FRIENDS OF THE HEADWATERS
RESPONSE TO THE MINNESOTA DEPARTMENT OF COMMERCE
LINE 3 DRAFT EIS - Dockets CN-14-916, PPL-15-137
JULY 10, 2017

ATTACHMENTS "I"

I-1 FOH 4.4.14 Sandpiper Public Comments Part1
I-2 FOH 4.4.14 Sandpiper Public Comments Part2
I-3 FOH 5.30.14 Sandpiper Public Comments
I-4 FOH 8.21.14 Sandpiper Public Comments Part1
I-5 FOH 8.21.14 Sandpiper Public Comments Part2

All Friends of the Headwaters documents and maps submitted to the Minnesota Department of Commerce for the respective Public Comment periods for the proposed Sandpiper Pipeline project

April 3, 2014

Mr. Larry Hartman, Environmental Review Manager
Energy Environmental Review and Analysis (EERA)
Minnesota Department of Commerce
85 7th Place East, Suite 500
St. Paul, MN 55101-2198

Dear Mr. Hartman,

Regarding Public Utilities Commission (PUC) Docket No. PL9/PPL-13-474:

Please find attached our letter concerning the Enbridge/North Dakota Pipeline Company, LLC Sandpiper pipeline request for a proposed southern corridor route across northern Minnesota from Grand Forks, ND to Superior, WI.

The Friends of the Headwaters oppose this current projected route. You, the DOC and the Public Utility Commissioners will find our reasoning for our opposition and our proposal for an alternate route in the attached documents.

Friends of the Headwaters requests these documents be posted to the eDocket website as soon as possible.

Writing for the members of Friends of the Headwaters I thank you for your attention to these documents and for your attention to our concerns for the welfare and quality of our lands, waters and lives in the Headwaters Country.

Sincerely,

Richard Smith
President
Friends of the Headwaters

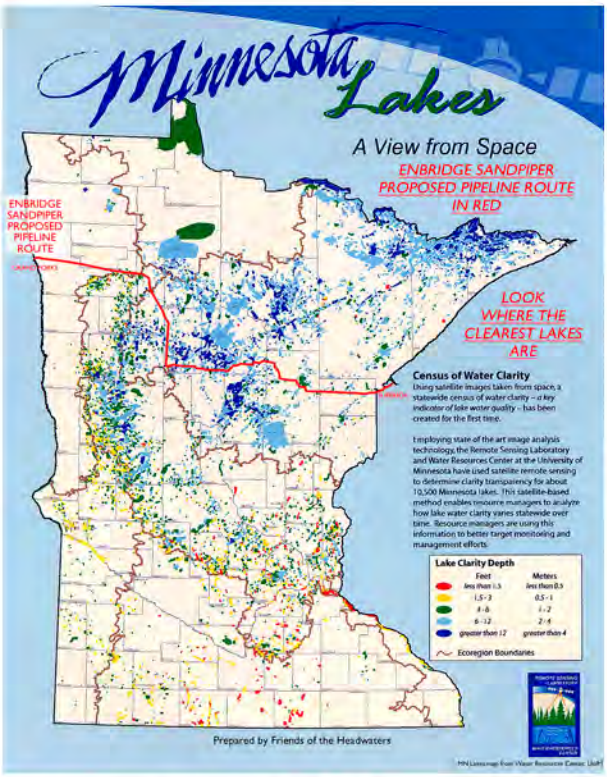
P.O. Box 583, Park Rapids, MN 56470
mnfriendsoftheheadwaters@gmail.com
facebook.com/savemississippiheadwaters
www.friendsoftheheadwaters.org

POSITION PAPER - ENBRIDGE/NORTH DAKOTA PIPELINE COMPANY (NDPC) LLC
SANDPIPER PIPELINE PROJECT

Public Utilities Commission (PUC) Docket Number: PL-6668/PPL-13-474

April 2, 2014

Prepared by
Richard Smith
Friends of the Headwaters
P.O. Box 583
Park Rapids, MN 56470

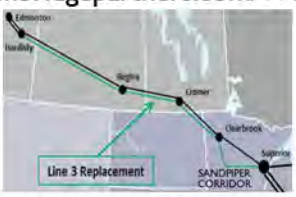


Friends of the Headwaters opposes the Enbridge/NDPC Sandpiper pipeline as currently projected to cross Minnesota's lake country from Grand Forks, ND to Superior, WI.

We believe Enbridge/NDPC's proposed "southern corridor" will NOT protect the high quality waters along this route.

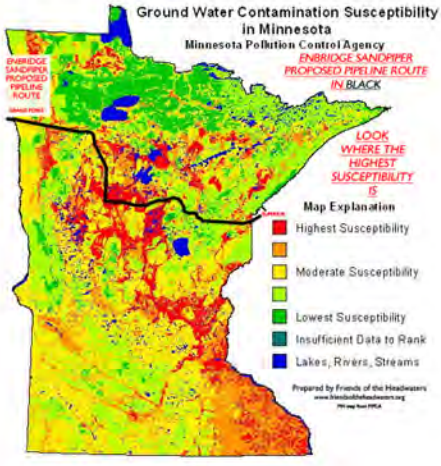
Friends of the Headwaters also believes Enbridge intends to proliferate another multiple pipeline corridor with their southern route proposal.

Note: Enbridge presented just that in an investor conference held April 2, 2014 in New York City. See 50th page of their pdf at this link:
http://www.enbridgepartners.com/WorkArea/linkit.aspxLinkIdentifier=id&ItemID=17004



Besides our important residential and recreational lakes Minnesota's best wild rice lakes are also extremely vulnerable to this proposed pipeline. Those lakes are culturally and economically significant to Minnesota's Ojibwa tribes as well as being important food sources for our migratory waterfowl populations.

The "southern corridor" will severely jeopardize the Straight River aquifer in southern Hubbard County. The aquifer is critical as the sole drinking water source for the county seat, Park Rapids. as well as supporting the county's primary agricultural crop, potatoes. Annual revenue from the potato crop approaches $500 million. A leak/rupture in the aquifer would severely impact this agricultural revenue, damage Park Rapids' potable water source, and despoil a renowned brown trout stream, as well.



Hubbard County natural resources support a vibrant tourism community with nearby Itasca State Park, home to the headwaters of America's most famous river, the Mississippi, and with its family-owned lake country resort businesses. The Minnesota Tourism Office estimates $30 million dollars are spent in Hubbard County every vacation season. A catastrophic oil spill on the level of Enbridge's Kalamazoo River spill would devastate the county's tourism business.

Given the high risks to the county, state and private lands and waters along the proposed southern route, *Friends of the Headwaters* strongly disagrees with the PUC/DOC's position that a full environmental impact study (EIS) is not necessary for the confirmation of Enbridge/NDPC's route proposal. A PUC/DOC conducted CEA (comparative environmental analysis) will fail to meet MEPA standards. *Friends of the Headwaters* believes a complete EIS with the requisite and cumulative leak/spill scenarios and assessments for the lakes and rivers, trout streams, wild rice beds, lake homes and resorts, ground water sources, farmlands, wetlands, wildlife, local communities and their economies will validate Friends of the Headwaters' position of moving the Sandpiper route to a lower risk part of the state.

Therefore, *Friends of the Headwaters* is proposing a number of alternate routes for the Enbridge/NDPC Sandpiper pipeline that do not traverse any of Minnesota's clearest and cleanest lakes, rivers, trout streams, and fragile aquifers. Details and maps to follow.

Prior to presenting the details and maps *Friends of the Headwaters* wants it known that its technical consultants' requests for the Enbridge GIS mapping software were ignored by the company and the PUC. Access to the software was ultimately granted a few days before the closing date for public comment on route alternatives, but much too late to be of effective use by *Friends of the Headwaters* consultants. Maps were constructed from satellite aerial photography, road maps, DNR & PCA maps and existing pipeline corridor maps available at various sources on the Internet including Enbridge's website.

Before preparing these alternate routes *Friends of the Headwaters* first used the document
7852.1900 "Criteria for Pipeline Route Selection"
made available at the March 12, 2014 PUC/Enbridge Sandpiper Public Hearing in Park Rapids, MN to determine the fallibility of Enbridge/NDPC's proposed southern corridor route. *Friends of the Headwaters'* comparative economic and environmental analysis of the impact of Enbridge/NDPC's Sandpiper pipeline upon the listed "Criteria for Pipeline Route Selection" fell short of meeting the requirements to maintain, sustain and protect the lands, waters and people along the proposed corridor.

Under Subp. 3. Criteria:
A. human settlement, existence and density of populated areas, existing and planned future land use, and management plans.

Hubbard County realizes $34 million dollars annually in tax revenue(2012 data). 59% of its properties are water-influenced, meaning either on or have a view of a lake or river. Those parcels yield a $20 million dollar figure. The Fishhook Chain of Lakes watershed is mostly in Todd and Arago Townships. Taxes on the water-influenced properties in those two townships is about $2 million annually.

If a large rupture on the order of the Enbridge 1991 Grand Rapids, MN spill (1.7 million gallons) occurs at Hay Creek near the top of that watershed, it would dramatically impact the property values on those lakes resulting in a significant loss of tax revenue to the county, state, Park Rapids and its school district. It will be years before the county recovers from the damage. Not only will it incur the loss of tax revenues, but also the loss of residents, small businesses, tourists, and property values.

B. the natural environment, public and designated lands, including but no limited to natural areas, wildlife habitat, water, and recreational lands.

Any pipeline leak/spill/rupture will severely impact the sustainable environmental quality of life in Hubbard County. Itasca State Park, Mississippi River headwaters, LaSalle Scientific and Natural Area, Straight River brown trout fishery, Hay Creek and the Fishhook Chain of Lakes watershed, Straight River aquifer, Shell River, the Crow Wing River, and the many other nearby lakes all support and provide numerous recreational opportunities, swimming, fishing, hunting, hiking, biking, bird watching, boating, and others. $30 million tourism dollars a season are at risk.

C. lands of historical, archaeological and cultural significance

The history of Native Americans and the early explorers in and around Itasca State Park is an asset to drawing tourists to the park. The wild rice waters in Hubbard and Clearwater Counties are culturally and economically significant. The proposed Sandpiper route is dangerously close to Upper Rice Lake, the Anishinaabe's best wild ricing lake in Clearwater County. The wild rice harvested there is commercially and domestically important to the White Earth Ojibwa.

D. economies within the route, including agricultural, commercial or industrial, forestry, recreational, and mining operations.

All future business, residential, retirement and agricultural growth will be impacted by any pipeline leak/spill/rupture. Over 500 jobs and $500 million dollars in revenue/year is generated by the potato crop alone. Besides potatoes and the commodity crops of corn and beans, fresh fruit and vegetables are also grown and marketed locally to residents and tourists by smaller farms operating within the Straight River aquifer. Farm incomes and tourists dollars drive the local small business economy.

Although some small businesses may see a short term gain from pipeline construction, the long term economic vitality of the community, its businesses and people may not recover from a spill.

Enbridge/NDPC touts the tax payments it will be making annually to Hubbard County. The public has heard two figures, either $3 million or $5 million dollars, but relative to the value of the Bakken crude proposed to pass through the county each year, $14.6 billion dollars, that tax revenue seems woefully short for the risks assumed. What costs will the county incur for infrastructure repair after construction? What will be the costs of training police, fire, paramedic and medical personnel in the special hazards of oil spills and fires? We haven't heard anything about the PUC requiring a significant Escrow account to ensure funds are available when a pipeline fails.

The state and its northern counties derive income from their forest lands. Those forest taken out of production along "Greenland" portions of the proposed route will mean a loss of timber jobs and income, as well as a loss of habitat for wildlife, especially birds.

E. pipeline cost and accessibility

How much higher are the construction costs of multiple bores under rivers and streams? What are the contingency plans and costs for controlling "frackouts" in stream beds during a bore. Friends of the Headwaters has learned a "frackout" occurred on nearly every stream or river bore during this area's last pipeline construction project in 2007. What are the costs and issues for winter construction of wetland areas along the route? How do the company and clean-up agencies access those wetlands areas in non-winter seasons if and when a leak/spill/rupture occurs? What are the economic consequences of summer construction and congestion issues with roads and traffic? How will availability of lodging not just for construction crews but also for tourists be affected. How will the compatibility of construction workers be with tourists, residents and local businesses. How trustworthy and reliable will these workers be with respect to property and paying for services. Some resort owners have informed Friends of the Headwaters they will not provide lodging for pipeline workers due to previous pipeline worker negative experiences. Will Enbridge/NDPC be financially responsible for covering damages or lost income from disreputable and irresponsible workers? *Friends of the Headwaters* believes only a properly executed EIS will provide the comprehensive assessment for the above scenarios.

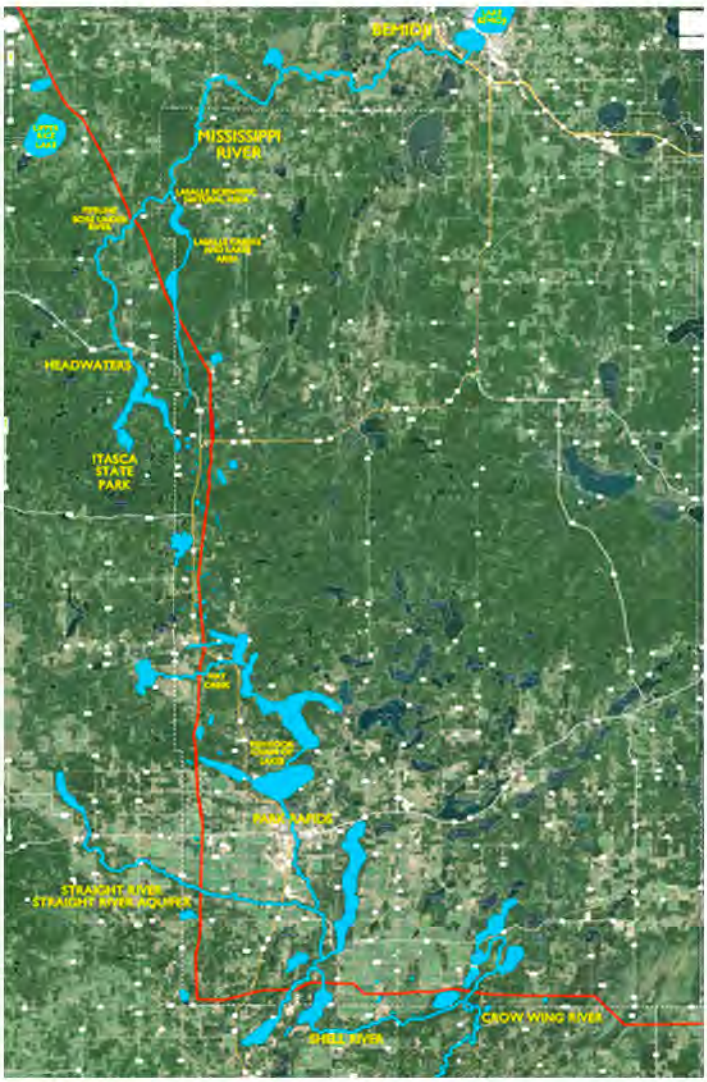
F. use of existing rights-of-way and right-of-way sharing and paralleling.

Although Enbridge/NDPC is proposing to use existing energy corridors in Hubbard County numerous landowners along the route have complained of poor easement usage, property damage, poor restoration or reclamation efforts, and generally bad relations with other pipeline companies. They are skeptical of Enbridge claims to treat them better given accounts they have seen or heard from landowners on the Enbridge northern

pipeline corridor. Landowners along the proposed route are also concerned of the liability issues regarding detection and reporting of any leaks or spills. Attorneys have warned landowners to be wary of the language within the Enbridge/NDPC easement contract.

G. natural resources and features

Friends of the Headwaters has no faith in Enbridge/NDPC's word they can safely protect the lands and waters of Minnesota's lake country.



All pipelines leak eventually. While conducting a complete EIS for the Pebble Mine near Bristol Bay, Alaska, the EPA examined the history of pipeline spills relative to the age and mileage of all pipelines. They determined that every pipeline will leak at least once every 30 years over every 30 miles of length. Not surprising the history of Enbridge spills along their northern corridor in Minnesota fits that profile quite well. To quote from a 2003 MPCA report to the NTSB: "nearly three dozen non-third-party spills, leaks or ruptures on just one Enbridge 34 inch line between 1972 and 2003. About 87% of the petroleum gallons spilled from all Minnesota pipelines in the period 1991 to 2002 was from that Enbridge line. This is equal to about 48% of the reported gallons of petroleum spilled from all sources in Minnesota during that period. Included in the Enbridge 34 inch line spills are the 1.7 million gallon rupture in 1991 in Grand Rapids and the 250,000 gallon rupture on July 4, 2002 in Cohasset. 300,000 gallons of the Grand Rapids spilled flowed to a river. Luck with the timing of the spill and river ice conditions kept thousands of gallons of crude from entering the Mississippi River. Oil in the Mississippi would likely have fouled the St. Cloud, St. Paul, and Minneapolis drinking water intakes for months. Likewise the Cohasset spill could have easily entered the Mississippi River if it had happened in a different segment of that 34 inch pipeline."

The Mississippi River Headwaters, Itasca State Park, the Straight River aquifer and brown trout stream, the Shell and Crow Wing Rivers, the Fishhook Chain of Lakes, Upper Rice Lake and other wild rice lakes, and some of the clearest lakes in the state are all at risk from this proposed Sandpiper southern corridor and Enbridge's stated plans to make it a multiple pipeline corridor.

H. the extent to which human or environmental effects are subject to mitigation by regulatory control and by application of the permit conditions contained in Minn. Rule, part 7852.3600 for pipeline right-of-way preparation, construction, cleanup, and restoration practices.

Enbridge's history with the Alberta Clipper line, Line 3 and other lines in the northern corridor is well known as stated above. The PUC completely ignored the numerous landowner complaints of Enbridge's poor behavior, cleanup, followup, and restoration efforts or lack thereof on the Certificate of Route and Need Applications for the Alberta Clipper line. *Friends of the Headwaters* has learned some landowners are losing buildings, well houses, wood lots, and in some cases homes to Enbridge/NDPC's easement demands. Eminent domain actions are especially disliked.

I. cumulative potential effects of related or anticipated future pipeline construction

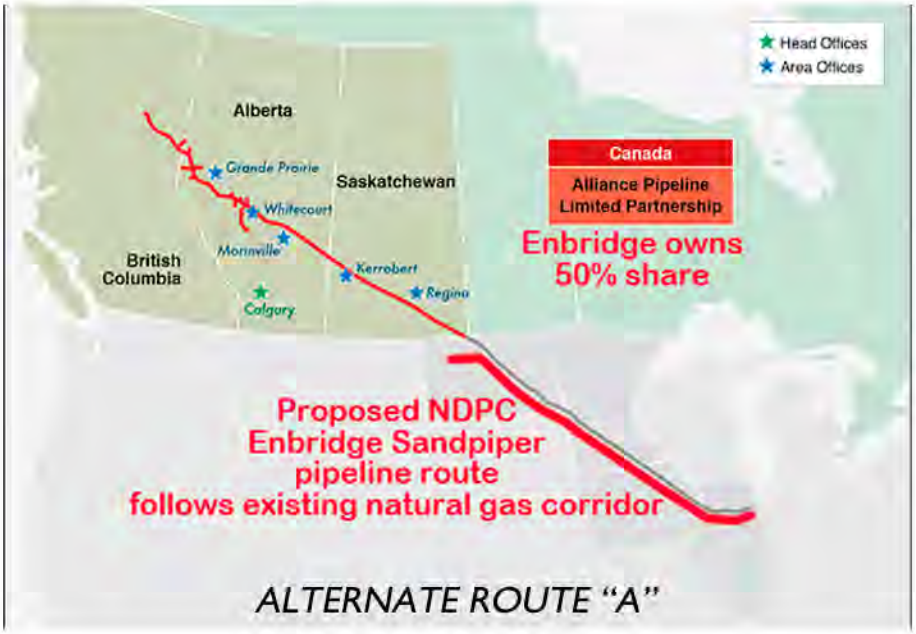
Now that Enbridge has stated the Line 3 rebuild (NYC Investor Conference 4/2/14) will occur in the Sandpiper "southern corridor", a comprehensive EIS(environmental impact study) conducted by the proper state and federal regulatory authorities is absolutely essential. As previously stated, all leak/spill/rupture risk scenarios must be assessed and fully described for high value resources. The EIS must also compare all reasonable and prudent alternative routes. EIS studies should be required to use GIS software to optimize the potential alternative routes other than Enbridge/NDPC's routes.

J. the relevant applicable policies, rules, and regulations of other state and federal agencies, and local governmental land use laws including ordinances adopted under Minnesota Statutes, section 299J.05, relating to the location, design, construction, or operation of the proposed pipeline and associated facilities.

