15. Keeping records of compliance with the environmental conditions of the FERC's Orders, and the mitigation measures proposed by the project sponsor in the application submitted to the FERC, and other federal or state environmental permits during active construction and restoration;

16. Identifying areas that should be given special attention to ensure stabilization and restoration after the construction phase; and

17. Verifying that locations for any disposal of excess construction materials for beneficial reuse comply with section III.E.

III. PRECONSTRUCTION PLANNING

The project sponsor shall do the following before construction:

A. CONSTRUCTION WORK AREAS

1. Identify all construction work areas (e.g., construction right-of-way, extra work space areas, pipe storage and contractor yards, borrow and disposal areas, access roads) that would be needed for safe construction. The project sponsor must ensure that appropriate cultural resources and biological surveys are conducted, as determined necessary by the appropriate federal and state agencies.

2. Project sponsors are encouraged to consider expanding any required cultural resources and endangered species surveys in anticipation of the need for activities outside of authorized work areas.

3. Plan construction sequencing to limit the amount and duration of open trench sections, as necessary, to prevent excessive erosion or sediment flow into sensitive environmental resource areas.

B. DRAIN TILE AND IRRIGATION SYSTEMS

1. Attempt to locate existing drain tiles and irrigation systems.

2. Contact landowners and local soil conservation authorities to determine the locations of future drain tiles that are likely to be installed within 3 years of the authorized construction.

3. Develop procedures for constructing through drain-tiled areas, maintaining irrigation systems during construction, and repairing drain tiles and irrigation systems after construction.

4. Engage qualified drain tile specialists, as needed to conduct or monitor repairs to drain tile systems affected by construction. Use drain tile specialists from the project area, if available.

C. GRAZING DEFERMENT

Develop grazing deferment plans with willing landowners, grazing permittees, and land management agencies to minimize grazing disturbance of revegetation efforts.

D. ROAD CROSSINGS AND ACCESS POINTS

Plan for safe and accessible conditions at all roadway crossings and access points during construction and restoration.

E. DISPOSAL PLANNING

Determine methods and locations for the regular collection, containment, and disposal of excess construction materials and debris (e.g., timber, slash, mats, garbage, drill cuttings and fluids, excess rock) throughout the construction process. Disposal of materials for beneficial reuse must not result in adverse environmental impact and is subject to compliance with all applicable survey, landowner or land management agency approval, and permit requirements.

F. AGENCY COORDINATION

The project sponsor must coordinate with the appropriate local, state, and federal agencies as outlined in this Plan and/or required by the FERC's Orders.

1. Obtain written recommendations from the local soil conservation authorities or land management agencies regarding permanent erosion control and revegetation specifications.

2. Develop specific procedures in coordination with the appropriate agencies to prevent the introduction or spread of invasive species, noxious weeds, and soil pests resulting from construction and restoration activities.

3. Develop specific procedures in coordination with the appropriate agencies and landowners, as necessary, to allow for livestock and wildlife movement and protection during construction.

4. Develop specific blasting procedures in coordination with the appropriate agencies that address pre- and post-blast inspections; advanced public notification; and mitigation measures for building foundations, groundwater wells, and springs. Use appropriate methods (e.g., blasting mats) to prevent damage to nearby structures and to prevent debris from entering sensitive environmental resource areas.

G. SPILL PREVENTION AND RESPONSE PROCEDURES

The project sponsor shall develop project-specific Spill Prevention and Response Procedures, as specified in section IV of the staff's Procedures. A copy must be filed with the Secretary of the FERC (Secretary) prior to construction and made available in the field on each construction spread. The filing requirement does not apply to projects constructed under the automatic authorization provisions in the FERC's regulations.

H. RESIDENTIAL CONSTRUCTION

For all properties with residences located within 50 feet of construction work areas, project sponsors shall: avoid removal of mature trees and landscaping within the construction work area unless necessary for safe operation of construction equipment, or as specified in landowner agreements; fence the edge of the construction work area for a distance of 100 feet on either side of the residence; and restore all lawn areas and landscaping immediately following clean up operations, or as specified in landowner agreements. If seasonal or other weather conditions prevent compliance with these time frames, maintain and monitor temporary erosion controls (sediment barriers and mulch) until conditions allow completion of restoration.