A project of this magnitude as planned through the heart of *"The Land of 10,000 Lakes"* must conform to the standards prescribed in MEPA.

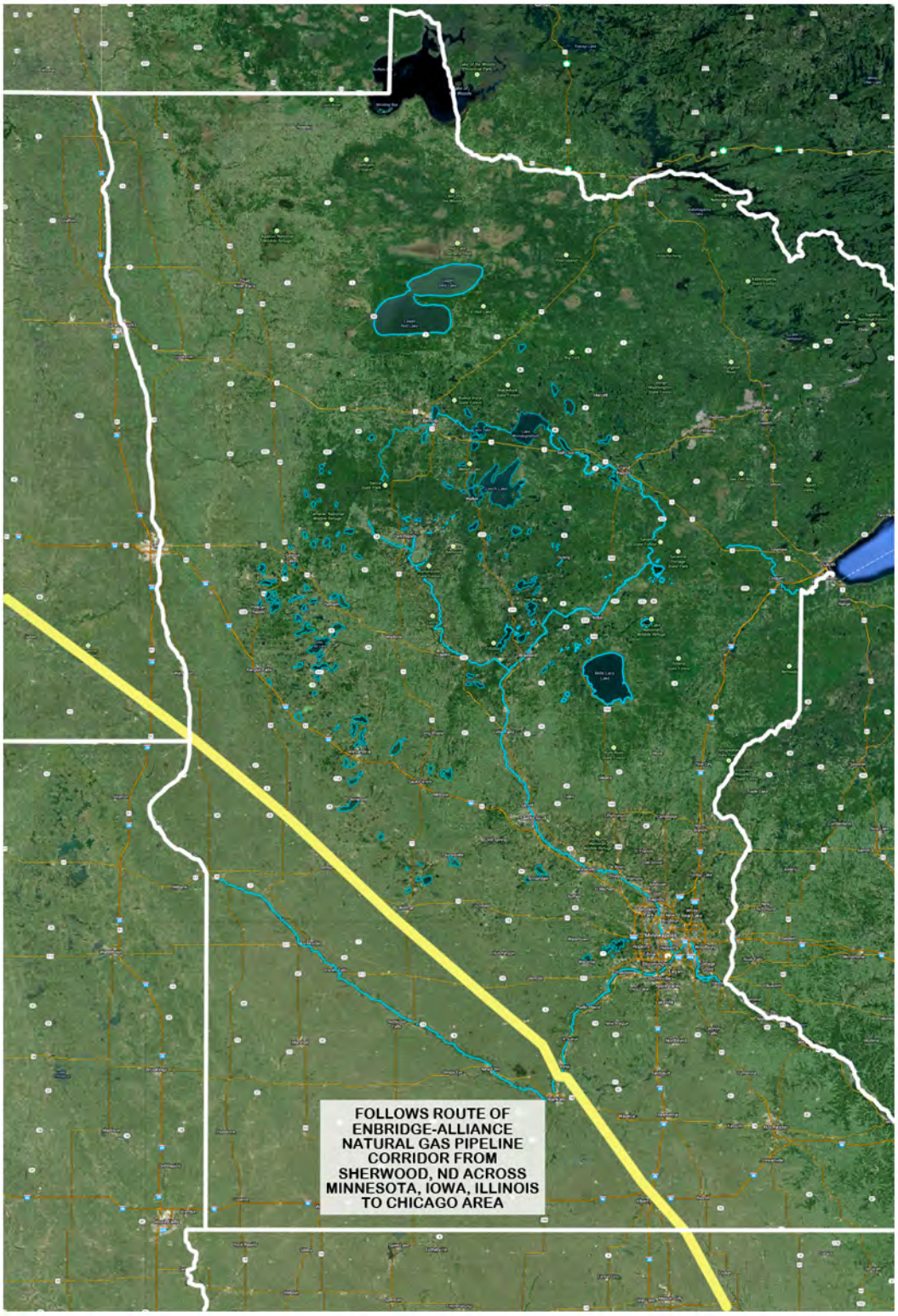
"No state action significantly affecting the quality of the environment shall beallowed, nor shall any permit for natural resources management and development be granted, where such action or permit has caused or is likely to cause pollution, impairment, or destruction of the air, water, land or other natural resources located within the state, so long as there is a feasible and prudent alternative consistent with the reasonable requirements of the public health, safety, and welfare and the state's paramount concern for the protection of its air, water, land and other naturalresources from pollution, impairment, or destruction. Economic considerations alone shall not justify such conduct."

Since *Friends of the Headwaters* does not believe this proposed multiple pipeline "southern" corridor with the Sandpiper and now Line 3 rebuild can meet the high standards set above for quality, safety and sustainability of the lands and especially waters along the route, *Friends of the Headwaters* is proposing a "real" southern corridor for Sandpiper.



ALTERNATE ROUTE "A"

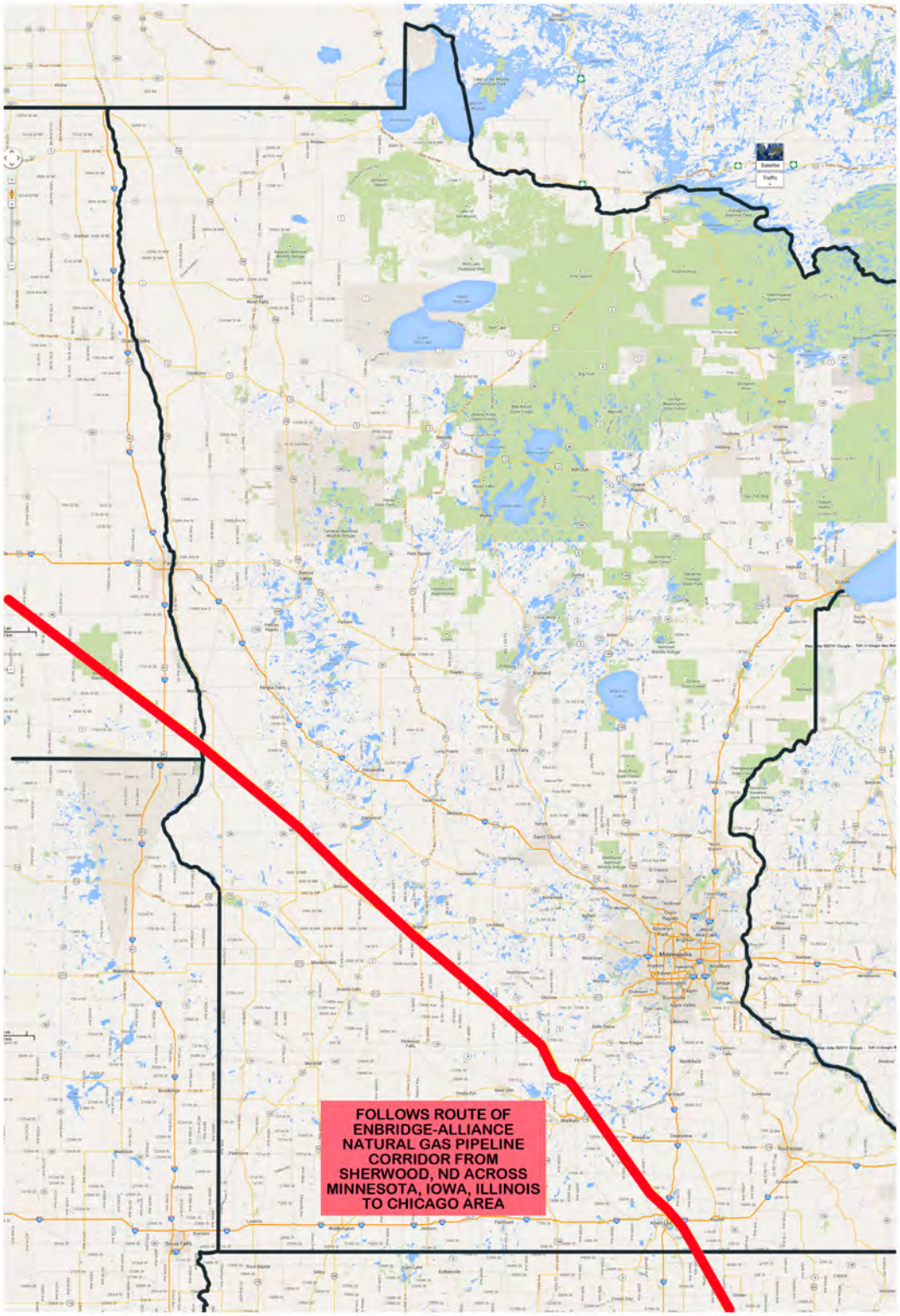
This ALTERNATE ROUTE A utilizes an existing energy corridor of which Enbridge is a 50% shareholder with Alliance Company of Canada. This corridor originates in Canada and ends west of the Chicago. The proposed Enbridge/NDPC pipeline route would intersect this corridor east of Minot, ND at which point NDPC would turn and follow the corridor to Illinois.



ALT ROUTE A traverses almost exclusively agricultural lands below Minnesota's primary lake country. This area is sparsely populated with mostly small towns among the farmlands.

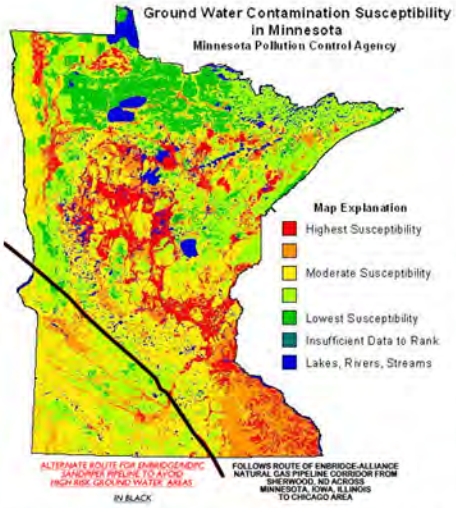
ALTERNATE ROUTE "A"

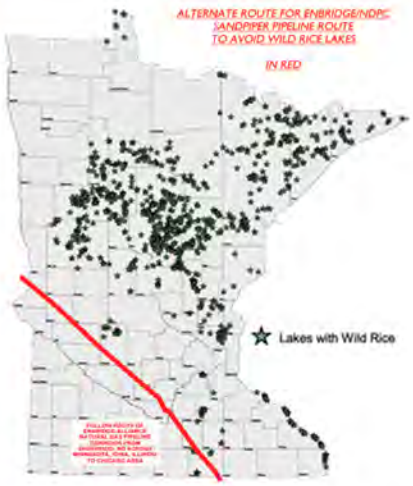
Note: Enbridge's Mark Curwin, Senior Director for Strategic Coordination of Major Project Executions in the US, stated their construction preference is to build pipelines across farmland. He made these remarks at a public meeting in Park Rapids on Jan. 29, 2014. In attendance were two Minnesota legislators, Roger Erickson and Rod Skoe,as well as local Hubbard County government, agency and business officials. Mr. Curwin gave the reasons of better soils, easier construction, easier access, less natural habitat destruction, cheaper and quicker. After construction the farmland can be put back into crop production. Access to leaks and spills is much easier. Winter wetland construction would be at a minimum.



ALTERNATE ROUTE "A"

ALT ROUTE A avoids all the major risk areas of the lake country: high quality lakes and streams, sensitive aquifers, culturally significant wild ricing waters, and valuable lakeshore and vacationland assets.





Minnesota still gets to keep jobs the construction will provide as well as North Dakota plus Iowa and Illinois. Jobs for Americans.

Although the route does not end in Superior, it still ties into the existing Enbridge system in Illinois with routing options to Michigan and Ontario that avoid our greatest freshwater lakes of Lake Superior and the Mackinac Straits of Lakes Michigan and Huron. The Illinois Hub also allows Enbridge access to its pipelines to Oklahoma and points south.

Since it's an existing corridor the company should have access to the mapping previously done for the pipeline already there. ALT ROUTE A also intersects in southern Minnesota pipelines owned and operated by other companies which provide the option of re-routing Bakken crude to the refineries in Rosemont and Saint Paul Park in the south Twin Cities Metro. Perhaps Minnesotans will actually get to fuel their cars and trucks with gasoline from Bakken crude.

As currently planned with the exception of a few tax dollars and short term construction monies Minnesotans derive no long term benefits from these pipelines and assume all the risks from leaks/spills/ruptures. And eventually these pipelines will leak or break. THE EPA Pebble Mine statistics said so and Enbridge's spill history in Minnesota proves it true.

Friends of the Headwaters therefore recommends to the PUC, DOC and other state agencies that they enforce our MEPA statutes and deny the Certificate of Route permit for the Enbridge/NDPC's proposed Sandpiper pipeline corridor through Minnesota's prime lake country. A perfectly viable, low risk alternative is available south of our best waters.

Friends of the Headwaters believes a barrel of water IS worth more than a barrel of oil.

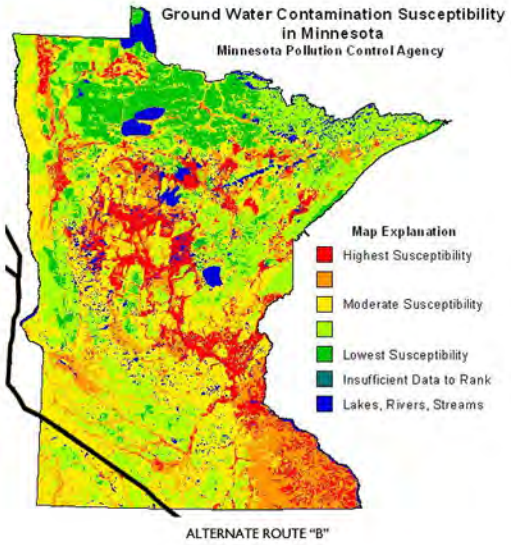
POSITION PAPER - ENBRIDGE/NORTH DAKOTA PIPELINE COMPANY (NDPC) LLC
SANDPIPER PIPELINE PROJECT

Public Utilities Commission (PUC) Docket Number: PL-6668/PPL-13-474

ADDENDUM TO FRIENDS OF THE HEADWATERS ALTERNATIVE ROUTE PROPOSAL

Friends of the Headwaters preferred alternate to the Sandpiper pipeline corridor is Route A as previously presented. We do, however, have 2 other alternate route proposals which are listed below. The principal reasoning and decisions for *Friends of the Headwaters'* primary Alternate Route "A" also stand for these optional route alternatives. Both of these routes move the Sandpiper pipeline corridor out of the high risk lands and waters of central and northern Minnesota. Both routes move the potential of oil spills away from the Lake Superior basin as well. Alt Route "B" would tie into the existing Enbridge pipeline system in Illinois. Alt Route "C" would connect to the refineries, Flint Hills or Saint Paul Park, southeast of the Minneapolis-St.Paul area or would connect with pipeline systems in the Twin Cities metro area that also connect across Wisconsin to the primary Enbridge pipeline corridor running northwest to southeast down through Wisconsin.The routes attempt to utilize existing energy corridors as much as possible.

ALTERNATE ROUTE "B"

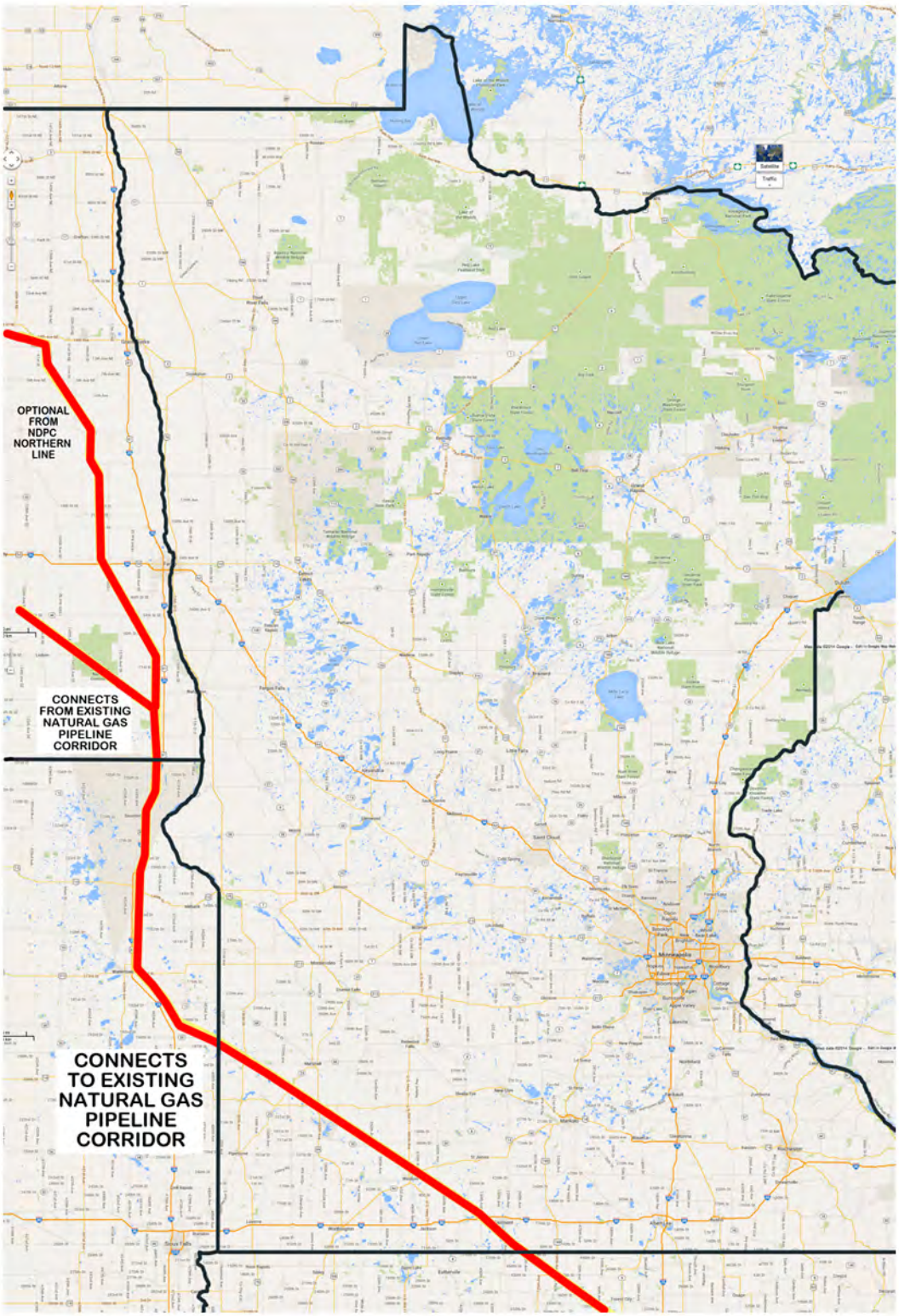


ALTERNATE ROUTE "C"

ADDENDUM TO FRIENDS OF THE HEADWATERS ALTERNATIVE ROUTE PROPOSAL

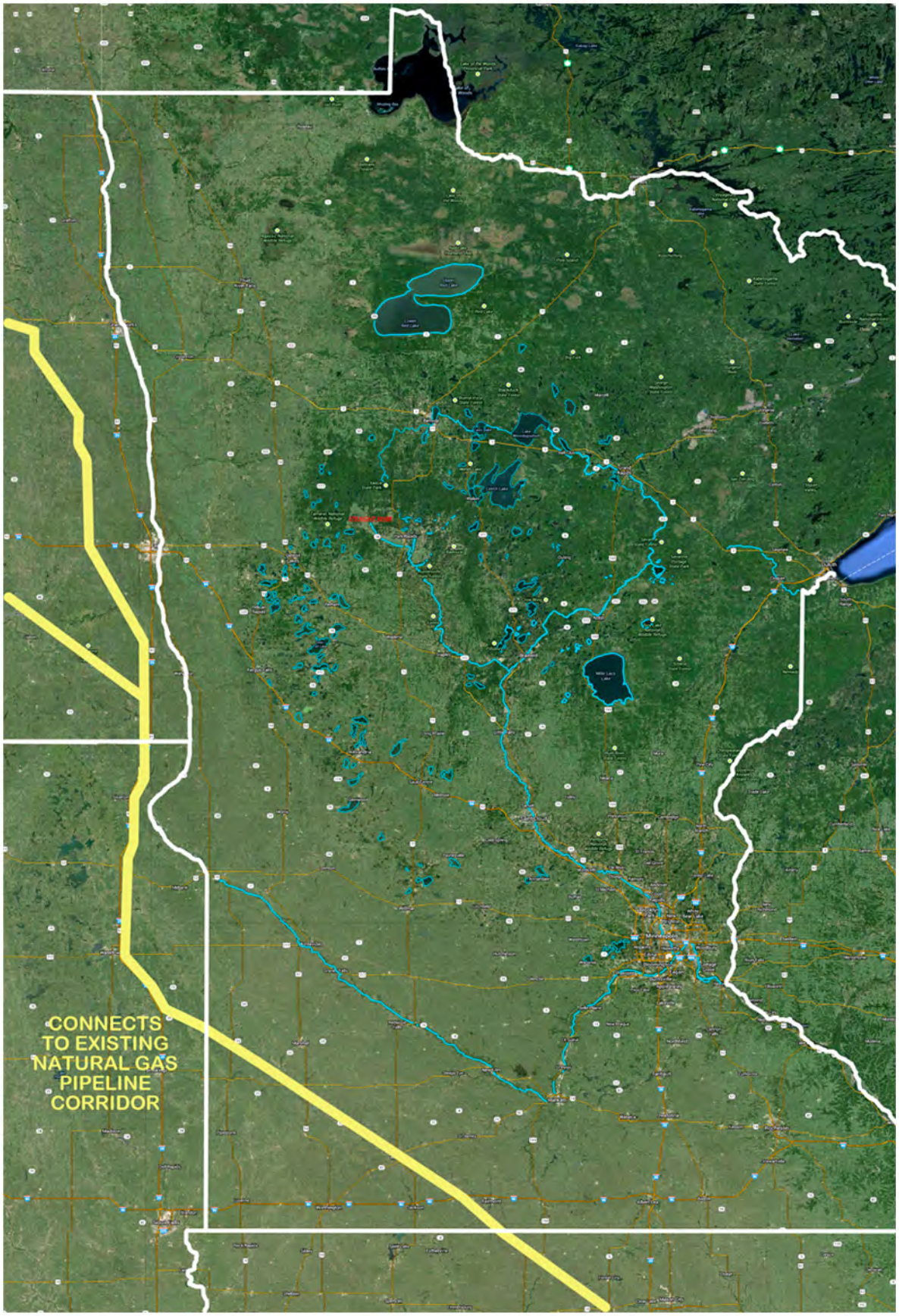
ALTERNATE ROUTE "B"

This is modeled after Alt Route A in that it begins in North Dakota on the Enbridge/Alliance natural gas pipeline corridor. Upon reaching the I29 corridor in eastern North and South Dakota it follows the I29 corridor south until intersecting another natural gas pipeline corridor at which point it follows that corridor to Illinois. This route traverses mostly farmland in the southwest corner of the state and also avoids the two major river crossings of the Red River north of Wheaton, MN and the Minnesota River near Mankato.



ADDENDUM TO FRIENDS OF THE HEADWATERS ALTERNATIVE ROUTE PROPOSAL

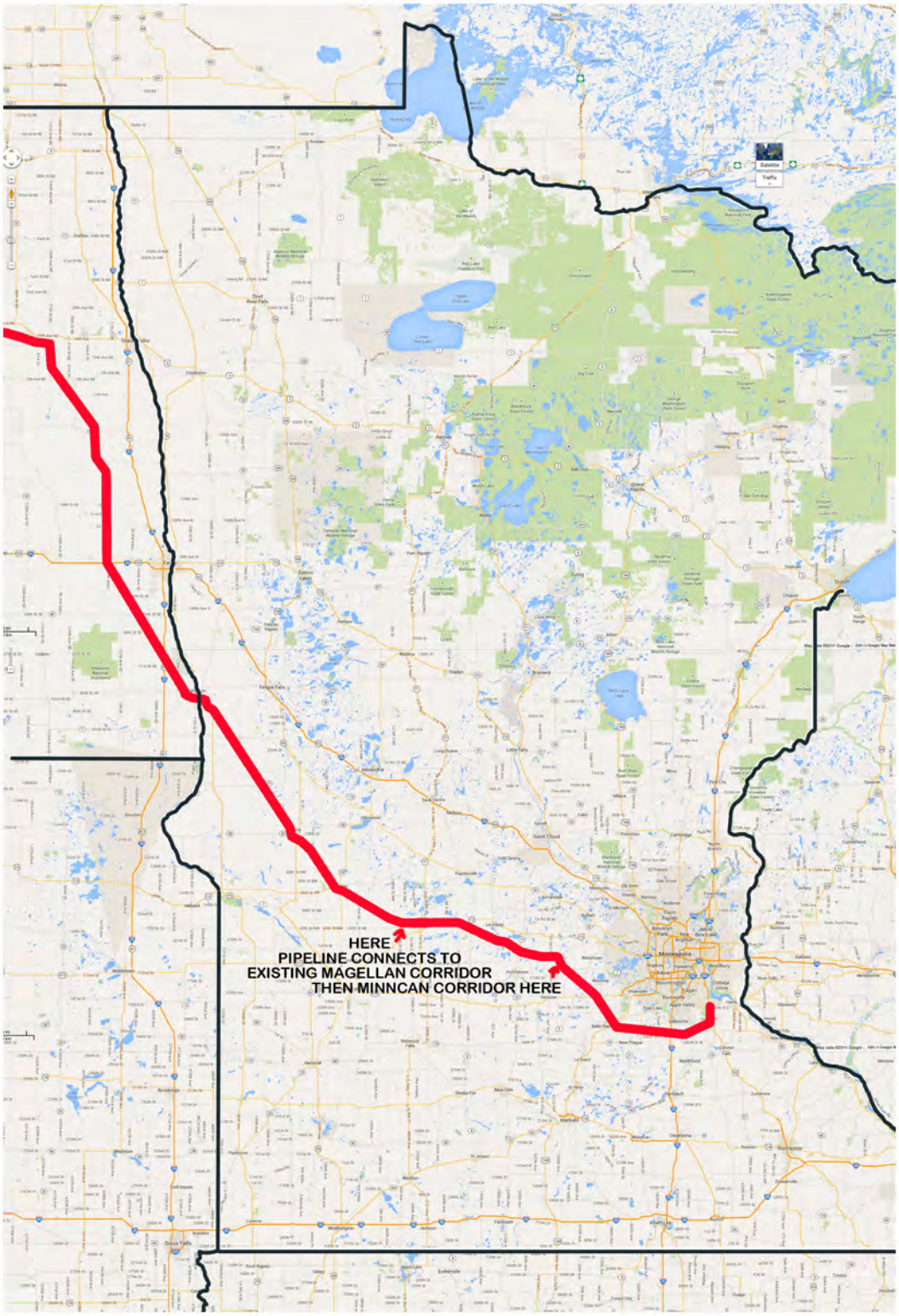
ALTERNATE ROUTE "B"



ADDENDUM TO FRIENDS OF THE HEADWATERS ALTERNATIVE ROUTE PROPOSAL

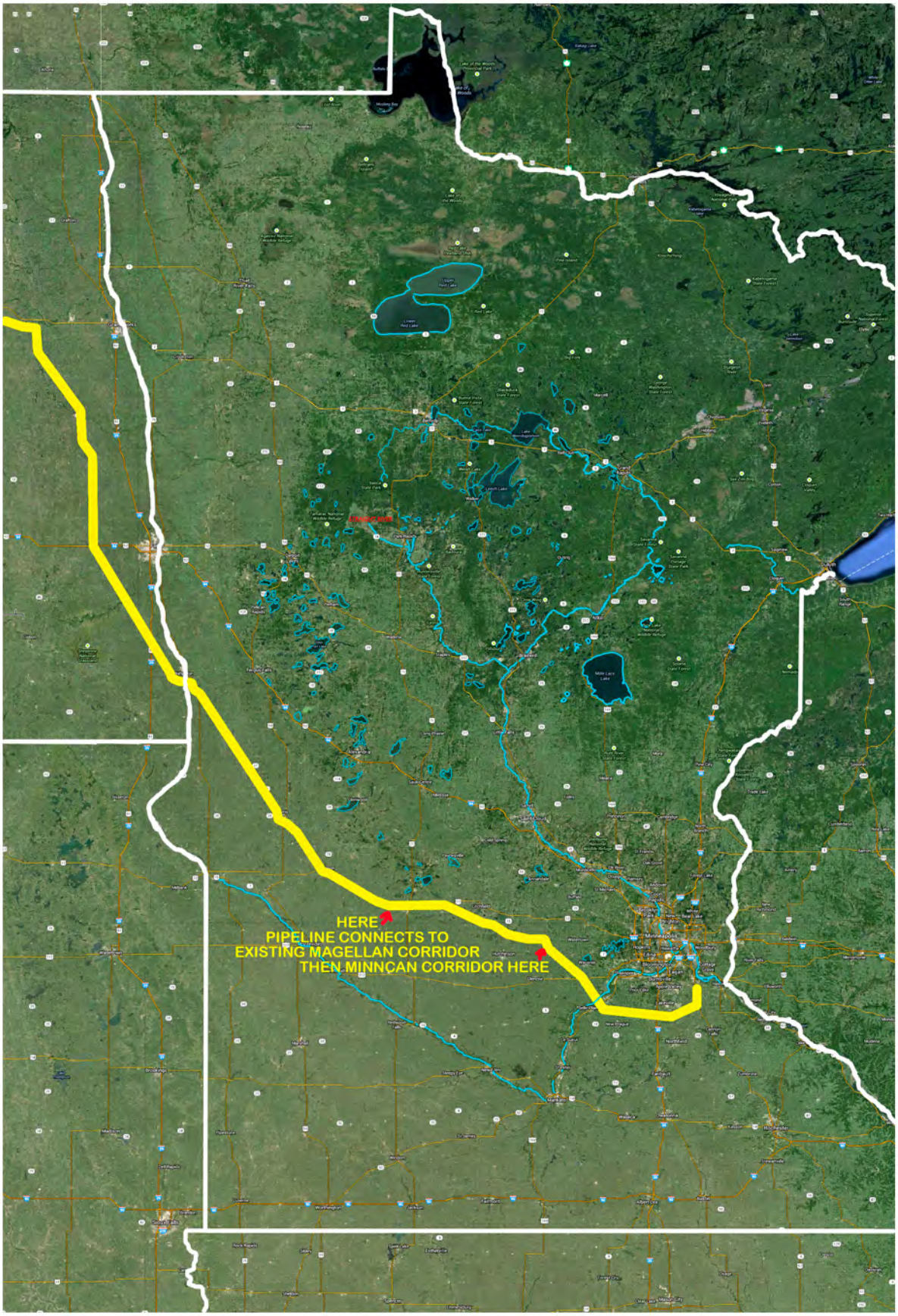
ALTERNATE ROUTE "C"

West of Grand Forks near Larimore the Sandpiper would turn south following either railroad easements or road easements south-southeast down the Red River Vally, crossing the Red River near Wahpeton, ND and continuing along MN Hgy 9 until it intersects an existing pipeline corridor owned by the Magellan Company. The Sandpiper follows this corridor until its intersection with the MinnCan pipeline corridor at which point it follows this corridor to the Flint Hills and Saint Paul Park refineries and pipeline system southeast of the Twin Cities Metro area.



ADDENDUM TO FRIENDS OF THE HEADWATERS ALTERNATIVE ROUTE PROPOSAL

ALTERNATE ROUTE "C"



April 4, 2014

Larry Hartman, Environmental Review Manager
Energy Environmental Review and Analysis (EERA)
Minnesota Department of Commerce
85 7th Place East, Suite 500
St. Paul MN 55101

Email: larry.hartman@state.mn.us

Re: PUC Docket Number 13-473 and 13-474

Dear Mr. Hartman,

Please consider the comments below the collective and cumulative concerns and recommendation of Friends of the Headwaters (FOH), a local citizen's group organized for the purpose of protecting Minnesota's resources; advocating for citizen's right to fully participate in its government's decisions and ensuring adherence to all local, state and federal laws in all actions taken in regard to Enbridge Pipeline, (now dba North Dakota Pipeline LLC) and their plans to construct and operate the Sandpiper Crude Oil Pipeline in Minnesota. Friends of the Mississippi have over 600 members and supporters who share the concerns, comments and recommendations expressed below.

We have organized our comments into twelve sections under the following broad categories:

1. Concerns, objections, and failure to provide due process;
2. Quality and scope of alternative environmental reviews;
3. Certain time and resource constraints;
4. Unjustified limited scope of environmental review;
5. Pipeline leak/rupture event impact scenario analysis;
6. Need for additional leak/rupture scenarios unique to sandpiper routes;
7. Bakken sweet crude oil volatility/flammability consideration in leak/rupture scenario development;
8. Dept. of Commerce staff commitment to provide FOE assistance in development of alternative route data;
9. Methods of developing and comparing alternative routes;
10. Cumulative impacts;
11. Financial assurance;
12. Transparency, equal access and equal treatment;

1. CONCERNS, OBJECTIONS, AND FAILURE TO PROVIDE DUE PROCESS

Our primary concern is for what appears to be a decoupling and therefore the confusion of the procedures employed by your Department and the Public Utilities Commission in performing the state's responsibilities under the provisions of the various Statutes and Administrative Rules pertaining specifically to both the need for and the routing of petroleum pipelines in Minnesota.

The effect of the apparent decoupling of the Certificate of Need and Routing permit is the perception if not the reality that the applicant's realization of the pipeline project is but a foregone conclusion and that the routing process is relegated to simply comparing the applicant's preferred route to any other route that can possible manage to clear the myriad regulatory hurdles of requirements for complex supporting data and survive the virtually insurmountable maze of procedural requirements. The process has the appearance of being so favorably stacked in favor of the applicant's preferred route as to discourage the public from mounting the effort necessary to have any other route qualify for serious consideration. In fact, the applicant is acting in ways that would readily lead even the most casual observer to believe that the proposed southern route for the Sandpiper pipeline is a "done deal". Why else would Enbridge representatives gamble so much money to secure landowner easements all along their "preferred" route were they not so confident that the "process" will work in their favor?

FOH is requesting affirmative action on the part of the DOC and PUC that demonstrate that the need and associated pipeline routing process are transparent avoiding even the appearance of a process with a pre-determined outcome. The public has a right to expect a meticulously developed, well coordinated and interrelated need and routing process such that all material evidence is adequately weighed and publically well reasoned throughout.

It is very unclear and disturbing to the public that serious social, economic and environmental considerations seem so narrowly defined and constrained by unreasonable time schedules that favor the applicant at the expense of the public interest. It is unclear who develops the environmental impact information required by rule in the Certificate of Need (CON) process and how this environmental information may differ from the "comparative environmental analysis" or CEA prepared by the DOC that has the appearance of being operative only in the pipeline routing process. It is unclear and somewhat disturbing to realize, if it is true, that the narrow constraints imposed on the CEA document may also constrain the quality of the only environmental decision document available for the parallel but still separate CON process.

Furthermore, FOH is particularly concerned for your Department's actions which may violate the Minnesota Environmental Policy Act (MEPA) in the preparation of the CEA, particularly if the CEA is the only environmental review document made available for the CON decision as well.

It is our belief that while the several recent amendments to Minnesota Statutes you have cited at recent public meetings regarding the Sandpiper project provide for an "alternative" environmental review process for pipelines these Statutes and Rules to not allow for "inferior" environmental review for either the CON or the CEA developed for the Routing Permit.

Our reviews of all pertinent Minnesota Statutes and Rules applicable to the either the determinations of need and/or for the selection of routes for crude oil pipelines find

nothing that absolves the applicant or any state agencies from adherence to either the letter or the spirit of certain overarching and vital policy provisions of MEPA. For example, we believe that the applicant and your respective departments as well as commenting state agencies are bound by Subdivision 6, Minnesota Statutes 116D.04 regarding which states:

> **Prohibitions.** No state action significantly affecting the quality of the environment shall be allowed, nor shall any permit for natural resources management and development be granted, where such action or permit has caused or is likely to cause pollution, impairment, or destruction of the air, water, land or other natural resources located within the state, so long as there is a feasible and prudent alternative consistent with the reasonable requirements of the public health, safety, and welfare and the state's paramount concern for the protection of its air, water, land and other natural resources from pollution, impairment, or destruction. Economic considerations alone shall not justify such conduct.

This provision of MEPA sets a very high standard for making a finding that all "reasonable and prudent alternatives" have indeed been considered before any state action may be taken to permit projects such as a crude oil pipeline.

2. QUALITY AND SCOPE OF ALTERNATIVE ENVIRONMENTAL REVIEW

FOH recognizes that the Departments of Commerce and/or the Public Utilities Commission are empowered by certain Statutes to utilize alternative environmental review for certain crude oil pipelines as authorized by Minnesota Statutes 216G.02 pertaining to Routing of Certain Pipelines and Minnesota Statutes 2004, section 216B.2421 that applies to certain large energy facilities and specifically, subdivision 2, subsection 4. specifies that these provisions apply to pipelines such as the Sandpiper.

FOH further recognizes that Minnesota Statutes 2004, section 216B.2421, Subdivision 5 describing environmental review goes on to state:

> [ENVIRONMENTAL REVIEW.] For the projects identified in subdivision 2 and following these procedures, the commissioner of the Department of Commerce shall prepare for the commission an environmental assessment. The environmental assessment shall contain information on the human and environmental impacts of the proposed project and other sites or routes identified by the commission and shall address mitigating measures for all of the sites or routes considered. The environmental assessment shall be the only state environmental review document required to be prepared on the project.

However, while MEPA specifically, in Subdivision 4a. makes provisions for such forms of exclusive "alternative review" as allowed in Statutes 216B, this section of MEPA also makes the intentions of such alternative review quite clear.

> Subd. 4a. Alternative review. The board shall by rule identify alternative forms of environmental review which will address the same issues and utilize similar procedures as an environmental impact statement in a more timely or more efficient manner to be utilized in lieu of an environmental impact statement.

FOH brings your attention to the fact that while the purpose of "alternative review' as contemplated under Subdivision 4a of MEPA is to allow for "a more timely or more efficient manner to be utilized in lieu of an environmental impact statement, such alternative review is also required to: …"address the same issues and utilize similar procedures as an environmental impact statement…"

3. CERTAIN TIME AND RESOURCE CONSTRAINTS

The expedited time schedules and the omission of certain requirements for publishing of drafts documents and for soliciting public and other agency comments on draft documents are all streamlining of the normal EIS process provided as special privilege for pipelines under MN Statutes 216 G.02. The compression of time-lines and reduction of time and limiting opportunity for public or other agency comments does not excuse the PUC and/or the DOC from preparing robust, thorough and complete environmental review documents for pipelines. If the compressed nine and twelve month schedules provided for in rule and law, respectively for both issuing Certificates of Need (CON) and Routing Permits place constraints on the quality or completeness of the public involvement or the quality and completeness of environmental review portions of these processes it is incumbent on the PUC and DOC to either act to secure the necessary resources to accomplish these tasks within the provided timeframes or grant itself sufficient time extensions to perform the environmental review adequately. Your individual departments have ample provision in rule and law to shift the costs of the accelerated pubic input and environmental review to the applicant as their responsibility in return for the benefits of the streamlined process.

Specifically, in regard to cost constraints, Minnesota Statutes 216G.02 ROUTING OF CERTAIN PIPELINES. Subdivision 3.B Section 6 requires the PUC to:

> (Section 6) provide for the payment of fees by persons proposing to construct pipelines to cover the costs of the commission in implementing this section;

Lacking sufficient resources your departments have little choice, if acting in the better interest of the public than to request additional funding and/or extend the time taken to properly meet these obligations to the citizens of Minnesota.

It is FOH's understanding of these Statutes and Rules that if at any time during CON or Routing Permit process your respective departments become aware that more extensive public involvement will be needed, or that more detailed information must be analyzed or

that more alternative routes than anticipated will have to be evaluated to meet the minimum requirements of MEPA or other applicable rules the Public Utilities Commission on recommendation from the Department of Commerce, in providing such just cause, can extend either of the CON or the Routing Permit schedules. Specifically PUC procedural rules in Section 5 states:

> "(Section 5) provide a procedure that the commission will follow in issuing pipeline routing permits and require the commission to issue the permits within nine months after the permit application is received by the commission, unless the commission extends this deadline for cause;" (emphasis added by FOH)

FOH contends that citizen comments have by appropriate mean requested, sufficiently justified and provided evidence in support to constitute the required "cause" for the commission to extend the several deadlines necessary to allow full and complete public involvement and for expanding the time and resources necessary for preparation of appropriate environmental review documents.