I. WINTER CONSTRUCTION PLANS

If construction is planned to occur during winter weather conditions, project sponsors shall develop and file a project-specific winter construction plan with the FERC application. This filing requirement does not apply to projects constructed under the automatic authorization provisions of the FERC's regulations.

The plan shall address:

1. winter construction procedures (e.g., snow handling and removal, access road construction and maintenance, soil handling under saturated or frozen conditions, topsoil stripping);

2. stabilization and monitoring procedures if ground conditions will delay restoration until the following spring (e.g., mulching and erosion controls, inspection and reporting, stormwater control during spring thaw conditions); and

3. final restoration procedures (e.g., subsidence and compaction repair, topsoil replacement, seeding).

IV. INSTALLATION

A. APPROVED AREAS OF DISTURBANCE

1. Project-related ground disturbance shall be limited to the construction right-of-way, extra work space areas, pipe storage yards, borrow and disposal areas, access roads, and other areas approved in the FERC's Orders. Any project-related ground disturbing activities outside these areas will require prior Director approval. This requirement does not apply to activities needed to comply with the Plan and Procedures (i.e., slope breakers, energy-dissipating devices, dewatering structures, drain tile system repairs) or minor field realignments and workspace shifts per landowner needs and requirements that do not affect other landowners or sensitive environmental resource areas. All construction or restoration activities outside of authorized areas are subject to all applicable survey and permit requirements, and landowner easement agreements.

2. The construction right-of-way width for a project shall not exceed 75 feet or that described in the FERC application unless otherwise modified by a FERC Order. However, in limited, non-wetland areas, this construction right-of-way width may be expanded by up to 25 feet without Director approval to accommodate full construction right-of-way topsoil segregation and to ensure safe construction where topographic conditions (e.g., side-slopes) or soil limitations require it. Twenty-five feet of extra construction right-of-way width may also be used in limited, non-wetland or non-forested areas for truck turn-arounds where no reasonable alternative access exists.

   Project use of these additional limited areas is subject to landowner or land management agency approval and compliance with all applicable survey and permit requirements. When additional areas are used, each one shall be identified and the need explained in the weekly or biweekly construction reports to the FERC, if required. The following material shall be included in the reports:

   a. the location of each additional area by station number and reference to previously filed alignment sheets, or updated alignment sheets showing the additional areas;

   b. identification of the filing at FERC containing evidence that the additional areas were previously surveyed; and

c. a statement that landowner approval has been obtained and is available in project files.

Prior written approval of the Director is required when the authorized construction right-of-way width would be expanded by more than 25 feet.

B. TOPSOIL SEGREGATION

1. Unless the landowner or land management agency specifically approves otherwise, prevent the mixing of topsoil with subsoil by stripping topsoil from either the full work area or from the trench and subsoil storage area (ditch plus spoil side method) in:

   a. cultivated or rotated croplands, and managed pastures;

   b. residential areas;

   c. hayfields; and

   d. other areas at the landowner's or land managing agency's request.

2. In residential areas, importation of topsoil is an acceptable alternative to topsoil segregation.

3. Where topsoil segregation is required, the project sponsor must:

   a. segregate at least 12 inches of topsoil in deep soils (more than 12 inches of topsoil); and

   b. make every effort to segregate the entire topsoil layer in soils with less than 12 inches of topsoil.

4. Maintain separation of salvaged topsoil and subsoil throughout all construction activities.

5. Segregated topsoil may not be used for padding the pipe, constructing temporary slope breakers or trench plugs, improving or maintaining roads, or as a fill material.

6. Stabilize topsoil piles and minimize loss due to wind and water erosion with use of sediment barriers, mulch, temporary seeding, tackifiers, or functional equivalents, where necessary.

C. DRAIN TILES

1. Mark locations of drain tiles damaged during construction.

2. Probe all drainage tile systems within the area of disturbance to check for damage.

3. Repair damaged drain tiles to their original or better condition. Do not use filter-covered drain tiles unless the local soil conservation authorities and the landowner agree. Use qualified specialists for testing and repairs.

4. For new pipelines in areas where drain tiles exist or are planned, ensure that the depth of cover over the pipeline is sufficient to avoid interference with drain tile systems. For adjacent pipeline loops in agricultural areas, install the new pipeline with at least the same depth of cover as the existing pipeline(s).