4. UNJUSTIFIED LIMITED SCOPE OF ENVIRONMENTAL REVIEW

FOH finds that the Department of Commerce Environmental Review staff may believe that the Comparative Environmental Analysis for alternative routes and comments from any state or federal agencies or from the general public are necessarily constrained to impacts of pipeline construction only. FOH point out that under PUC Rules 7852.1900 CRITERIA FOR PIPELINE ROUTE SELECTION states in Subpart. 3 Criteria and in section J:

> Criteria. In selecting a route for designation and issuance of a pipeline routing permit, the commission shall consider the impact on the pipeline of the following:
>
> > J. the relevant applicable policies, rules, and regulations of other state and federal agencies, and local government land use laws including ordinances adopted under Minnesota Statutes, section 299J.05, relating to the location, design, construction, or **operation** of the proposed pipeline and associated facilities. (note: bold underlining added by FOH)

Therefore, FOH requests that the Comparative Environmental Review for the preferred route and all alternative routes include all *operational* impacts of the proposed Sandpiper pipeline. Operational aspects of crude oil pipelines over their entire projected life history include the high potential for pipeline failure, rupture, leaks and other releases of product into the environment. Probabilities of these types of releases have been found in other recent pipeline project environmental reviews to be high enough to be considered reasonably predictable impacts of operating crude oil pipelines over their projected lifetimes. These were the findings of a recently published 2014 Federal Environmental Impact Statement (EIS) prepared by the U.S. Environmental Protection Agency (EPA) for the proposed Pebble Mine in Bristol Bay Alaska. The full EIS is available on line at:

http://cfpub.epa.gov/ncea/bristolbay/recordisplay.cfm?deid=253500#Download

In Chapter 11 of the aforementioned EIS the EPA supports this conclusion by statistical analysis of United States, Canadian pipeline operating history as well as data from other countries: The EPA's rather sobering and significant conclusions are shown in two excerpts from the EIS below:

> *"This overall estimate of annual failure probability, coupled with the 113-km length of each pipeline as it runs along the transportation corridor within the Kvichak River watershed, results in an 11% probability of a failure in each of the four pipelines each year. Thus, the probability of a pipeline failure occurring over the duration of the Pebble 2.0 scenario (i.e., approximately 25 years) would be 95% for each pipeline."*

> *"The chance of a large rupture in each of the three pipelines over the life of the mine would exceed 25%, 30%, and 67% in the Pebble 0.25, 2.0, and 6.5 scenarios, respectively. In each of the three scenarios, there would be a greater than 99.9% chance that at least one of the three pipelines carrying liquid would fail during the project lifetime".*

The Bristol Bay EIS goes on to discount the likelihood that improved engineering standards for pipeline materials would reduce pipeline failure rates because engineering has little effect on the rate of human errors leading to leaks and ruptures. See this discussion in a following paragraph:

> *"It may be argued that engineering can reduce pipeline failures rates below historical levels, but improved engineering has little effect on the rate of human errors. Many pipeline failures, such as the cyanide water spill at the Fort Knox mine (Fairbanks, Alaska) that resulted from a bulldozer ripper blade hitting the pipeline (ADEC 2012), are due to human errors. Perhaps more important, human error can negate safety systems. For example, on July 25 and 26, 2010, crude oil spilled into the Kalamazoo River, Michigan, from a pipeline operated by Enbridge Energy. A series of in-line inspections had showed multiple corrosion and crack-like anomalies at the river crossing, but no field inspection was performed (Barrett 2012). When the pipeline failed, more than 3 million L (20,000 barrels) of oil spilled over 2 days as operators repeatedly overrode the shut-down system and restarted the line (Barrett 2012). The spill was finally reported by a local gas company employee who happened to witness the leak. The spill may have been prevented if repairs had been made when defects were detected, and the release could have been minimized if operators had promptly shut down the line".*

The following January 27, 2012 article in the Watershed Sentinel, an online British Columbian Newsletter reviews a 10- year spill history of the Enbridge Pipeline System in the U.S. and Canada demonstrating that Enbridge pipeline leak/spill history is consistent with the data analyzed in the Bristol Bay EIS.

A Decade of Enbridge Oil Pipeline Spills
by Joyce Nelson,

2000: 7,513 barrels. Enbridge reported 48 pipeline spills and leaks, including a spill of 1,500 barrels at Innes, Sask.

2001: 25,980 barrels. Enbridge pipelines reported 34 spills and leaks, totalling 25,980 barrels of oil, including a January spill from Enbridge's Energy Transportation North Pipeline that leaked 23,900 barrels of crude oil into a slough near Hardisty, Alberta, and a September spill of 598 barrels in Binbrook, Ont.

2002: 14,683 barrels. Enbridge reported 48 oil spills and leaks, totalling 14,683 barrels, including a leak of 6,133 barrels in Kerrobert, Sask. in January; a seam failure in May that spilled 598 barrels in Glenboro, Man.; and a pipeline rupture into a marsh west of Cohasset, Minn. To prevent 6,000 barrels of crude oil from reaching the Mississippi River, Enbridge set the oil on fire.

2003: 6,410 barrels. Enbridge pipelines had 62 spills and leaks, totalling 6,410 barrels, including a January spill of 4,500 barrels of oil at the company's oil terminal near Superior, Wisc., and a June spill of 452 barrels of oil into Wisconsin's Nemadji River. In April, an Enbridge gas pipeline exploded, levelling a strip mall in Etobicoke, Ont. and killing seven people.

2004: 3,252 barrels. Enbridge pipelines had 69 reported spills, totalling 3,252 barrels of oil, including a February valve failure in Fort McMurray, Alta. that leaked 735 barrels of oil.

2005: 9,825 barrels. Enbridge had 70 reported spills, totalling 9,825 barrels of oil.

2006: 5,363 barrels. Enbridge had 61 reported spills, totalling 5,363 barrels of oil, including a March 613 barrel spill at its Willmar terminal in Saskatchewan and a December spill of 2,000 barrels at a pumping station in Montana.

2007: 13,777 barrels. Enbridge had 65 spills and leaks, totalling 13,777 barrels of oil, including a January pipeline break near Stanley, North Dakota, which spilled 215 barrels of oil; two pipeline incidents in January/February in Clark and Rusk Counties in Wisconsin which spilled 4,200 barrels of oil; and an April spill of approximately 6,227 barrels of oil into a field down-stream of an Enbridge pumping station at Glenavon, Sask. In November, an Enbridge pipeline carrying bitumen to U.S. Midwest markets exploded near Clearbrook, Minn., killing two workers.

2008: 2,682 barrels. Enbridge had 80 reported spills and leaks, totalling 2,682 barrels of oil, including a January incident at an Enbridge pumping station at the

Cromer Terminal in Manitoba that leaked 629 barrels of crude; a February incident in Weyburn, Sask., which leaked 157 barrels; and a March spill of 252 barrels of oil in Fort McMurray, Alberta.

2009: 8,441 barrels. Enbridge had 103 reported oil spills and leaks, totalling 8,441 barrels, including a pipeline incident at the Enbridge Cheecham Terminal tank farm that spilled 5,749 barrels of oil near Anzac, Alberta; a spill of 704 barrels in Kisbey, Sask.; and a spill of 1,100 barrels at Odessa, Sask.

2010: 34,122 barrels. Enbridge had 80 reported pipeline spills, totalling 34,122 barrels, including a January Enbridge pipeline leak near Neche, North Dakota of 3,000 barrels of oil; an April incident near Virden, Man. that leaked 12 barrels of oil into Bosshill Creek; a July pipeline spill in Marshall, Michigan that dumped 20,000 barrels of tar sands crude into the Kalamazoo River, causing the biggest oil spill in U.S. Midwest history; and a September pipeline spill of 6,100 barrels in Romeoville, Ill.

Total: 132,715 barrels of oil, more than half the Exxon Valdez spill of 257,000 barrels

Sources: Prince George Citizen (March 12, 2010); The Polaris Institute (May 2010); The Tyee (31 July 2010); Reuters (Sept. 10, 2010); Enbridge.com 2010; Vancouver Sun (May 10, 2011); The Globe & Mail (June 17, 2011); Dogwood Initiative

- See more at: http://www.watershedsentinel.ca/content/enbridge-spills#sthash.e8U7c4zM.dpuf

FOH asserts that Minnesota Statute and Rule applicable to pipeline route permit review and comparative environmental analysis both permit and justify inclusion and assessments of impact from predictable events during the life history of the pipeline including the high probability for major leaks and/or ruptures releasing large quantities of crude oil into the environment. These predictable releases of oil are very likely to have significant adverse impacts on persons, property and natural resources along and downstream of each of the several route alternatives evaluated. Comparing these predictable impacts for all alternative routes should be a major factor in final route selection of the Sandpiper pipeline.

5. Pipeline Leak/Rupture Event Impact Scenario Analysis

The Bristol Bay EIS continues in Section 11.2 with identification of 64 streams and rivers as potential product spill receiving waters because they were proposed to be crossed by the pipeline. But there were many more watersheds crossed at points near enough to downstream receiving waters to also be within the impact zone of a predicted pipeline leak or rupture.

In sections 11.3 of the EIS pipeline rupture/leak scenarios are described in detail including extensive treatment of probable duration and volumes of spills and flow times

to and extending predictable distances down receiving waters. Impacts are then described for two receiving streams typical of the landscape traversed by the pipeline.

The leak/rupture scenarios are developed fully in terms of:

1. Exposure – the physical mechanisms by which aquatic organisms would become exposed to the spilled product;
2. Transport and fate – the distance down stream the toxic components would travel down stream before dissipating, degrading or diluting below applicable water quality standards for each or most important chemical constituent of the product spilled;
3. Exposure - Response – A full analysis of the product for all toxic components, state and federal water quality standards for these chemicals and laboratory methods used to simulate water column concentrations of each chemical of concern;
4. A review of analogous spills into likely receiving water types including isolated lakes, lake chains, high or low quality streams, wetlands of different types;
5. Risk Characterization –comparing exposure levels to toxicological benchmark levels, duration of risks, actual spill histories including potential for remediation and recovery of spilled product, site specific factors and overall weight of evidence; and
6. The Range of Uncertainties in each of these pieces of evidence.

Scenarios for important Bakken Sweet Crude flowing to receiving rivers, streams, lakes, wetlands or wild rice beds along preferred Sandpiper route (and all accepted alternative routes) could then be developed similar to that developed for diesel fuel spill scenario in the Bristol Bay EIS with similar assumptions and calculations in Table 11-7 from that EIS below:

Table 11-7. Parameters for diesel pipeline spills to Chinkelyes and Knutson Creeks.

Parameter	Spill into Chinkelyes Creek		Spill into Knutson Creek
	Chinkelyes Creek	Iliamna River	Knutson Creek
Water Flow			
Discharge (m^3/s)	1.8	22	3.4
Velocity (m/s)	2.2	2.0	2.2
Channel Length (km)	14	7.6	2.6
Pipeline Drainage and Dilution			
Flow rate while draining (m^3/s)	0.035	-	0.023
Flow rate while pumping (m^3/s)	0.005	-	0.005
Release time—draining (minutes)	13	-	7.9
Release time—pumping (minutes)	5	-	5
Volume—total (m^3)	30	-	12
Volume % diesel to water in stream at spill	2.2%	-	0.83%
Mass of diesel in stream at input (mg/L)	17,000	1,500	6,500
Maximum concentration dissolved diesel (mg/L)	1.9–7.8	1.7–7.2	1.9–7.8
Distance traveled during release (km)	1.7		1.1
Travel time to confluence (minutes)[a]	110	64	19
Pipeline and Diesel Specifications			
Length from top of nearest hill to valve (m)	2100	-	810
Elevation drop (m)	150	-	25
Viscosity of diesel at 15°C (cP)	2		
Density of diesel at 15°C (metric tons/m^3)	0.85		

Notes:
Dashes (-) indicate that spill is not directly into Iliamna River, which receives flow from Chinkelyes Creek.
[a] Confluence with Iliamna River for Chinkelyes Creek; confluence with Iliamna Lake for the Iliamna River and Knutson Creek.

Based on these spill parameters similar predictions could be developed for important aquatic plant and/or animal life in the selected receiving waters along each alternative route in the CEA as shown in the following chart from the Bristol Bay EIS that compares the scenarios developed for Alaskan steams to other case histories of similar spills around the country as a means of “ground truthing” or testing validity of their predictive scenarios

Table 11-9. Cases of diesel spills into streams. For comparison, the diesel pipeline failure scenarios evaluated here would release 30 and 8 m^3 of diesel into receiving streamflows of 1.8 and 3.4 m^3/s for spills into Chinkelyes Creek and Knutson Creek, respectively.

Case	Diesel Released (m^3)	Receiving Streamflow (m^3/s)	Observed Effects
Happy Valley Creek, AK	3.7	14	Significant declines in the abundance and species richness of invertebrates
Camas Creek, MT	Unknown	0.42	Low invertebrate abundance and richness
Hayfork Creek, CA	15	4.1	Large kill of vertebrates and invertebrates
Mine Run Creek, VA	240	1.2	Reduced invertebrate abundance and diversity
Reedy River, SC	3,600	6.4	Near-complete fish kill
Cayuga Inlet, NY	26	1.8	Fish kill and reduced abundance, reduced invertebrate abundance and species composition
Westlea Brook, UK	9.8	1.34	Fish kill, invertebrates severely affected
Hemlock Creek, NY	0.5	0.76	No significant effects on invertebrates

Notes:
- Mean flow from NHDPlus v2; others as reported by the authors.

6. NEED FOR ADDITIONAL LEAK/RUPTURE SCENARIOS UNIQUE TO SANDPIPER ROUTES

Sandpiper Leak/Rupture Ground Water Aquifer Contamination Scenario

In the Bristol Bay/Pebble Mine EIS there was no identified need to assess potential for groundwater contamination that might result from a typical leak or spill from the pipelines serving the mines. However, in the case of the preferred route for the Sandpiper crude oil pipeline there are several highly vulnerable aquifers including the Straight River Aquifer near Park Rapids that has been extensively studied.

To fully appreciate the nature and scope of the contamination risk to this important aquifer a set of leak/spill scenarios similar to the surface water impact scenarios used in the Bristol Bay EIS should be developed in the Comparative Environmental Analysis for Sandpiper and any of the alternative routes accepted for consideration in the analysis.

Preparation of groundwater aquifer impact scenarios in susceptible glacial outwash formations that exist along the proposed Sandpiper route are likely to be made significantly more accurate by virtue of extensive study of an historic Enbridge (then dba Lakehead Pipeline Company in Minnesota) pipeline rupture in 1979 west of Bemidji near the small community of Pinewood. The Pinewood study would provide case study calibration data and the equivalent "ground truthing" of predictive groundwater contamination scenarios developed for Sandpiper route alternatives as was recommended in the surface water scenarios above..

A summary of the history and some of the research results applicable and useful in preparation of the Comparative Environmental Analysis for the Sandpiper project is found in a US Geological Survey factsheet found at the website shown below and an excerpt from this factsheet follows:

http://mn.water.usgs.gov/projects/bemidji/results/fact-sheet.pdf

(Excerpt from factsheet)
Description and History of Site
On August 20, 1979 approximately 16 kilometers northwest of Bemidji, Minnesota, the land surface and shallow subsurface were contaminated when a crude-oil pipeline burst, spilling about 1,700,000 L (liters) (about 10,700 barrels) of crude oil onto a glacial outwash deposit (fig. 1). Crude oil also sprayed to the southwest covering an approximately 7,500 m2 (square meter) area of land (spray zone). After cleanup efforts were completed about 400,000 L (about 2,500 barrels) of crude oil remained. Some crude oil percolated through the unsaturated zone to the water table near the rupture site (North oil pool, fig. 1). Some of this sprayed oil flowed over the surface toward a small wetland forming a second area of significant oil infiltration (South oil pool).

The land surface is a glacial outwash plain underlain by stratified glacial outwash deposits. The water table ranges from near land surface to about 11 m below the land surface. About 370 wells and test holes had been installed as of 1998.

Research Results
The fate, transport, and multiphase flow of hydrocarbons depends on geochemical processes and on the processes of volatilization, dissolution, biodegradation, transport, and sorption (fig. 2). An interdisciplinary investigation of these processes is critical to successfully evaluate the migration of hydrocarbons in the subsurface. The investigation at the Bemidji site involved the collection and analysis of crude oil, water, soil, vapor, and sediment samples. The oil phase that occurs as floating product on the water table and as residuum on sediment grains provided a continued source of hydrocarbon to the ground-water and vapor plumes. Knowledge of the geochemistry of a contaminated aquifer is important to understanding the chemical and biological processes controlling the migration of hydrocarbon contaminants in the subsurface. Studies were also conducted to document the concentrations of gases in the unsaturated zone.

Predictable Sandpiper pipeline lead/rupture ground water impact scenarios for susceptible glacial outwash aquifers along the preferred and all alternative routes evaluated could be modeled graphically (as in the figure below from that study) with methods developed in the Pinewood Spill study. Graphics thus developed could be made available in the CEN for the public and regulatory agencies to weigh in making various permit decisions and choices between alternative routes.

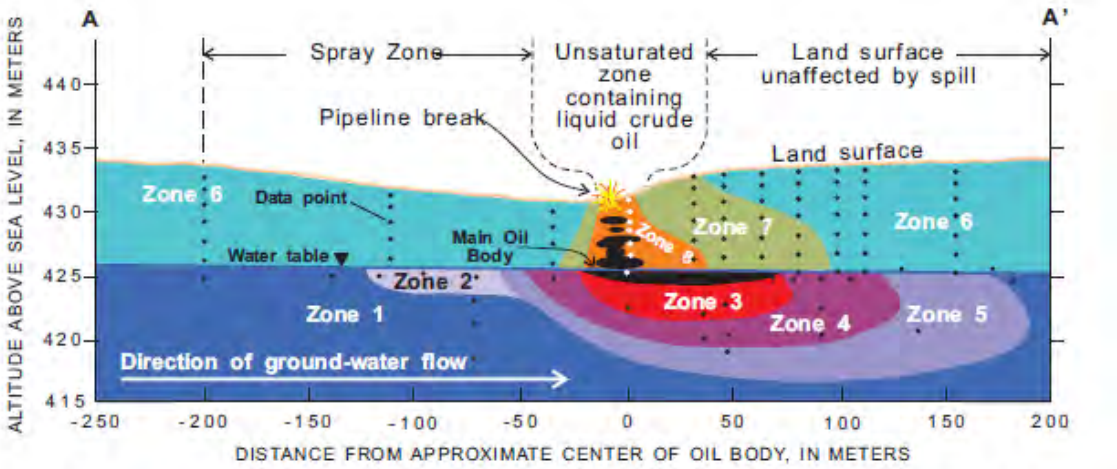


Figure 4. Geochemical zones in the unsaturated and saturated zones at the North oil pool, 1997 (Modified from Baedecker and others, 1993).

Note: Predictive models for groundwater contaminant plumes in leak/rupture scenarios can be used for comparing alternative routes and for setting GIS Spatial Analysis friction parameters discussed elsewhere in these comments.

A brief bibliography of studies of the Bemidji/Pinewood spill site assembled by the U.S. Geological Survey Minnesota Water Science Center that can be used to develop and support groundwater contamination scenarios for selected susceptible glacial outwash aquifers along the proposed Sandpiper route and its alternatives is shown below:

Fact sheet describing results from the Bemidji Toxics project

Toxics Papers:

- "Ground water contamination by crude oil" (146 KB) by Geoffrey Delin and William Herkelrath.
- "Long-term monitoring of unsaturated-zone properties to estimate recharge at the Bemidji crude-oil spill site"(498 KB) by Geoffrey Delin and William Herkelrath.
- "Aromatic and Polyaromatic Hydrocarbon Degradation under Fe (III)-Reducing Conditions" (135 KB) by Robert T. Anderson, et al.
- "Coupled Biogeochemical Modeling of Ground Water Contamination at the Bemidji Minnesota Crude Oil Spill Site" (60 KB) by Gary Curtis, et al.
- "Investigating the Potential for Colloid- and Organic Matter-Facilitated Transport of Polycyclic Aromatic Hydrocarbons in Crude Oil-Contaminated Ground Water" (136 KB) by Joseph Ryan, et al.
- "Determining BTEX Biodegradation Rates Using In Situ Microcosms at the Bemidji site, Minnesota: Trials and Tribulations" (69KB) by E. Michael Godsy, et al.
- "Inhibition of Acetoclastic Methanogenesis by Crude Oil from Bemidji, Minnesota" (143 KB) by Ean Warren, Barbara Bekins, and E. Michael Godsy.

Posters Presented at Technical Conferences:

- "Estimating multiphase hydraulic properties at a crude-oil spill site" by William Herkelrath, Hedeff Essaid, and Leslie Dillard, USGS, Menlo Park CA

  A poster presented at the "International workshop on Characterization and measurement of the hydraulic properties of unsaturated porous media", Riverside, CA, October 22-24, 1997.

Related links that include results from the Bemidji site:

- Fate of Organic Chemicals in Subsurface Environments
- Microbiology and Molecular Ecology studies in Bemidji, MN
- Multiphase flow, transport, reaction and biodegradation
- Comprehensive Organic Analysis of Water
- Transport and Biogeochemical Fate of Organic Substances in Aquatic Environments
- Biogeochemical Controls on Organic Contaminant Degradation in Heterogeneous Near Surface Environments
- Comparative Study of Organic Degradation in Selected Hydrologic Environments

Figures:

- Geochemical zonation (17 KB) diagram.
- Plan view aerial photo from 1991 (85 KB) showing topographic contours and well locations at the site.

7. Bakken Sweet Crude Oil Volatility/Flammability Consideration in Leak/Rupture Scenario Development

Transportation Safety Board of Canada's Operation Service Branch Laboratory Report # LP148/2013 entitled "Analysis of Crude Oil Samples - Montreal, Maine & Atlantic Railway, Train MMA-002 - Date of Occurrence: 06-Jul-2013" which was just released on released on February 6th 2014. The relevance of this report to the Sandpiper routing process Comparative Environmental Analysis is that the train derailment investigated involved a major spill of the same product proposed to be shipped by the Sandpiper, namely Bakken sweet crude oil. The full report is available at:

http://www.tsb.gc.ca/eng/enquetes-investigations/rail/2013/R13D0054/lab/20140306/LP1482013.asp

Excerpts from the report follow:

"On 06 July 2013, a unit train carrying petroleum crude oil operated by Montreal, Maine & Atlantic Railway derailed in Lac-Mégantic, Quebec. Numerous tank cars ruptured and a fire ensued.

"Conventional oil, which can range from light to medium in grade, is found in reservoir rocks with sufficient permeability to allow the oil to flow through the rock to a well. The petroleum crude oil on the occurrence train originated from suppliers with producing wells in the Bakken Shale formation region of North

Dakota. The Bakken Shale formation is a tight oil reservoir. Tight oil is a type of conventional oil that is found within reservoirs with very low permeability. Most oil produced from low-permeability reservoirs is of the light to medium variety, with a lower viscosity. "

Elsewhere in this Canadian TSB report Bakken Sweet Crude is compared to the volatility of unleaded gasoline:

"The Environmental Technology Centre (ETC) Oil Properties Database reports the following properties for unleaded gasoline: [45]

Flash point -30°C

Density at 15°C 750 to 850 kg/m^3

Kinematic viscosity <1 cSt at 38°C

"Comparing these values to the occurrence crude oil results summarized in Table 2, it is apparent that the occurrence crude oil's flash point is similar to that of unleaded gasoline. The density results obtained for the occurrence crude oil samples (see Table 10) are also within the range reported for unleaded gasoline. However, unleaded gasoline has lower viscosity than the occurrence crude oil samples."

The Canadian TSB report includes the following pertinent conclusions that would be important in the development of leak/rupture incident response scenarios in the Sandpiper comparative environmental analysis:

"4.3 The occurrence crude oil's properties were consistent with those of a light sweet crude oil with volatility comparable to that of a condensate or gasoline product.

4.6 The large quantities of spilled crude oil, the rapid rate of release, and the oil's high volatility and low viscosity were likely the major contributors to the large post-derailment fireball and pool fire.

4.7 The occurrence crude oil contained concentrations of BTEX that were comparable to typical values reported for crude oils. This explains why concentrations of benzene and other VOCs well above exposure limits were detected at the derailment site."

8. DEPT OF COMMERCE STAFF COMMITMENT TO PROVIDE FOH ASSISTANCE IN DEVELOPMENT OF ALTERNATIVE ROUTE DATA.

FOH has complained strenuously to Department of Commerce, to the Public Utilities Commission and to the applicant that two factors have severely limited its member's ability to identify and develop reasonable and prudent alternative routes for use in preparation of the planned Comparative Environmental Analysis for Sandpiper. Most important among these limitations has been the very short amount of time allotted for the public to prepare route proposals and the withholding by both Enbridge and the two

Departments of certain techical data in the form of Geographic Information System (GIS) data files called “GIS shapefiles” for the proposed Sandpiper route.

Requests by FOH for extensions of time beyond the established deadline of April 4th 2014 for submitting alternative route proposals have been steadfastly refused by Department staff. These denials of FOH’s requests for such time extensions, while provided for in applicable administrative rules with showing of cause, have issued from the Department’s staff without their providing justification for denying such requests.

FOH takes very seriously all the considerations as described in Subpart 3. that must be taken into account when selecting suitable alternative routes for transporting such hazardous material as Bakken Crude Oil across Minnesota. As required by the rules as set forth in PUC 7852.1400 great multitude of parameters must be considered simultaneously and repeatedly for what could be endless possible routes. Thankfully, technology has recognized the complexity of the task and the enormity of data that one has to consider to meet the rule and Geographic Information Spatial Analysis is one such technology.

From Enbridge’s Minnesota Environmental Information Report on Sandpiper submitted to the PUC as part of the company’s application it is apparent that Enbridge used Geographic Information System data analysis method similar to the Spatial Analysis referenced above. The following paragraphs are excerpted in part from that report:

> “EPND assessed the route from Tioga, North Dakota to Superior, Wisconsin, with the intent of maximizing existing right-of-way to the extent practicable while identifying specific areas where co-location may not be practicable. The first step in the environmental review of the route and the selection process consisted of collecting publicly available environmental data to identify routing constraints. The sources of data consisted primarily of: Geographic Information Systems (“GIS”) digital information layers, including U.S. Geological Survey (“USGS”) topographic maps, USGS land use database, U.S. Department of Agriculture (“USDA”) Farm Services Agency aerial photography and GIS data, National Wetlands Inventory (“NWI”) maps, Minnesota Department of Natural Resources (“MNDNR”) Natural Heritage Information System (“NHIS”) data, Minnesota Department of Transportation (“MDOT”) highway maps, USDA state soil geographic (State Soil Geographic [“STATSGO2”] and Soil Survey Geographic [“SSURGO”]) databases, and other natural feature databases obtained from the MNDNR website and other state and federal sources. Existing major utility rights-of-way also were identified for potential use in co-location.
>
> 2.3.3 Comparison of Route Alternatives
> EPND conducted a detailed quantitative analysis of environmental impacts along each route alternative identified during the routing process. The analysis used the same sources of publicly available environmental data described in Section 2.3.1 to compare a variety of factors, including proximity to existing rights-of-way,

> wetlands, highly wind erodible soils, bedrock outcrops, prime farmland soils, perennial waterbodies, national forest land, tribal land, state forest land, state Wildlife Management Area ("WMA") land, state Aquatic Management Area ("AMA") land, railroads crossed, roads crossed, and other site-specific matters. No field survey data was used in the alternatives analysis as field surveys were not completed along the alternate routes. EPND identified and analyzed four route alternatives, which are presented in the following subsections and shown in Figure 2.3.2-1. None of the route alternatives were adopted as the Project's preferred route."

Enbridge apparently had submitted the GIS information they developed for their preferred route to the PUC including the GIS shapefile they constructed. FOH had hoped to utilize the GIS Shapefiles Enbridge had applied to their alternative route analysis to explore the applicants preferred southern route to any and all alternative routes considered viable by cursory examination of various maps and other resources. However neither Enbridge nor the Department of Commerce (DOC) staff would release the shapefile claiming it was protected information under both Federal and State statute.

FOH was never granted access to the subject GIS shapefile by either Enbridge or Dept of Commerce but did successfully obtain the shapefile from the Minnesota Department of Natural Resources after finding that the data were not protected by either Federal or State Statute as claimed by Enbridge and DOC. Unfortunately, the release of the GIS shapefile for the Sandpiper preferred route was far too late into the comment period for FOH to make productive use of the data.

Having made its case that FOH was severely hindered in its efforts FOH has appealed to DOC staff for assistance in meeting the rigorous criterion that must be met in 7852.1400 Subp. 3. Requirements for other route sources.

> Subp. 3. A person other than one listed in subpart 2 (the applicant) may propose a route or a route segment according to items A to C. In Subpart 3.B. of this rule it states that: "The pipeline route or route segment proposal must contain the data and analysis required in parts7852.2600, subpart 3, and 7852.2700, unless the information is substantially the same as provided by the applicant."

Department of Commerce staff, in a prehearing scheduling conference call in the presence of all the parties to the Sandpiper project and the Administrative Law Judge, Judge Eric Lipman agreed to assist FOH in developing the necessary detailed information necessary to meet the minimum requirements of MN 7852.1400 cited above such that suggested alternative routes put forth by FOH would not be summarily dismissed from consideration for lack of required supporting data analysis required by that rule. FOH is committed to meeting with DOC staff immediately following the April 4th comment deadline. FOH will, under separate cover be submitting alternative routes for Sandpiper before the comment deadline. It was understood that the alternative routes thus submitted by FOH will require the DOC staff assistance offered to meet the criterion in the rule to

make them viable per this agreement thus it is expected that the DOC will continue to develop FOH alternatives submitted such that the FOH alternatives will be found acceptable by the commission.

9. METHODS OF DEVELOPING AND COMPARING ALTERNATIVE ROUTES

The applicant, the PUC, the DOC and the public are all confronted with the same challenge. That is to develop alternative routes for Sandpiper that meet the criterion established in MN Rules 7852.1900 CRITERIA FOR PIPELINE ROUTE SELECTION while satisfying the requirement in MEPA for having considered all reasonable and prudent alternatives.

The applicant, having already utilized considerable GIS technology should be well positioned to employ computerized route optimization algorithms to evaluate their preferred route against any and all routes that meet PUC criterion. In fact, they may have already done so during their own comparison of routes. Furthermore, it is the understanding of FOH that the DOC is considering hiring an outside consultant for purposes of assisting the DOC in preparing the Comparative Environmental Analysis. There are many private consultants in the United States performing optimization analysis of linear public and private utilities by applying route optimization software. We would be happy to provide such consultant lists to the DOC staff upon their request.

We provide below, for those who may not be familiar with this technology, a brief description of how Geographic Information Spatial Analysis Systems have evolved into a powerful tool for selecting optimal routes for linear facilities like power lines, pipelines, highways and other utilities. FOH strongly encourages the DOC to specifically contract with outside consultants skilled and experienced in linear facility route optimization to more fully satisfy the requirements in applicable rules and statute to find and select the most reasonable and prudent alternative route for the Sandpiper and all future linear facilities of this nature. It is recommended that the DOC exercise its and the PUC's authority under rule to also develop alternative routes for Sanpiper.

Here is a detailed description of how this technology could be used to satisfy the statutory requirement to examine all reasonable and prudent alternative routes for Sandpiper while adhering most closely to the constraints of time frames provided in rule and law.

5.1.1.20 Graphical Information System

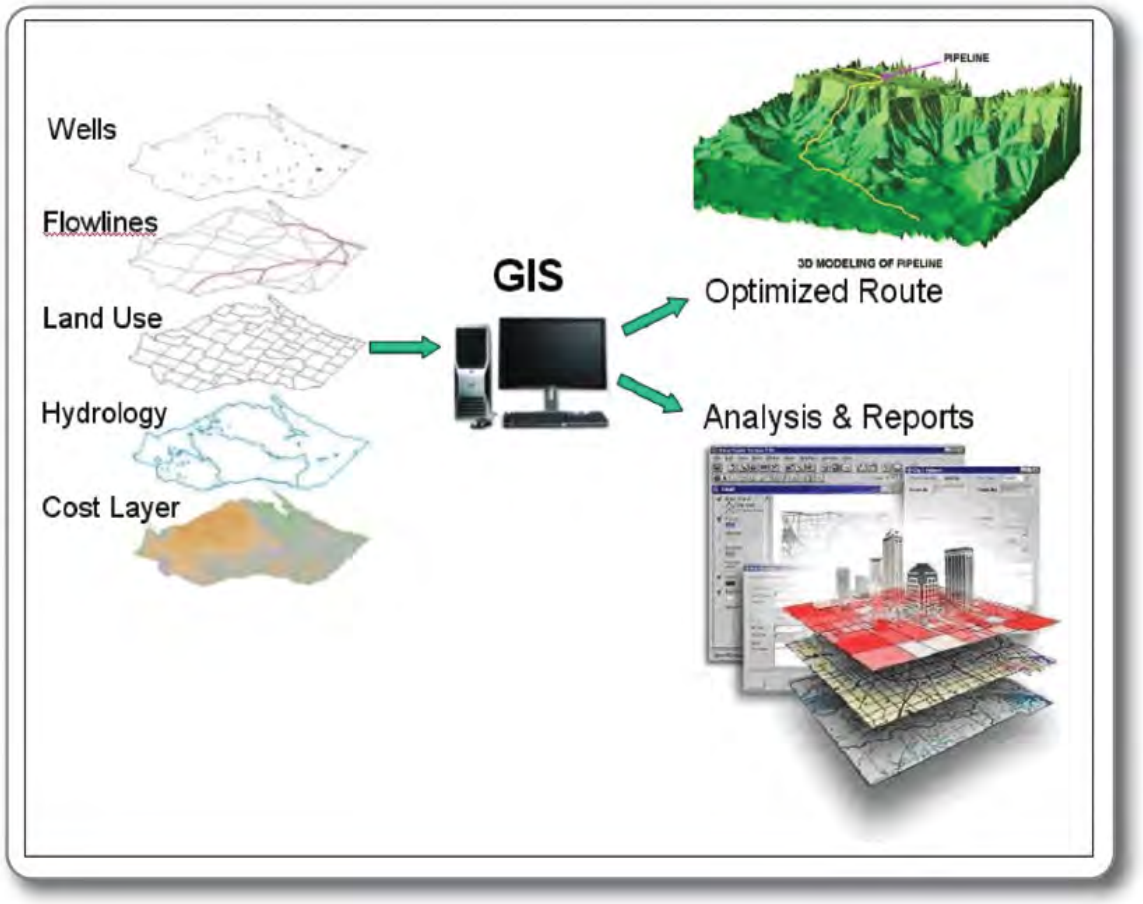
5.1.1.20.1 General

Geographic Information Systems (GIS) are scientific and technological tools that enable the integration of data from different sources into a centralized database from which the data is modeled and analyzed based on its spatial component. GIS-based tools and processes have been extensively used to address the challenges of optimizing pipeline route selection and route networks based on the collection, processing and analysis of spatial data such as topography, vegetation, soil type, land use, geology and landslide areas.

Traditional manual pipeline routing uses available paper maps, drawings, aerial photographs, surveys and engineer experience. GIS techniques combine all of these sources of data in a convenient computer-based information system. The key to the GIS is that it has advantages in terms of speed of data processing and analytical capability.

Fig. 2 is a simplified representation of how data is combined and processed in a GIS to produce models and required outputs. Data, such as well locations, surface topography, land use activities, soil conditions and infrastructure features, are combined based on their spatial component. This enables the engineer to test real-world scenarios within the spatial models.

Fig. 2: Process To Optimize Pipeline Routes



GIS represents an innovative approach to pipeline routing that is both systematic and effective. Optimizing a pipeline route is essentially an optimization between costs of the material and the costs of the construction. Natural and man-made terrain obstructions cause spatial variations in construction cost due to changing features like types of soils, intervals of slope. GIS allows the engineer to use dynamic spatial models to aid in selecting an optimized pipeline route. The GIS software and data enables the processing of a large amount of location-based information to find a least cost path (LCP) between two locations by taking into account natural and manmade obstructions and features.

5.1.1.20.2 GIS Routing Optimization Methodology

The GIS approach to pipeline routing optimization is based on relative rankings and weights assigned to project specific factors that may affect the potential route. The result of this process is a least cost path (LCP) which represents that most economic path between the origin and the destination points of the pipeline.

Fig. 3 is a representation of the methodology flow used to determine the LCP

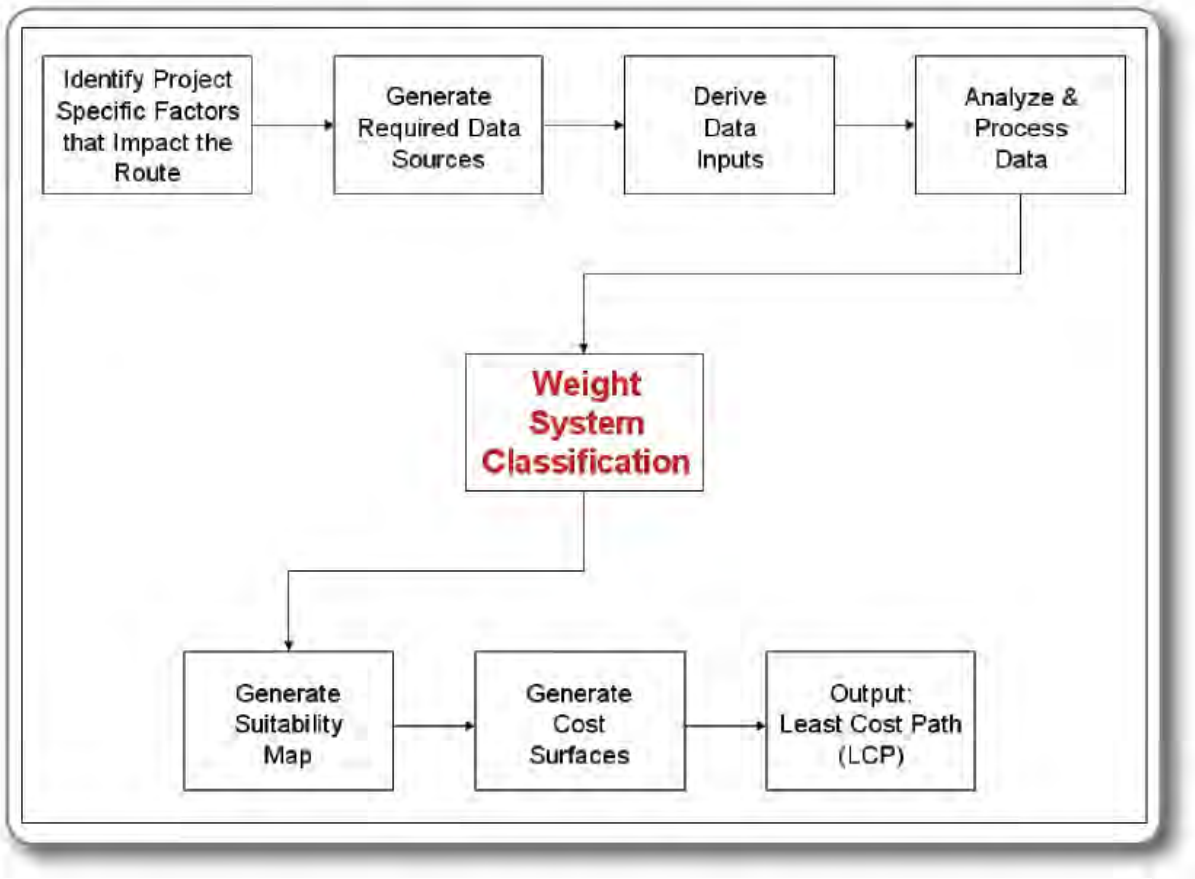


Fig. 3: Pipeline Optimization Methodology

5.1.1.20.3 Identification of Factors Affecting the Route

As mentioned in the previous section on selection criteria the identification of project-specific factors that may constrain or impact on the pipeline is an important step and a vital input to the GIS. Several factors such as geo-hazards, social issues and construction costs impact on the route and need to be taken into account. At this stage a set of rules are determined that will be used in the routing exercise. Input from experienced engineers is required to ensure that the appropriate features are identified and the correct rules established. The accuracy of the subsequent analysis is dependent on the factors being correctly identified as the analysis is only as good as the inputted data. Examples of some factors and rules include:

Factor/Feature	Rule
Roads	• Avoid road crossings • Proximity to roads is important
Railway lines	• Avoid railway line crossings
Rivers	• Avoid river crossings
Urban areas	• Avoid built up/populated areas • Avoid future development areas
Terrain/topography	• Avoid steep slopes • Use flat terrain where possible

Environmental areas	• Avoid highly-sensitive areas
Wetlands	• Avoid wetland crossings
Water bodies	• Avoid water bodies
Surface geology	• Avoid surface/sub-surface rock • Stable soils are important

5.1.1.20.4 GIS Data and Data Sources

Satellite imagery, maps, aerial photography, existing GIS data, LiDAR surveys and traditional geotechnical and topographical surveys are all sources of data that should be gathered and incorporated into the project GIS. The maps, satellite imagery and remote sensed data are scanned and geo-referenced and are then used to derive spatial features such as roads, rivers, urban areas and geological boundaries which form the GIS data to be used in the routing process.

5.1.1.20.5 GIS Data Processing and Analysis

Once the data has been captured it needs to be processed and converted into raster data. The raster data is used to calculate the feature distance cost for each feature – the weighted cost as one moves away from a feature. For example rivers are given a high cost and the further you move away from the river the lower the feature distance cost becomes.

The significance of the effect of a single feature on the pipeline route varies for each feature. For example, it is more important to avoid a deep valley crossing than it is to avoid a road crossing. The analytical hierarchy process (AHP) is one of the structured methods that can be employed to quantitatively rank each of the identified factors. Each factor is assigned a cost value which is benchmarked with typical constructions costs. The input from experienced engineers is vital when it comes to ranking and assigning weights to each layer.