D. IRRIGATION

Maintain water flow in crop irrigation systems, unless shutoff is coordinated with affected parties.

E. ROAD CROSSINGS AND ACCESS POINTS

1. Maintain safe and accessible conditions at all road crossings and access points during construction.

2. If crushed stone access pads are used in residential or agricultural areas, place the stone on synthetic fabric to facilitate removal.

3. Minimize the use of tracked equipment on public roadways. Remove any soil or gravel spilled or tracked onto roadways daily or more frequent as necessary to maintain safe road conditions. Repair any damages to roadway surfaces, shoulders, and bar ditches.

F. TEMPORARY EROSION CONTROL

Install temporary erosion controls immediately after initial disturbance of the soil. Temporary erosion controls must be properly maintained throughout construction (on a daily basis) and reinstalled as necessary (such as after backfilling of the trench) until replaced by permanent erosion controls or restoration is complete.

1. Temporary Slope Breakers

a. Temporary slope breakers are intended to reduce runoff velocity and divert water off the construction right-of-way. Temporary slope

breakers may be constructed of materials such as soil, silt fence, staked hay or straw bales, or sand bags.

b. Install temporary slope breakers on all disturbed areas, as necessary to avoid excessive erosion. Temporary slope breakers must be installed on slopes greater than 5 percent where the base of the slope is less than 50 feet from waterbody, wetland, and road crossings at the following spacing (closer spacing shall be used if necessary):

Slope (%)	Spacing (feet)
5 - 15	300
>15 - 30	200
>30	100

c. Direct the outfall of each temporary slope breaker to a stable, well vegetated area or construct an energy-dissipating device at the end of the slope breaker and off the construction right-of-way.

d. Position the outfall of each temporary slope breaker to prevent sediment discharge into wetlands, waterbodies, or other sensitive environmental resource areas.

2. Temporary Trench Plugs

Temporary trench plugs are intended to segment a continuous open trench prior to backfill.

a. Temporary trench plugs may consist of unexcavated portions of the trench, compacted subsoil, sandbags, or some functional equivalent.

b. Position temporary trench plugs, as necessary, to reduce trenchline erosion and minimize the volume and velocity of trench water flow at the base of slopes.

3. Sediment Barriers

Sediment barriers are intended to stop the flow of sediments and to prevent the deposition of sediments beyond approved workspaces or into sensitive resources.

a. Sediment barriers may be constructed of materials such as silt fence, staked hay or straw bales, compacted earth (e.g., driveable berms across travelways), sand bags, or other appropriate materials.

b. At a minimum, install and maintain temporary sediment barriers across the entire construction right-of-way at the base of slopes greater than 5 percent where the base of the slope is less than 50 feet from a waterbody, wetland, or road crossing until revegetation is successful as defined in this Plan. Leave adequate room between the base of the slope and the sediment barrier to accommodate ponding of water and sediment deposition.

c. Where wetlands or waterbodies are adjacent to and downslope of construction work areas, install sediment barriers along the edge of these areas, as necessary to prevent sediment flow into the wetland or waterbody.

4. Mulch

a. Apply mulch on all slopes (except in cultivated cropland) concurrent with or immediately after seeding, where necessary to stabilize the soil surface and to reduce wind and water erosion. Spread mulch uniformly over the area to cover at least 75 percent of the ground surface at a rate of 2 tons/acre of straw or its equivalent, unless the local soil conservation authority, landowner, or land managing agency approves otherwise in writing.

b. Mulch can consist of weed-free straw or hay, wood fiber hydromulch, erosion control fabric, or some functional equivalent.

c. Mulch all disturbed upland areas (except cultivated cropland) <u>before</u> seeding if:

(1) final grading and installation of permanent erosion control measures will not be completed in an area within 20 days after the trench in that area is backfilled (10 days in residential areas), as required in section V.A.1; or

(2) construction or restoration activity is interrupted for extended periods, such as when seeding cannot be completed due to seeding period restrictions.

d. If mulching <u>before</u> seeding, increase mulch application on all slopes within 100 feet of waterbodies and wetlands to a rate of 3 tons/acre of straw or equivalent.