5.1.1.20.6 GIS Suitability Map Generation

After the feature layers have been ranked the data layers are combined together into one single layer based on the numerical value factor derived from the weighting process. The resultant layer is referred to as the suitability layer and this layer forms the basis for the GIS analytical work.

The suitability map is used to create cost maps which related to relative construction costs. The highest costs are in steep mountainous terrain, urban areas, roads and large bodies of water. Moderate costs are associated with wetlands, forests and high slope areas. The lowest costs are to be found in areas of relatively flat bare ground, agricultural land or less dense native vegetation. See Fig. 4 for an example of a cost map.

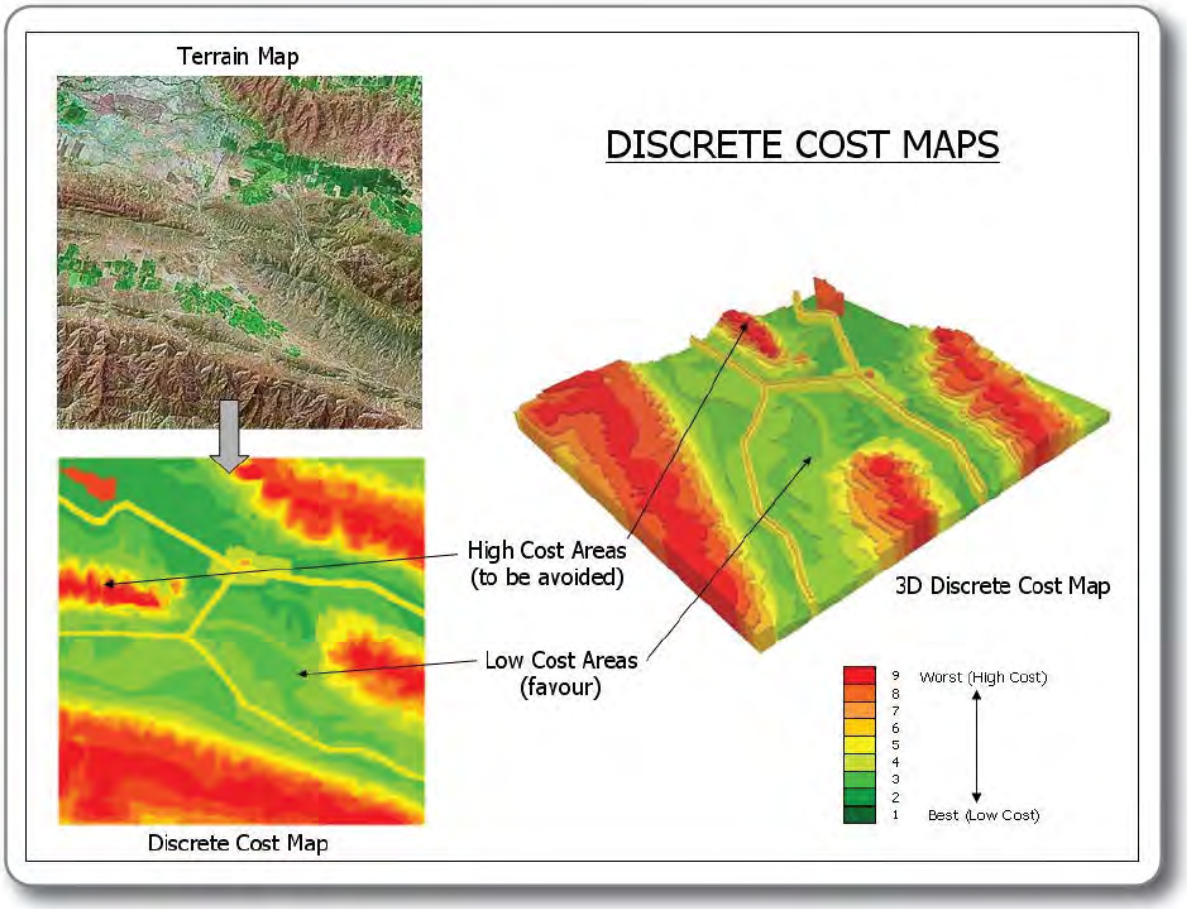


Fig. 4: Discrete Cost Map

The least cost path is the product of the GIS analysis and represents the path of least resistance from the origin of the pipeline along a surface to the destination point.

The strength of the GIS is that re-routes can quickly be incorporated into the system and the implications of the reroutes or alternative routes can be quickly assessed.

The combination of the data layers allows the engineer to test multiple pipeline network design and selection scenarios easily and efficiently. The GIS automatically calculates the lengths of new pipelines or pipeline networks. This allows for rapid total cost calculations and the running of multiple 'what if' scenarios to see the effect of changes to the pipeline design.

A GIS can produce a number of outputs quickly and efficiently in relation to pipeline routing:

- Survey request area delimitation drawings
- Land allocation/permitting drawings
- Pipeline routing drawings
- Alignment sheets (see Fig. 5)
- Tabular outputs (i.e. MTOs)
- Pipeline coordinates

(The GIS Route Optimization shown above is an open source document available on the internet and is not the property of FOH)

It is a vitally important step in employing GIS route optimization methodology that the selection of factors (environmental, demographic, social issues, and others) that are to affect the potential route selected and the weight each of these factors has in the final outcome must be carefully constructed. (See Section 5.1.1.20.2 GIS Routing Optimization Methodology in the method description above). FOH strongly recommends that a Citizen Advisory Committee or other expert panel be assembled to generate a draft set of criterion that includes the mandatory criterion set forth in PUC pipeline routing rules and other factors that may reasonably be considered and suggest a scheme of weighting of these factors to be utilized in identifying the "least cost path" and ranking of all alternative routes being considered for the Sandpiper pipeline.

This draft set of route selection criterion and assigned weights of each factor should be subjected to a full round of public information and comment sessions as required by applicable rules in the routing and/or pipeline need process. After a full public vetting and consensus building process the GIS Route Optimization product or products produced with this final set of weighted criterion would be ready to move forward through the remaining steps of the prescribed permitting process.

Minnesota is fortunate to have had forward looking government agency staff that recognized the importance and utility of providing the public with access to statewide data sets in GIS digital format. The MDNR maintains the state Data Deli system available at: http://deli.dnr.state.mn.us/ and provide links to many other state and federal sources of useful GIS data.

As a special note here, one important criterion that FOH believes has been under represented in past pipeline routing efforts in Minnesota and that must be included here as a heavily weighted routing criterion is groundwater aquifer susceptibility.

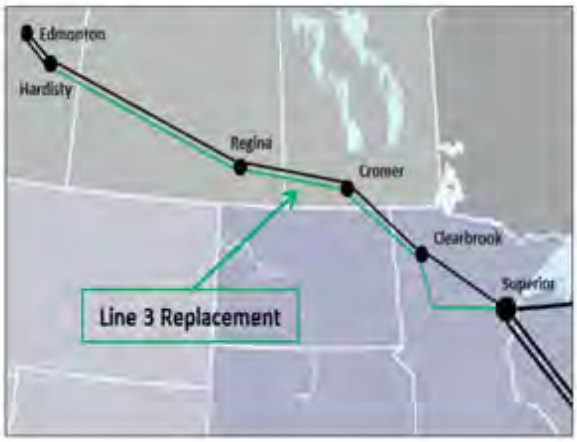
10. CUMMULATIVE IMPACTS

A. Reasonably Foreseeable Future Actions

In an investor conference held on April 2nd 2014 Enbridge announced publically and publically published the company's future plans for expanding pipeline infrastructure in Minnesota. Contained in this published document was a map for the replacement of Enbridge's existing line three which was announce earlier this spring. What was not disclosed in the earlier announcement was that Enbridge's preferred route for the line 3 replacement follows the proposed preferred route for the Sandpiper pipeline. This constitutes a "reasonably foreseeable future action" that must be folded in to any environmental review document assessing impacts of the Sandpiper pipeline including the CEA being prepared by the DOC on sandpiper.

See the cover page with date and authors and the map from page 50 of the Enbridge document.

Line 3 Replacement



The Project:
•Replace 1,031 miles of 34" pipeline with 36" pipeline

Cost:
•U.S. Portion: $2.6 Billion*

In-service date:
•2017

Status:
•Reassembled successful Alberta Clipper project team
•Securing supply chain
•Known corridor with established relationships

* Project to be jointly funded by ENB and EEP at participation levels to be finalized and approved by a Special Committee of the independent Board of Directors.

B. Impacts of Pipelines on Future Urban or Rural Development

Pipelines become significant impediments to growth and development along their easement corridors. Because of the risk for damage to an operating pipeline, pipeline companies have very strict and complex requirements for granting encroachments into their easements. As a result, it becomes costly and time consuming for local governments to extend roads and underground utilities over a pipeline easement. This has not been factored into the State's process of reviewing proposed pipeline routes because it is outside of their purview. It might prove useful to contact every local jurisdiction along the route to let them know how difficult it will be for them to obtain permission to extend new roads or utilities across pipeline easements and the extra time and expense they can expect. Communities should be alerted to the need for reviewing their comprehensive growth plans and considering future road needs as a relevant issue to evaluate. Areas within orderly annexation districts should consider future private development interests and realize that developers will shy away from parcels with pipeline easements recognizing they are as difficult to deal with as railroads and they can present adverse marketing impacts.

Pipelines have been handled differently by states and larger cities across the country with some establishing conditions and laws to address the above

concerns. Minnesota has not yet done that, leaving the local governments simply adversely impacted without compensation. Developing this information in the comparative environmental analysis could be used to both minimize these impacts on local units of government as well as to alert those along the route finally selected of the need to update comprehensive plans and transportation plans to respond to the presence of the new pipeline.

The impacts of the several alternative routes for sandpiper should include these impediments to development as a cumulative impact.

C. Community Preparedness For Pipeline Rupture/Leak Incidents

Scenario development for highly predictable leak/rupture events logically lead to considerations for disaster preparedness needed by communities near the pipeline route. Special training for first responders that alert communities to the volatility, flammability, explosiveness and human exposure concerns would be essential. Rupture/leak disaster preparedness would involve consideration and possible need to procure special fire fighting, remediation and recovery equipment and training local fire departments would need to be alert to and prepared for extraordinarily difficult fire fighting conditions. Consideration of the consequent new burdens and or risks imposed on local fire/rescue personnel and the need for more or specialized equipment posed by having a pipeline transporting hazardous materials near or through their communities should be included in the CEA. Alternative routes could be evaluated to explore ways to lessen or to mitigate these predictable impacts.

FOH recommends that this socio-economic impact be included in the CEA among the potential cumulative impacts of the project.

11. FINANCIAL ASSURANCE

FOH has serious concerns for the apparent ephemeral nature of a Limited Liability Corporation being created by Enbridge for the sole purpose of constructing and operating the proposed Sandpiper and possibly other crude oil pipelines in Minnesota. This is especially true for pipelines intended to transport the extremely hazardous Bakken Sweet Crude, the nature of which is described earlier in these comments. FOH would urge your Departments, if it has such authority, to seriously examine the financial assurance Minnesota citizens will have that North Dakota Pipeline Company LLC will be financially capable and responsible for appropriate response, remediation, and long term care of any pipeline or pipeline product impacts on people, property and/or the natural environment, whether intended or accidental. If neither the DOC nor the PUC have the authority to impose requirements of special financial instruments that can assure such financial assurance exists, FOH requests that your departments work with such agencies that may have this authority or, lacking any such authority in state or federal government, we request that your respective department's join with FOH to approach the state legislature with draft legislation enabling the appropriate state agency with the necessary

authority to require adequate financial assurance from all pipeline companies doing business in Minnesota.

12. TRANSPARENCY, EQUAL ACCESS AND EQUAL TREATMENT

FOH concludes its comments with some remarks about the PUC and DOC "general responsibilities" as provided in rule and principles of good government and citizen's right to basic freedom of speech. We remind you of one of the applicable rules here.

> 7852.4100 GENERAL RESPONSIBILITIES.
> The commission shall monitor the effectiveness of this chapter and shall take appropriate measures to modify and improve the effectiveness of this chapter. The commission shall assist governmental units and interested persons in understanding the rules.

The overall experience of FOH members throughout their involvement in the matter of the proposed Sandpiper pipeline has ranged from frustration to befuddlement, to confusion, rejection, and exclusion. Having our state government department staffs perform in ways that have been outwardly defiant, defensive, obfuscating and off putting has created a deep sense of distrust, suspicion and at times utter outrage. Our members and organization representative's attempts to fully participate in the decision-making process have been rebuffed on numerous occasions.

When FOH members prepared an information display for the public viewing at the several public meetings Enbridge's attorney and both Commerce Department (DOC) and Public Utilities Commission (PUC) staff rejected us advising us that such a display was not allowed in this public forum. This rejection was in spite of the fact that Enbridge was allowed to use similar visual aids in the form of posters, charts, maps and mounted photographs to not only present the facts of their pipeline proposal but to self-promote and embellish themselves as good corporate citizens claiming the company was a stellar corporate citizen with an excellent record of pipeline operating safety. FOH contends that for our state government to create a public forum for the express purpose of receiving public comment on a pending permit action and then deny the public the opportunity to voice its questions, concerns and to counter misrepresentations of Enbridge's safety record utilizing similar media methods is an infringement of citizen's freedom of speech as protected by the First Amendment of the U.S. Constitution.

FOH was denied access to certain technical data including Geographic Information System (GIS) files submitted to the PUC by Enbridge with their application. And when FOH, many individual citizens, a number of state wide organizations representing these citizens as well as Township and County government units requested extensions of comment deadlines to allow disenfranchised "snowbird" citizens opportunity to participate in the important "routing" phase of the project, DOC staff have summarily rejected these requests. DOC staffs defend their refusal to extend timelines as being firmly based on their unswerving intent to honor the compressed timeline set out in

recently amended statutes and rules that clearly favor pipeline industry interests over those of the public.

And, to add insult to injury, when the DOC and PUC staff established an on-line public record website that is advertised a "full record" of documents and comments received in the matter of the pipeline project they refuse to post the many petitions they received requesting that timelines be extended. This denies the general public the right to know that if they have made a request for comment period extension that they are not alone. This refusal by government agencies to fully and accurately publish the public record in the manner intended acts to discourage citizens from participating believing that their voices are not being heard. This defiance of citizen's right to be heard on the part of government agencies not only violates First Amendment rights but works to destroy the general public's trust in fair and equal treatment under the laws that govern us as a people.

Implore you to acknowledge the respective Department's responsibility to prioritize the citizen's rights to know fully about and be effectively involved in all decisions of your respective departments in regard to the Sandpiper project. This has not been our experience with your departments to date. We respectfully resubmit our standing request to meet with the Commissioner of the Department of Commerce and the Executive Secretary of the Public Utilities Commission and department staff with the intent to find ways to improve the public's overall perception of both the process of pipeline permit review and the manner in which the public is allowed to be fully involved in important government decisions the effect their lives.

This concludes the comments and FOH thanks you and the Department of Commerce for considering our concerns, we look forward to opportunities to fully participate in the remainder of the process.

Sincerely,

Richard Smith, President
Friends of the Headwaters

May 29, 2014

Mr. Larry Hartman, Environmental Review Manager
Energy Environmental Review and Analysis (EERA)
Minnesota Department of Commerce
85 7th Place East, Suite 500
St. Paul, MN 55101-2198

Dear Mr. Hartman,

Regarding Public Utilities Commission (PUC) Docket No. PL9/PPL-13-474:

Please find attached our supplemental comments to be added to our position paper dated April 2, 2014 concerning the Enbridge/North Dakota Pipeline Company, LLC Sandpiper pipeline request for a proposed southern corridor route across northern Minnesota from Grand Forks, ND to Superior, WI.

The Friends of the Headwaters oppose this current projected route. You, the DOC and the Public Utility Commissioners will find further reasoning for our opposition and our proposal for an alternate route in the attached documents.

Friends of the Headwaters requests these documents be posted to the eDocket website as soon as possible.

Writing for the members of Friends of the Headwaters I thank you for your attention to these documents and for your attention to our concerns for the welfare and quality of our lands, waters and lives in the Headwaters Country.

Sincerely,

Richard Smith
President
Friends of the Headwaters

P.O. Box 583, Park Rapids, MN 56470
mnfriendsoftheheadwaters@gmail.com
facebook.com/savemississippiheadwaters
www.friendsoftheheadwaters.org

SUPPLEMENTAL COMMENTS TO POSITION PAPER DATED 4/2/2014
REGARDING THE ENBRIDGE/NORTH DAKOTA PIPELINE COMPANY (NDPC) LLC
SANDPIPER PIPELINE PROJECT

Public Utilities Commission (PUC) Docket Number: PL-6668/PPL-13-474

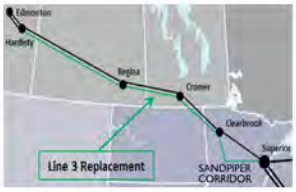
May 29, 2014

Prepared by
Richard Smith
Friends of the Headwaters
P.O. Box 583
Park Rapids, MN 56470

TO REVIEW:

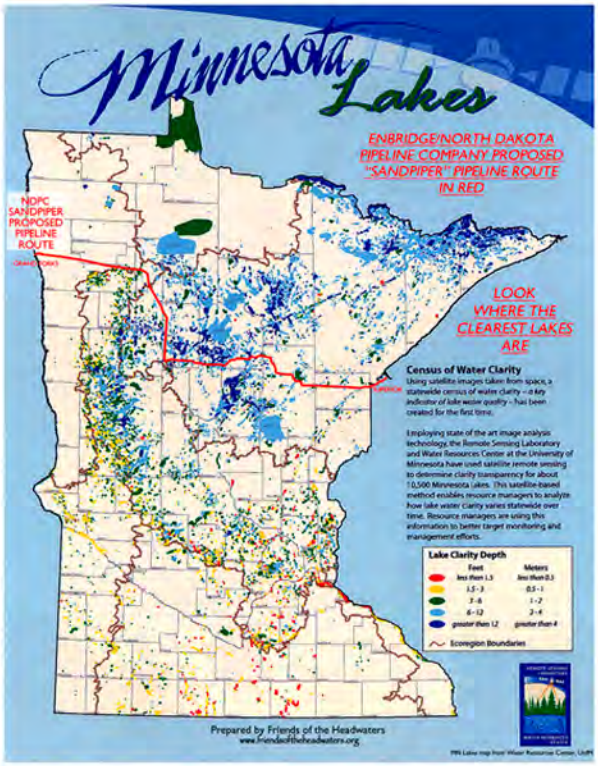
Friends of the Headwaters opposes the Enbridge/NDPC Sandpiper pipeline as currently projected to cross Minnesota's lake country from Grand Forks, ND to Superior, WI.

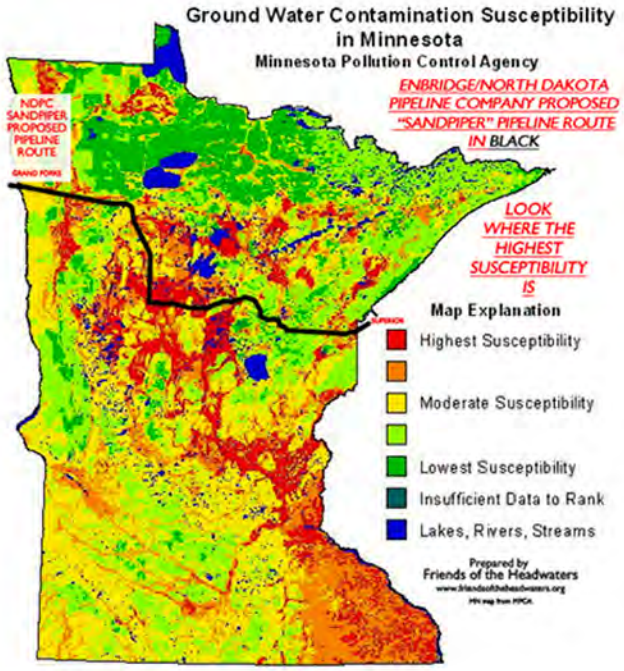
We believe Enbridge/NDPC's proposed "southern corridor" will NOT protect the high quality waters and other natural resoures along this route.



Friends of the Headwaters also believes Enbridge intends to proliferate another multiple pipeline corridor with their southern route proposal. Enbridge presented just that in an investor conference held April 2, 2014 in New York City.

We believe Enbridge/NDPC could not have chosen a worse route as evidenced by the maps below.