e. If wood chips are used as mulch, do not use more than 1 ton/acre and add the equivalent of 11 lbs/acre available nitrogen (at least 50 percent of which is slow release).

f. Ensure that mulch is adequately anchored to minimize loss due to wind and water.

g. When anchoring with liquid mulch binders, use rates recommended by the manufacturer. Do not use liquid mulch binders within 100 feet of wetlands or waterbodies, except where the product is certified environmentally non-toxic by the appropriate state or federal agency or independent standards-setting organization.

h. Do not use synthetic monofilament mesh/netted erosion control materials in areas designated as sensitive wildlife habitat, unless the product is specifically designed to minimize harm to wildlife. Anchor erosion control fabric with staples or other appropriate devices.

V. RESTORATION

A. CLEANUP

1. Commence cleanup operations immediately following backfill operations. Complete final grading, topsoil replacement, and installation of permanent erosion control structures within 20 days after backfilling the trench (10 days in residential areas). If seasonal or other weather conditions prevent compliance with these time frames, maintain temporary erosion controls (i.e., temporary slope breakers, sediment barriers, and mulch) until conditions allow completion of cleanup.

   If construction or restoration unexpectedly continues into the winter season when conditions could delay successful decompaction, topsoil replacement, or seeding until the following spring, file with the Secretary for the review and written approval of the Director, a winter construction plan (as specified in section III.I). This filing requirement does not apply to projects constructed under the automatic authorization provisions of the FERC's regulations.

2. A travel lane may be left open temporarily to allow access by construction traffic if the temporary erosion control structures are installed as specified in section IV.F. and inspected and maintained as specified in sections II.B.12 through 14. When access is no longer required the travel lane must be removed and the right-of-way restored.

3. Rock excavated from the trench may be used to backfill the trench only to the top of the existing bedrock profile. Rock that is not returned to the trench shall be considered construction debris, unless approved for use as mulch or for some other use on the construction work areas by the landowner or land managing agency.

4. Remove excess rock from at least the top 12 inches of soil in all cultivated or rotated cropland, managed pastures, hayfields, and residential areas, as well as other areas at the landowner's request. The size, density, and distribution of rock on the construction work area shall be similar to adjacent areas not disturbed by construction. The landowner or land management agency may approve other provisions in writing.

5. Grade the construction right-of-way to restore pre-construction contours and leave the soil in the proper condition for planting.

6. Remove construction debris from all construction work areas unless the landowner or land managing agency approves leaving materials onsite for beneficial reuse, stabilization, or habitat restoration.

7. Remove temporary sediment barriers when replaced by permanent erosion control measures or when revegetation is successful.

B. PERMANENT EROSION CONTROL DEVICES

1. Trench Breakers

a. Trench breakers are intended to slow the flow of subsurface water along the trench. Trench breakers may be constructed of materials such as sand bags or polyurethane foam. Do not use topsoil in trench breakers.

b. An engineer or similarly qualified professional shall determine the need for and spacing of trench breakers. Otherwise, trench breakers shall be installed at the same spacing as and upslope of permanent slope breakers.

c. In agricultural fields and residential areas where slope breakers are not typically required, install trench breakers at the same spacing as if permanent slope breakers were required.

d. At a minimum, install a trench breaker at the base of slopes greater than 5 percent where the base of the slope is less than 50 feet from a waterbody or wetland and where needed to avoid draining a waterbody or wetland. Install trench breakers at wetland boundaries, as specified in the Procedures. Do not install trench breakers within a wetland.

2. Permanent Slope Breakers

a. Permanent slope breakers are intended to reduce runoff velocity, divert water off the construction right-of-way, and prevent sediment deposition into sensitive resources. Permanent slope breakers may be constructed of materials such as soil, stone, or some functional equivalent.

b. Construct and maintain permanent slope breakers in all areas, except cultivated areas and lawns, unless requested by the landowner, using spacing recommendations obtained from the local soil conservation authority or land managing agency.

In the absence of written recommendations, use the following spacing unless closer spacing is necessary to avoid excessive erosion on the construction right-of-way:

Slope (%)	Spacing (feet)
5 - 15	300
>15 - 30	200
>30	100

c. Construct slope breakers to divert surface flow to a stable area without causing water to pool or erode behind the breaker. In the absence of a stable area, construct appropriate energy-dissipating devices at the end of the breaker.

d. Slope breakers may extend slightly (about 4 feet) beyond the edge of the construction right-of-way to effectively drain water off the disturbed area. Where slope breakers extend beyond the edge of the construction right-of-way, they are subject to compliance with all applicable survey requirements.

C. SOIL COMPACTION MITIGATION

1. Test topsoil and subsoil for compaction at regular intervals in agricultural and residential areas disturbed by construction activities. Conduct tests on the same soil type under similar moisture conditions in undisturbed areas to approximate preconstruction conditions. Use penetrometers or other appropriate devices to conduct tests.

2. Plow severely compacted agricultural areas with a paraplow or other deep tillage implement. In areas where topsoil has been segregated, plow the subsoil before replacing the segregated topsoil.

If subsequent construction and cleanup activities result in further compaction, conduct additional tilling.

3. Perform appropriate soil compaction mitigation in severely compacted residential areas.

D. REVEGETATION

1. General

a. The project sponsor is responsible for ensuring successful revegetation of soils disturbed by project-related activities, except as noted in section V.D.1.b.

b. Restore all turf, ornamental shrubs, and specialized landscaping in accordance with the landowner's request, or compensate the landowner. Restoration work must be performed by personnel familiar with local horticultural and turf establishment practices.

2. Soil Additives

Fertilize and add soil pH modifiers in accordance with written recommendations obtained from the local soil conservation authority, land management agencies, or landowner. Incorporate recommended soil pH modifier and fertilizer into the top 2 inches of soil as soon as practicable after application.

3. Seeding Requirements

a. Prepare a seedbed in disturbed areas to a depth of 3 to 4 inches using appropriate equipment to provide a firm seedbed. When hydroseeding, scarify the seedbed to facilitate lodging and germination of seed.

b. Seed disturbed areas in accordance with written recommendations for seed mixes, rates, and dates obtained from the local soil conservation authority or the request of the landowner or land management agency. Seeding is not required in cultivated croplands unless requested by the landowner.

c. Perform seeding of permanent vegetation within the recommended seeding dates. If seeding cannot be done within those dates, use appropriate temporary erosion control measures discussed in section IV.F and perform seeding of permanent vegetation at the beginning of the next recommended seeding season. Dormant seeding or temporary

seeding of annual species may also be used, if necessary, to establish cover, as approved by the Environmental Inspector. Lawns may be seeded on a schedule established with the landowner.

d. In the absence of written recommendations from the local soil conservation authorities, seed all disturbed soils within 6 working days of final grading, weather and soil conditions permitting, subject to the specifications in section V.D.3.a through V.D.3.c.

e. Base seeding rates on Pure Live Seed. Use seed within 12 months of seed testing.

f. Treat legume seed with an inoculant specific to the species using the manufacturer's recommended rate of inoculant appropriate for the seeding method (broadcast, drill, or hydro).

g. In the absence of written recommendations from the local soil conservation authorities, landowner, or land managing agency to the contrary, a seed drill equipped with a cultipacker is preferred for seed application.

Broadcast or hydroseeding can be used in lieu of drilling at double the recommended seeding rates. Where seed is broadcast, firm the seedbed with a cultipacker or roller after seeding. In rocky soils or where site conditions may limit the effectiveness of this equipment, other alternatives may be appropriate (e.g., use of a chain drag) to lightly cover seed after application, as approved by the Environmental Inspector.

VI. OFF-ROAD VEHICLE CONTROL

To each owner or manager of forested lands, offer to install and maintain measures to control unauthorized vehicle access to the right-of-way. These measures may include:

A. signs;

B. fences with locking gates;

C. slash and timber barriers, pipe barriers, or a line of boulders across the right-of-way; and

D. conifers or other appropriate trees or shrubs across the right-of-way.

VII. POST-CONSTRUCTION ACTIVITIES AND REPORTING

A. MONITORING AND MAINTENANCE

1. Conduct follow-up inspections of all disturbed areas, as necessary, to determine the success of revegetation and address landowner concerns. At a minimum, conduct inspections after the first and second growing seasons.

2. Revegetation in non-agricultural areas shall be considered successful if upon visual survey the density and cover of non-nuisance vegetation are similar in density and cover to adjacent undisturbed lands. In agricultural areas, revegetation shall be considered successful when upon visual survey, crop growth and vigor are similar to adjacent undisturbed portions of the same field, unless the easement agreement specifies otherwise.