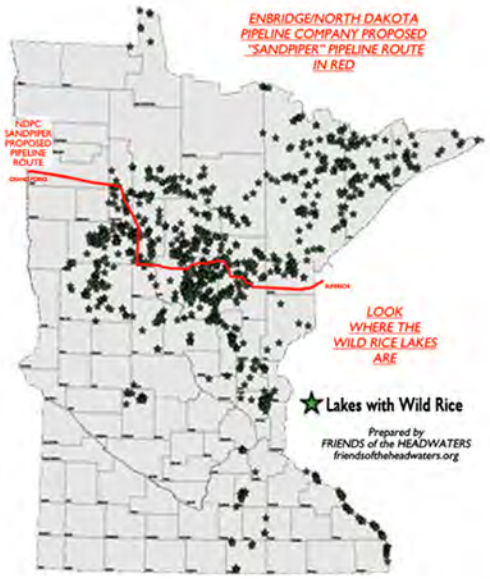


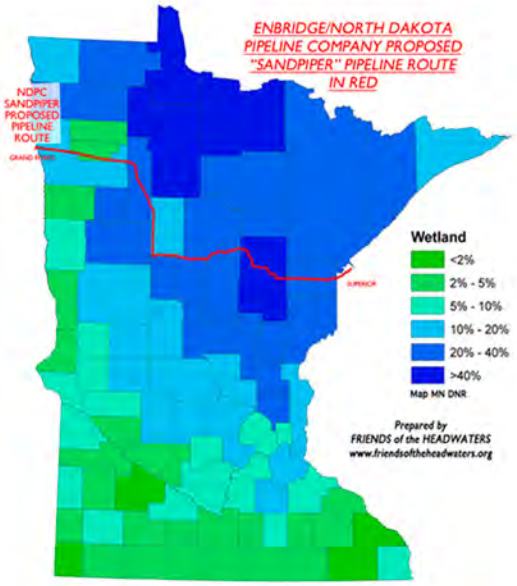
AT RISK: MINNESOTA'S

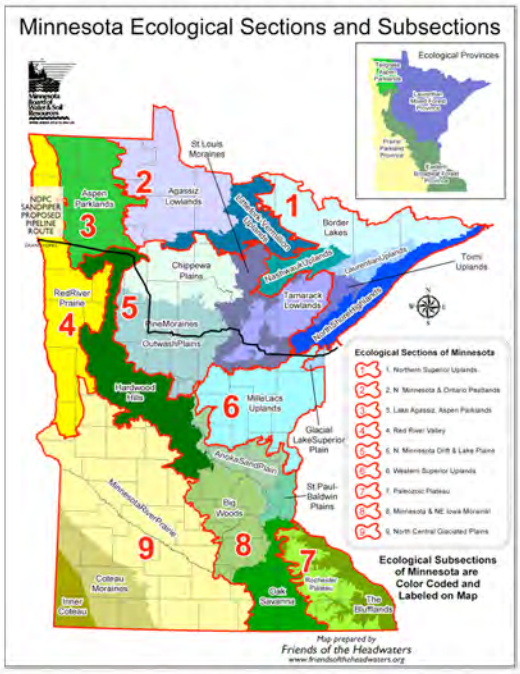
CLEAREST AND CLEANEST LAKES
GROUND WATER AQUIFERS
WILD RICE LAKES
WETLANDS
MOST SENSITIVE SOILS TO SPILLS
DIVERSITY OF VEGETATION
SENSITIVE ECOLOGICAL ZONES
THE LAKE SUPERIOR BASIN
HIGH VALUE RECREATIONAL AND RESIDENTIAL WATERS

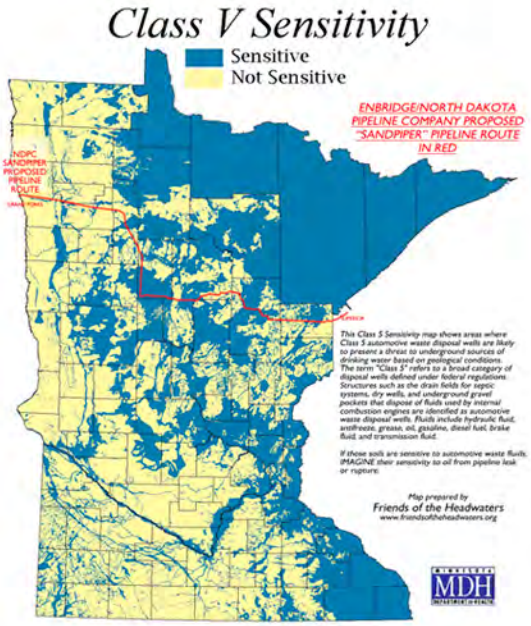
- $342 million annual revenue from fishing
- $4.3 billion annual retail sales hunting, fishing, wildlife watching
- $2 billion water-influenced properties in Hubbard County alone.

ENBRIDGE/NDPC COULD NOT HAVE PICKED A WORSE ROUTE.









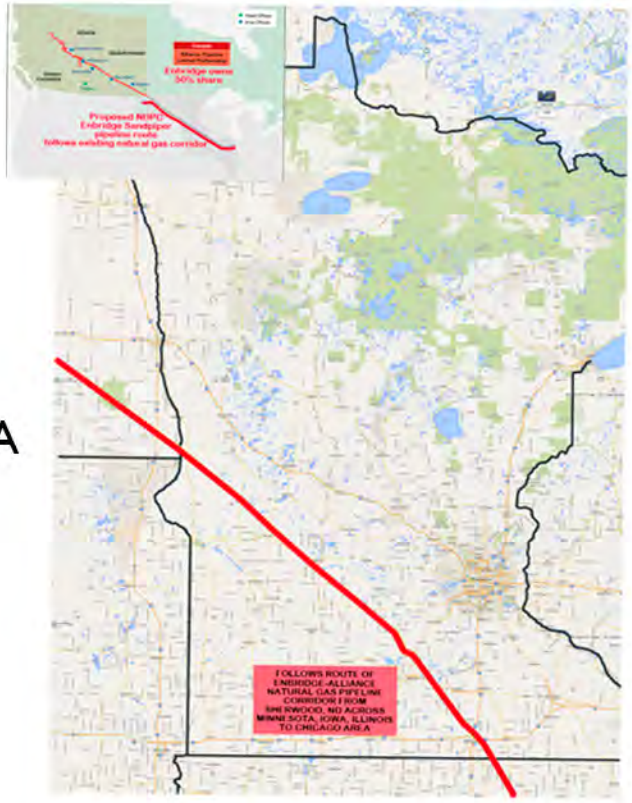
Given the high risk factors of Enbridge/NDPC's proposed Sandpiper 'southern corridor' route *FRIENDS of the HEADWATERS* has proposed a true 'southern corridor' across Minnesota which eliminates the potential for spills and damage to the state's most environmentally sensitive lands and waters.

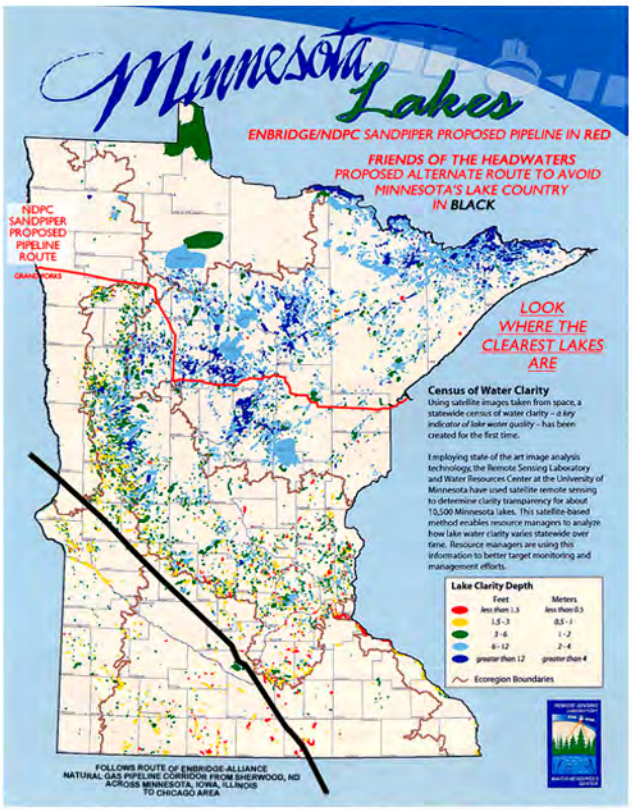
FRIENDS of the HEADWATERS Alternate Route A utilizes an existing energy corridor of which Enbridge is a 50% shareholder with Alliance Company of Canada. This corridor originates in Canada and ends west of Chicago. The proposed Enbridge/NDPC pipeline route would intersect this corridor east of Minot, ND at which point NDPC would turn and follow the corridor to Illinois.

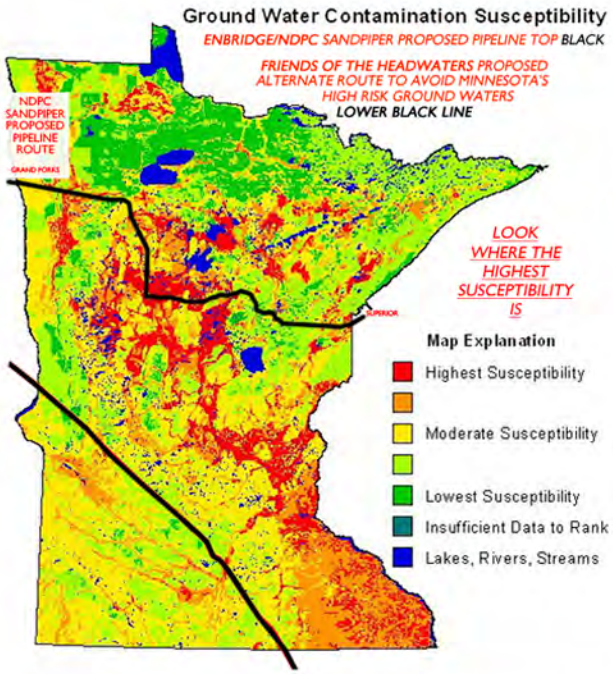
Alternate Route A below.

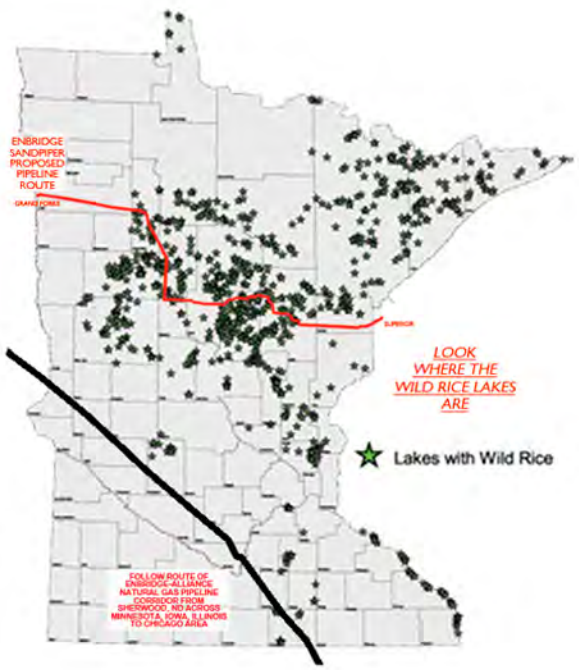
Compare the route risk factors in following maps.

A

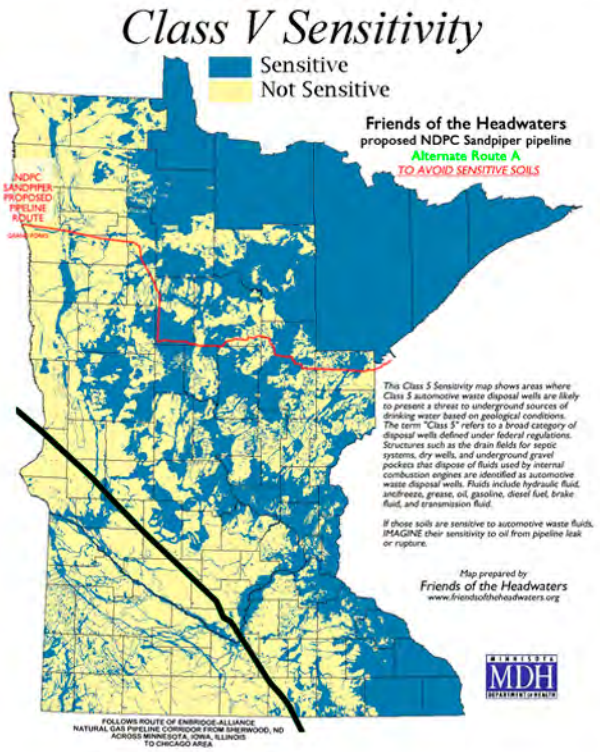


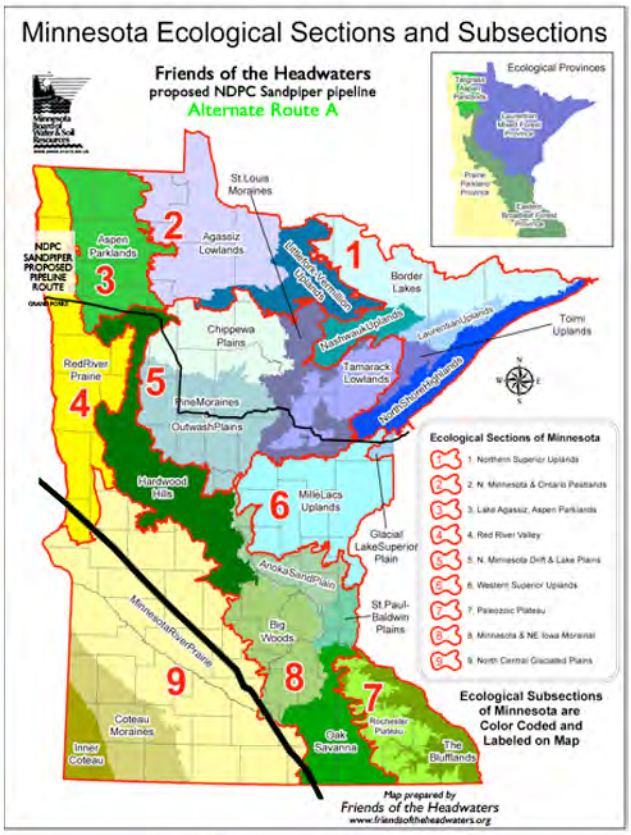


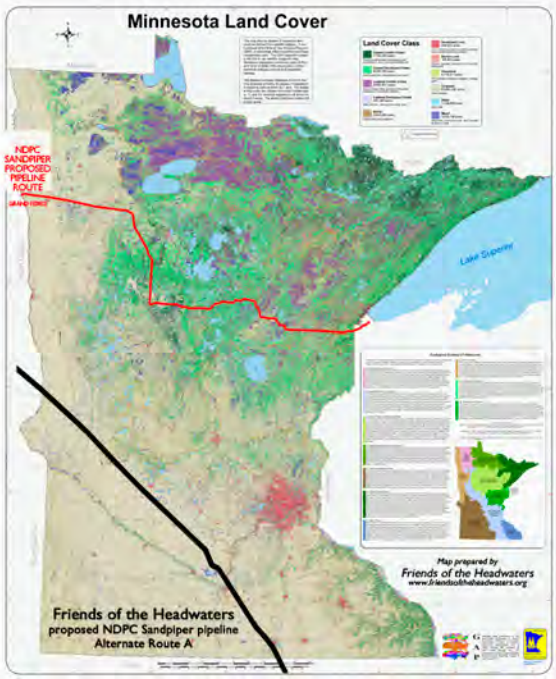


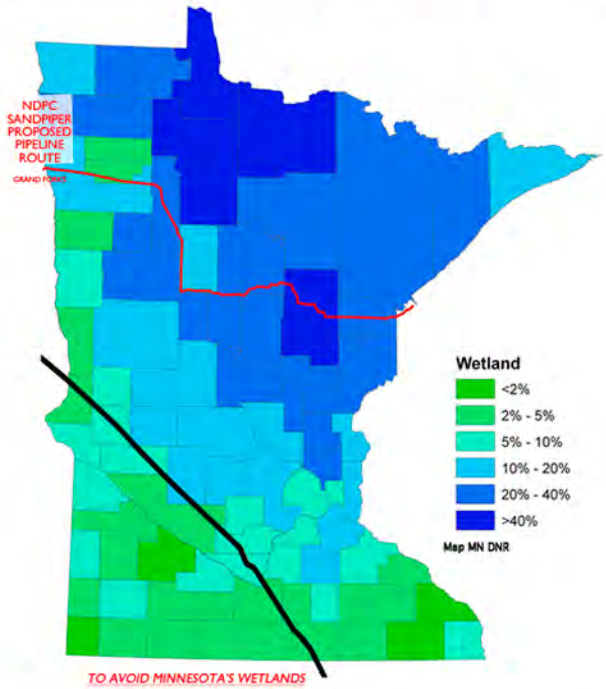


Route map comparisons continued:





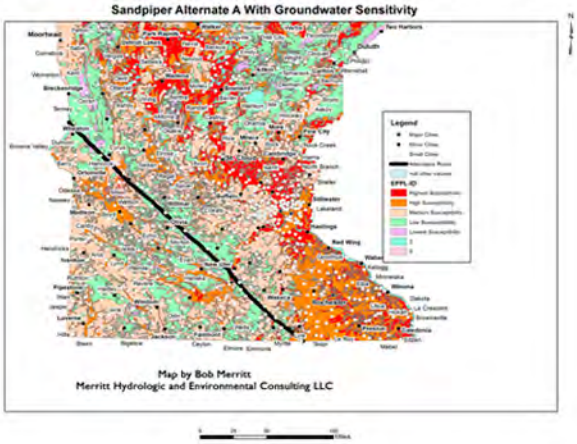




ALT ROUTE A traverses almost exclusively agricultural lands below Minnesota's primary lake country. This area is sparsely populated with mostly small towns among the farmlands.

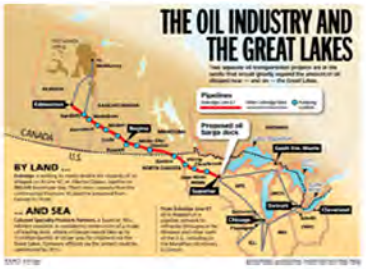
Note: Enbridge's Mark Curwin, Senior Director for Strategic Coordination of Major Project Executions in the US, stated their construction preference is to build pipelines across farmland. He made these remarks at a public meeting in Park Rapids on Jan. 29, 2014. Mr. Curwin gave the reasons of better soils, easier construction, easier access, less natural habitat destruction, cheaper and quicker. After construction the farmland can be put back into crop production. Access to leaks and spills is much easier. Winter wetland construction would be at a minimum.

Two additional maps by Bob Merritt, hydrologist, showing Alternate Route A in better detail.



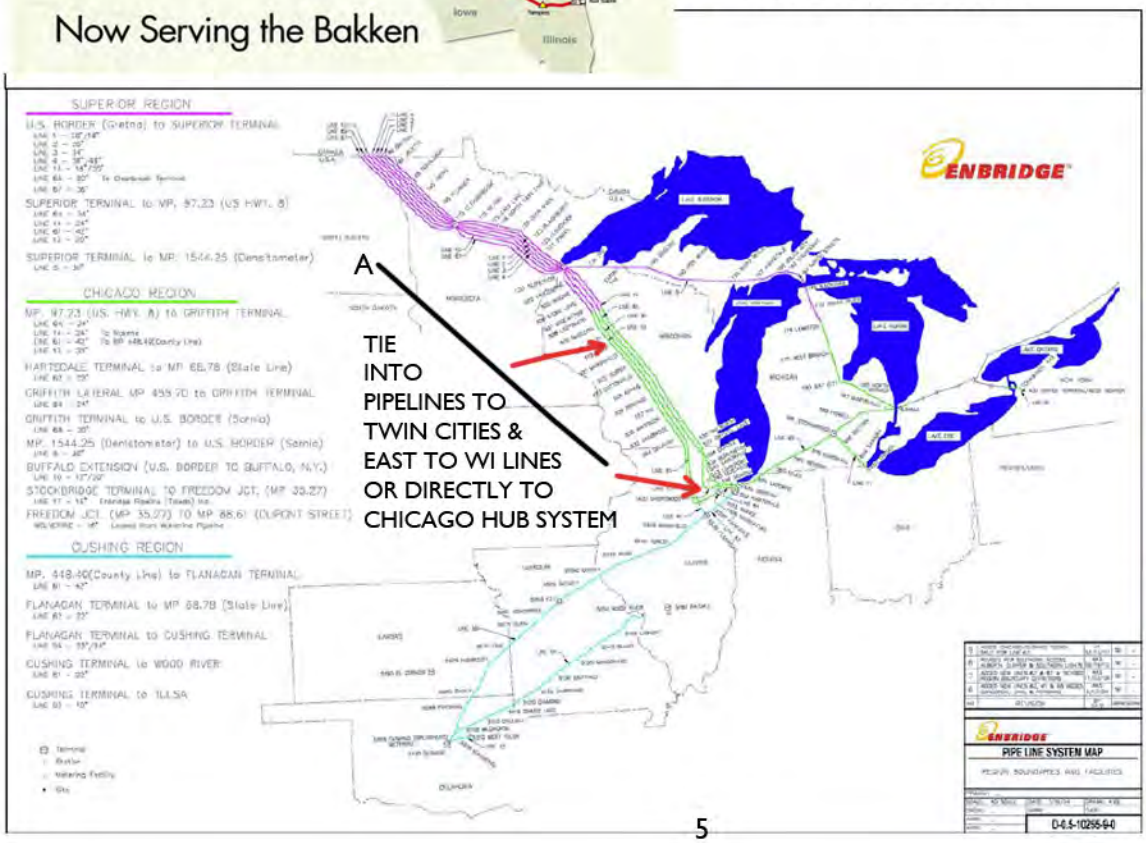
Minnesota still gets to keep jobs the construction will provide as well as North Dakota plus Iowa and Illinois.