   Continue revegetation efforts until revegetation is successful.

3. Monitor and correct problems with drainage and irrigation systems resulting from pipeline construction in agricultural areas until restoration is successful.

4. Restoration shall be considered successful if the right-of-way surface condition is similar to adjacent undisturbed lands, construction debris is removed (unless otherwise approved by the landowner or land managing agency per section V.A.6), revegetation is successful, and proper drainage has been restored.

5. Routine vegetation mowing or clearing over the full width of the permanent right-of-way in uplands shall not be done more frequently than every 3 years. However, to facilitate periodic corrosion/leak surveys, a corridor not exceeding 10 feet in width centered on the pipeline may be cleared at a frequency necessary to maintain the 10-foot corridor in an herbaceous state. In no case shall routine vegetation mowing or clearing occur during the migratory bird nesting season between April 15 and August 1 of any year unless specifically approved in writing by the responsible land management agency or the U.S. Fish and Wildlife Service.

6. Efforts to control unauthorized off-road vehicle use, in cooperation with the landowner, shall continue throughout the life of the project. Maintain signs, gates, and permanent access roads as necessary.

B. REPORTING

1. The project sponsor shall maintain records that identify by milepost:

   a. method of application, application rate, and type of fertilizer, pH modifying agent, seed, and mulch used;

   b. acreage treated;

   c. dates of backfilling and seeding;

   d. names of landowners requesting special seeding treatment and a description of the follow-up actions;

   e. the location of any subsurface drainage repairs or improvements made during restoration; and

   f. any problem areas and how they were addressed.

2. The project sponsor shall file with the Secretary quarterly activity reports documenting the results of follow-up inspections required by section VII.A.1; any problem areas, including those identified by the landowner; and corrective actions taken for at least 2 years following construction.

   The requirement to file quarterly activity reports with the Secretary does not apply to projects constructed under the automatic authorization, prior notice, or advanced notice provisions in the FERC's regulations.

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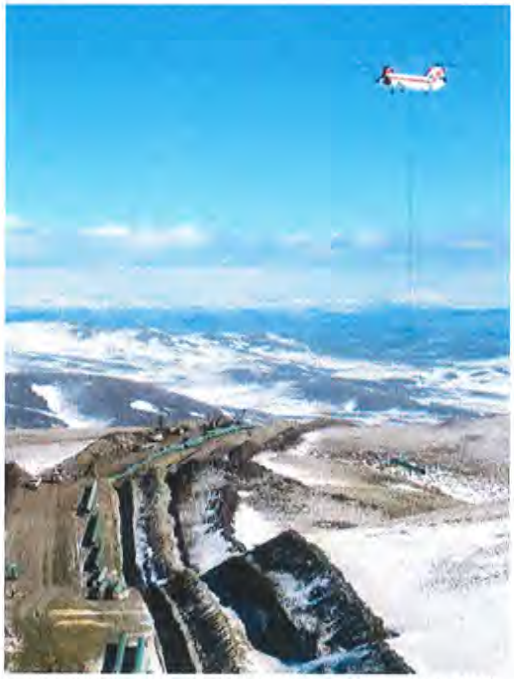
Appendix G

2013 Revisions to FERC Plan and Procedures

What the May 2013 Revisions to the FERC Plan & Procedures Mean to You

FERC's Office of Energy Projects issued a new version of the Upland Erosion Control, Revegetation, and Maintenance Plan (Plan) and Wetland and Waterbody Construction and Mitigation Procedures (Procedures) on May 31st. The Plan and Procedures (P&P) are FERC's baseline mitigation measures for minimizing the environmental impacts over the full lifespan of natural gas projects. Based on recurring questions and common variance requests, the changes are intended to provide clarity and a clearer path forward during the project planning phase. **The changes also require additional filings of information and reports for relatively small projects that could impact project schedules and budgets.**

E & E can help you comply with the P&P or provide justification for using alternative plans.



Ruby Pipeline used reduced construction right-of-way and still segregated topsoil in rugged terrain, showing that the Plan requirements can be met safely.

Those familiar with FERC projects, either preparing resource reports or inspecting construction, won't find any great surprises. Many of the changes to existing measures are clarifying tweaks proven necessary by frequent questions over the years. This should reduce the uncertainty during project planning as well as the number of noncompliances during construction. One such modification was made to the horizontal directional drill plan components to discourage the clearing of vegetation between the entry and exit workspaces.

Many of the new measures cover topics that are either the subject of standard data requests from FERC or common requests for variances. This set of the P&P simply brings them in to the open. For example, the Plan now addresses residential areas requiring the types of safety and restoration measures most projects have come to include in their design anyway.

There are regulatory language changes that are significant to the natural gas pipeline companies in FERC's jurisdiction because they could result in an increase in the amount of time it takes to prepare for minor activities on existing systems. Specifically, now the filing and reporting requirements contained in these plans also apply to projects that do not require a new authorization from FERC. These projects include prior notice projects automatically authorized under the FERC blanket certificate program (18 CFR 157, Subpart F); the 30-day advance notification projects under the Natural Gas Policy Act section 311 (18 CFR 284, Subpart A); and the replacement of minor facilities under section 2.55 of the regulations (18 CFR 2.55).

Due to this change, companies will need to gather more information, develop some specialized construction plans, and file additional reports before starting work on a large number of these relatively small projects. The list of reports includes: winter construction plans, hydrostatic testing information, waterbody crossing schedules, spill prevention and response procedures, plans for major waterbody crossings, and horizontal directional drilling plans.

The revisions to the specific measures in the P&P consist of minor edits and clarifications, meaningful modifications, and the addition of new measures. The following is a list of the substantive changes in the order of their appearance in the Plan and the Procedures.

Upland Erosion Control, Revegetation, and Maintenance Plan

Modified: Made minor clarifications to several responsibilities of the environmental inspector (EI) to address the many questions asked by EIs and company representatives over the years. (Section II.B)

New: Added one responsibility to the EI list: To verify that locations identified for disposing of excess construction materials comply with the disposal planning paragraph in Section III.E of the Plan. This measure gives EI (and hence the owner company) a role in the pipeline contractor practice of making arrangements with landowners to provide them with construction-related material, e.g., timber, rock, and culverts. (Section II.B.17)

Modified: Expanded the provision under preconstruction planning regarding the disposal of construction debris to address the beneficial reuse of construction-related materials. (Section III.E)

New: Added two measures under agency coordination to address frequent data requests: allow for wildlife and livestock movement during construction; and, commit to pre- and post-blasting inspections of building foundations, wells, and springs. (Section III.F.3 and 4)

New: Added a requirement that project sponsor develops and files before construction a set of spill prevention and response procedures. (Section III.G)

New: Added a residential construction paragraph that requires certain measures where houses are within 50 feet of the construction right-of-way: e.g. avoid removal of mature trees and landscaping; fence the edge of the construction work area for a distance of 100 feet on either side of the residence; and, restore all lawn areas and landscaping immediately following clean-up operations. (Section III.H)

New: Added a filing requirement for winter construction plans. Now the project sponsor must file these plans with the application, not just if/when a project extends in to winter conditions. (Section III.I)

New: Added a measure to protect topsoil piles from wind and water erosion. (Section IV.B.6)

New: Added a measure to more specifically protect and repair roads and bar ditches. (Section IV.E.3)

New: Added to the list of temporary erosion controls a description of trench plugs. (Section IV.F.2)

Modified: Updated the measure regarding liquid mulch to allow use of certain non-toxic binders. (Section IV.F.4.g)

Modified: Qualified the measure requiring erosion control fabric when restoring stream banks to prevent use of synthetic monofilament mesh/netted materials in those areas designated as sensitive wildlife habitat. (Section IV.F.4.h)

Modified: Removed from the restoration section the measure to reduce soil compaction by planting and plowing under a crop like alfalfa. (Section V.C.2)

Modified: Expanded the seeding measure to allow for the planting of dormant seeds. (Section V.B.d.3.c)

Modified: Redefined the success of crop restoration by replacing "yield" with visual survey of growth and vigor. (Section VII.A.2)

Modified: Amended the vegetation maintenance measure to specify that the 3-year mowing restriction only applies to uplands and to prohibit routine mowing during the migratory bird nesting season (April 15 – August 1) unless the project sponsor receives U.S. Fish and Wildlife Service clearance. (Section VII.A.5)

New: Added a requirement that the post-construction reports must include the identification of any subsurface drainage repairs or improvements made during restoration. (Section VII.B.1.e)

Wetland and Waterbody Construction and Mitigation Procedures

Modified: Clarified the intent of the measure restricting the use of extra work areas closer than 50 feet from a waterbody or wetland and/or a ROW wider than 75 feet in wetlands. Now the measure states that the companies should provide written site-specific justification and not engineering plans with schematics. (Section II.A)

New: Added a prior to construction filing requirement for project-specific spill prevention and response procedures (SPRP). (Section II.B.1)

Modified: Expanded the measure describing the SPRP to allow for concrete coating activities to occur within 100 feet of a waterbody or wetland if the EI determines that there is no reasonable alternative, and the project sponsor and its contractors have taken appropriate steps (including secondary containment structures) to prevent spills and provide for prompt cleanup in the event of a spill. (Section IV.A.1.f)

New: Added requirements for two specific project sponsor commitments to the SPRP: that pumps operating within 100 feet of a waterbody or wetland boundary will utilize an appropriate secondary containment system; and, that any bulk storage of hazardous materials will have appropriate secondary containment systems. (Section IV.A.1.g and h)

Modified: Expanded the agency notification requirement concerning the stream crossings schedule to include federal agencies. The same change was made to the requirement to obtain authorization to construct stream crossings outside of the Procedures' timing window. (Section V.A.4 and Section V.B.1)

New: Added a measure to the general stream crossing section clarifying that dry and/or frozen streams are not considered waterbodies for purposes of the Procedures; but, as soon as there is perceptible flow, all relevant measures in the Procedures will apply. (Section V.B.3.g)

Modified: Clarified the spoil pile placement provision by removing the modifying word "heavily" before "silt-laden water". (Section V.B.4.b)

Modified: Clarified the equipment bridge measure to specify that the company must "maintain" project bridges. (Section V.B.5.b)

New: Added a provision to the equipment bridge section requiring U.S. Army Corps of Engineers (COE) approval to leave a construction bridge permanently in place. (Section V.B.5.g)

Modified: Clarified the measure that requires the project sponsor to monitor pumps by adding the word "continuously". (Section V.B.6.b.(2).v)

Modified: Expanded the horizontal directional drilling (HDD) plan measure to require the inclusion of two new specific pieces of information: justification that the proposed area of disturbance is the minimum the project sponsor needs to construct the crossing; and, identification of any proposed aboveground disturbance or clearing between the HDD entry and exit points. (Section V.B.6.d.(2) and (3))

New: Added a measure to the stream restoration section requiring the use of erosion control fabric on stream banks. This measure use to appear in the Plan. (Section V.C.4)

Modified: Included in the post-construction maintenance section a prohibition against mowing between an HDD entry/exit point and the waterbody or a wetland. (Section V.D.1)

Modified: Expanded the stipulation requiring justification for using extra workspace closer than 50 feet of a wetland to ensure the project sponsor provides protection of the wetland. (Section VI.B.1.b)

Modified: Clarified the intent of the measure regarding the duration of construction in wetlands by specifying the project sponsor must not begin trenching in the wetland until the pipeline is assembled and ready for installation. (Section VI.B.2.d)

Modified: Expanded the provision that requires the removal of cut vegetation from wetlands to allow the burning of woody debris in wetlands; however, the company must ensure that all remaining woody debris is removed for disposal. (Section VI.B.2.f)

Modified: Removed "frozen soils" from the measure that identifies the wetland conditions that relieve the project sponsor from the topsoil segregation requirement. (Section VI.B.2.h)

Modified: Expanded the definition of successful revegetation in wetlands by adding specific criteria. (Section VI.D.5)

New: Added a new reporting requirement that the project sponsor must file a wetland restoration report within 3 years after construction that identifies the status of the wetland revegetation efforts and documents the success of revegetation. The project sponsor must continue to file these reports annually until wetland revegetation is successful. (Section VI.D.6)

Modified: Specified in the hydrostatic testing measure regarding pumps that any pump operating within 100 feet of a wetland or waterbody must include secondary containment. (Section VII.B.2)