Although the route does not end in Superior, it still ties into the existing Enbridge system in Illinois with routing options to Michigan and Ontario that avoid our greatest freshwater lakes of Lake Superior and the Mackinac Straits of Lakes Michigan and Huron.



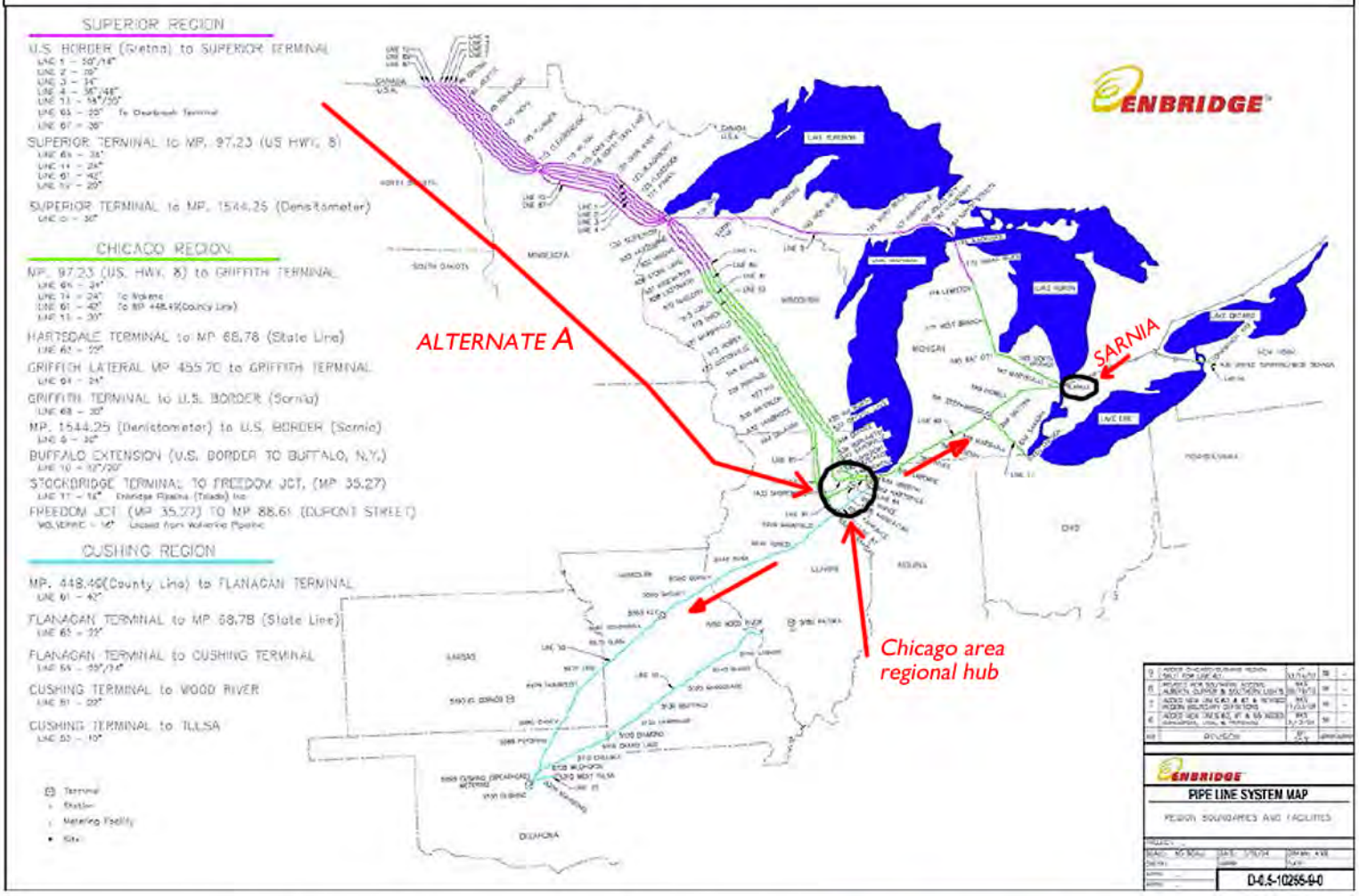
Since it's an existing corridor the company should have access to the mapping previously done for the pipeline already there. ALT ROUTE A also intersects pipelines in southern Minnesota owned and operated by other companies which provide the option of re-routing Bakken crude to the refineries in Rosemont and Saint Paul Park in the south Twin Cities Metro.

The Illinois Hub also allows Enbridge access to its pipelines to Oklahoma and points south.

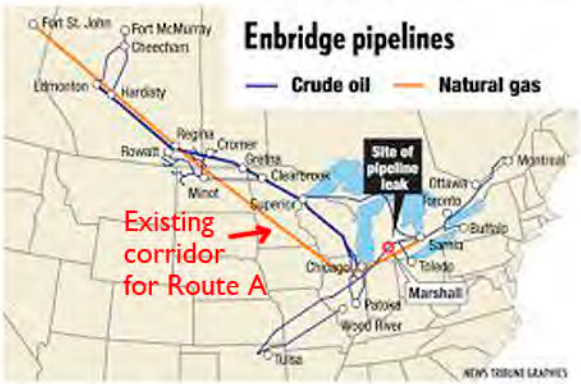


The *FRIENDS of the HEADWATERS* disputes Enbridge/NDPC's contention that the Sandpiper must end in Superior, Wisconsin. Enbridge has provided no rationale for the route ending in Superior other than "We want it. It connects to our existing system in Superior." The Alternate Route A proposed by *FRIENDS of the HEADWATERS* also connects to their existing system hub near Chicago, Illinois. It does not prevent Enbridge from then transporting the Bakken crude either south to Oklahoma and the Gulf Coast nor across Illinois, Indiana, Michigan and across the border to Sarnia, Ontario, Canada on their existing system.

Figure 7853.0510-2
Pipeline System Map



Alternate Route A already fits into their existing pipeline corridor system as evidenced by the map at right. Alternate Route A also appears to be a more direct route from the North Dakota Bakken Oil Fields to the primary energy markets of the US Midwest.



Friends of the Headwaters believes the citizens of Minnesota have the right to determine the route parameters of this pipeline corridor, not Enbridge/NDPC. The considerations of the Sandpiper pipeline and the Line 3 Rebuild proposed to run alongside the Sandpiper should not be dictated to the citizens of Minnesota by the company. The company already has too many pipelines crossing Minnesota's most valuable waters and lands.
The cumulative risk of adding additional lines to this region is too high to have the routing parameters set by what Enbridge 'wants'. They should not be allowed to frame the debate on this issue. The citizens of Minnesota and this state's governing and regulatory agencies need to reject this framing by Enbridge/NDPC

and reframe the discussion regarding the need and route of the proposed Sandpiper pipeline as what is beneficial to Minnesota, its people, its communities and its natural resources. Until Enbridge/NDPC adequately provides a detailed explanation for demanding why the Sandpiper pipeline must end in Superior, Wisconsin, *Friends of the Headwaters* believes all alternative routes must be given full consideration, even those proposing a system overhaul of how and where Enbridge wants to cross the state.

If Enbridge/NDPC were truly committed to protecting our lakes, rivers, wetlands, aquifers and lands as they publically state they are, then prove it by not just giving Minnesotans statistics about how safe their pipelines are (their history says otherwise), but by actually moving their proposed route to the lowest risk part of the state as portrayed on the previously presented illustrated maps.

Costs should not be a factor. After all, once the Sandpiper is constructed, 375,000 barrels of oil will pass through it daily. At the current world price for a barrel of oil that amounts to $40 million dollars per day or $14.6 billion dollars annually. Even though Enbridge is charging a fee to move the amount of oil, it should not take too many years to recoup their construction costs. Plus it appears from the map below the company has plans to expand the pipeline system through Wisconsin. The money allocated for that extension could easily be applied to the extra construction costs of building Alternate Route A.

Since the company is adamant about Superior as a destination for the Bakken crude, perhaps this proposed extension in Wisconsin could be used to move the oil from the end of Alternative Route A back north to Superior.

Enbridge has ambitious expansion plans not just in Minnesota but nationally it appears.

If their intensions are to expand rapidly towards the southern U.S. Alternative Route A would conform to those expansion plans more directly than their current proposed Sandpiper corridor.

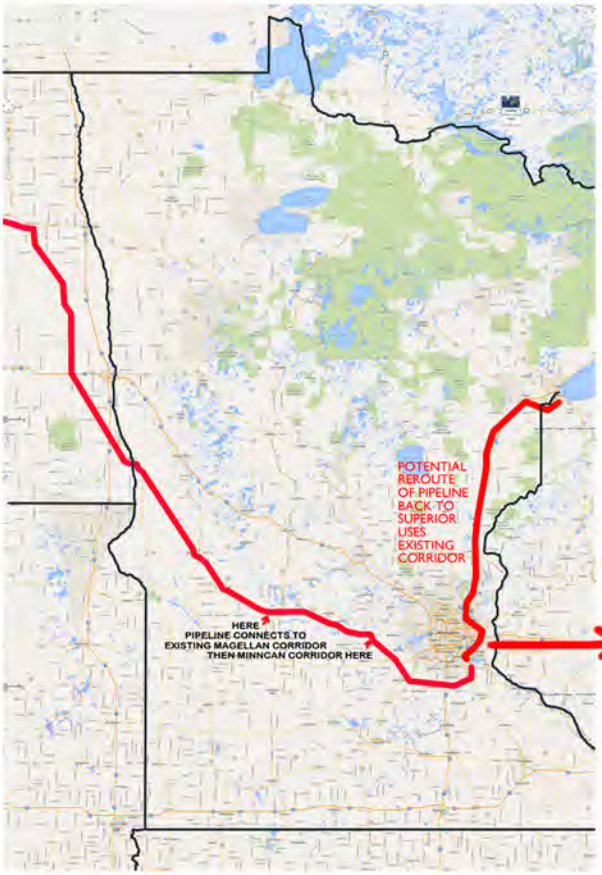
The *FRIENDS of the HEADWATERS* also sponsors other alternate routes at this time.

These routes can be connected back to Superior along existing energy corridors.

ALTERNATE ROUTE "C" as previously proposed in Position Paper of 4/2/2014

West of Grand Forks near Larimore the Sandpiper would turn south following either railroad easements or road easements south-southeast down the Red River Vally, crossing the Red River near Wahpeton, ND and continuing along MN Hgy 9 until it intersects an existing pipeline corridor owned by the Magellan Company. The Sandpiper follows this corridor until its intersection with the MinnCan pipeline corridor at which point it follows this corridor to the Flint Hills and Saint Paul Park refineries and pipeline system southeast of the Twin Cities Metro area. Optionally the route could turn south from Enbridge/NDPC's proposed pumping station near Lakota, ND.

Route C bypasses Minnesota's sensitive lands and waters and gives Enbridge the option of two routes back to Superior. They can use an existing pipeline corridor along I35 to Duluth whereupon they would intersect their northern corridor and can turn east to Superior. Or they can use another existing pipeline corridor, the Magellan straight east into Wisconsin where that line intersects the Enbridge system in central Wisconsin. At that point Enbridge can use their proposed expansion line to move the oil back to Superior or down to Illinois.



MAP APPENDIX

Wisconsin Petroleum Pipelines

WISCONSIN ENERGY STATISTICS 2010 | 157

Friends of the Headwaters does question how excited the people of Wisconsin might be about new pipelines.

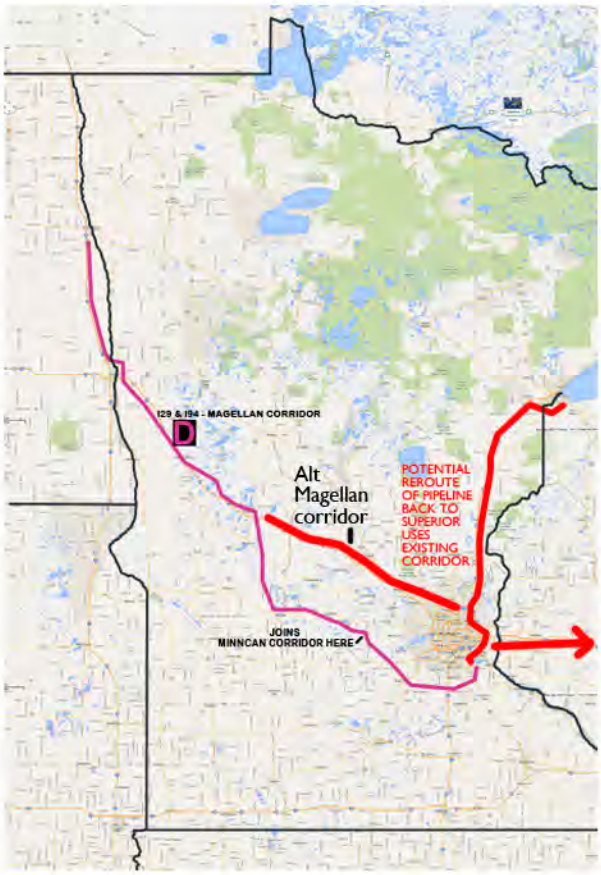
The *FRIENDS of the HEADWATERS* also sponsors other alternate routes at this time.

These routes can be connected back to Superior along existing energy corridors.

ALTERNATE ROUTE "D" as previously proposed in Position Paper of 4/2/2014

Near Grand Forks the Sandpiper would turn south following an existing pipeline corridor along Interstate 29 south towards Fargo, North Dakota then follow the same corridor east southeast adjacent Interstate 94. This existing pipeline corridor is owned by the Magellan Company, the same company which has the line continuing east from Minneapolis-StPaul into Wisconsin to intersect Enbridge's existing corridor there. The Sandpiper follows this corridor until its intersection with the MinnCan pipeline corridor at which point it follows this corridor to the Flint Hills and Saint Paul Park refineries and pipeline system southeast of the Twin Cities Metro area.

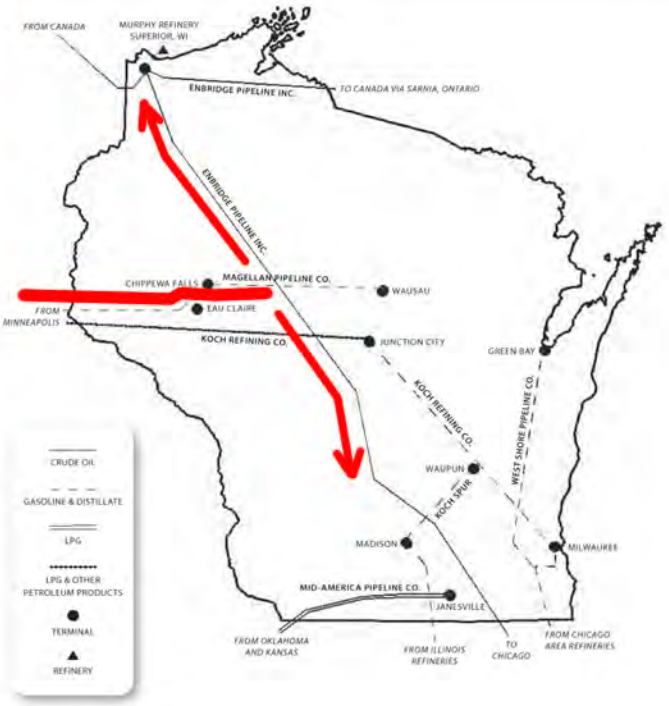
Route D bypasses most of Minnesota's sensitive lands and waters and gives Enbridge the option of two routes back to Superior. They can use an existing pipeline corridor along I35 to Duluth whereupon they would intersect their northern corridor and can turn east to Superior. Or they can use another existing pipeline corridor, the Magellan straight east into Wisconsin where that line intersects the Enbridge system in central Wisconsin. At that point Enbridge can use their proposed expansion line to move the oil back to Superior or down to Illinois.



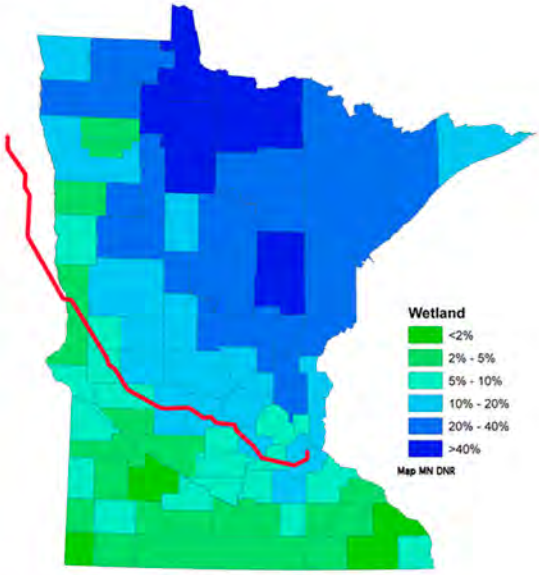
Route D could also stay in the Magellan corridor along I94 and continue on into Wisconsin.

MAP APPENDIX

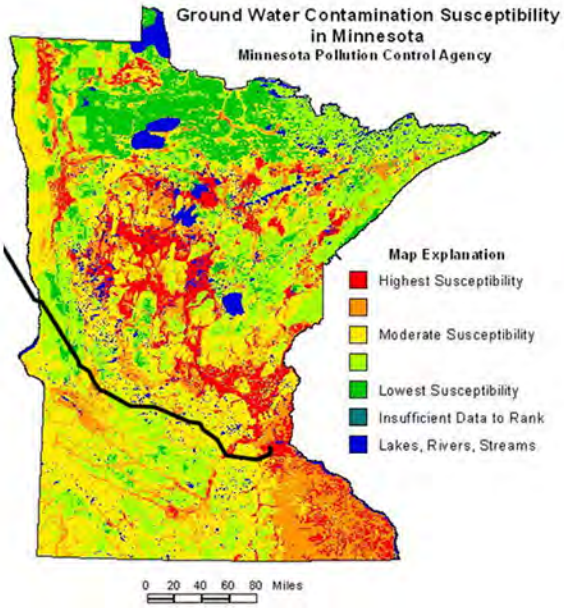
Wisconsin Petroleum Pipelines

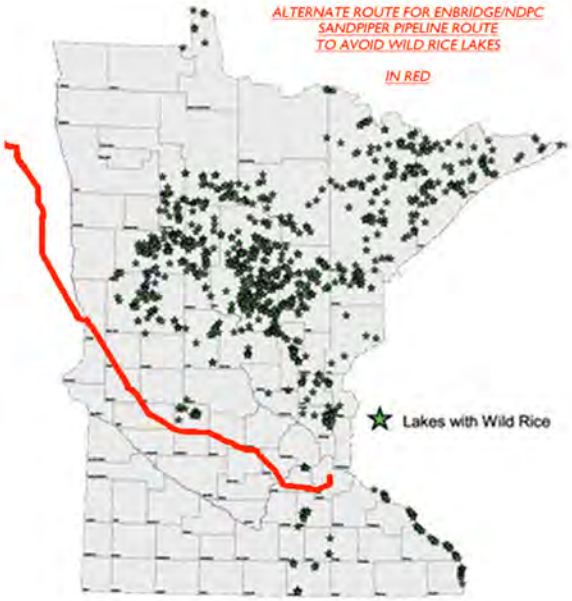


Although these alternate routes avoid the high risk environmental lands and waters of the state as exhibited in the maps below, they do traverse areas of higher population near the Twin Cities. This route does allow a connection along existing pipeline corridors into western and central Wisconsin to Enbridge's pipeline system in Wisconsin. Enbridge has option to ship oil north back to Superior, WI or south to Chicago hub.



TO AVOID MINNESOTA'S WETLANDS

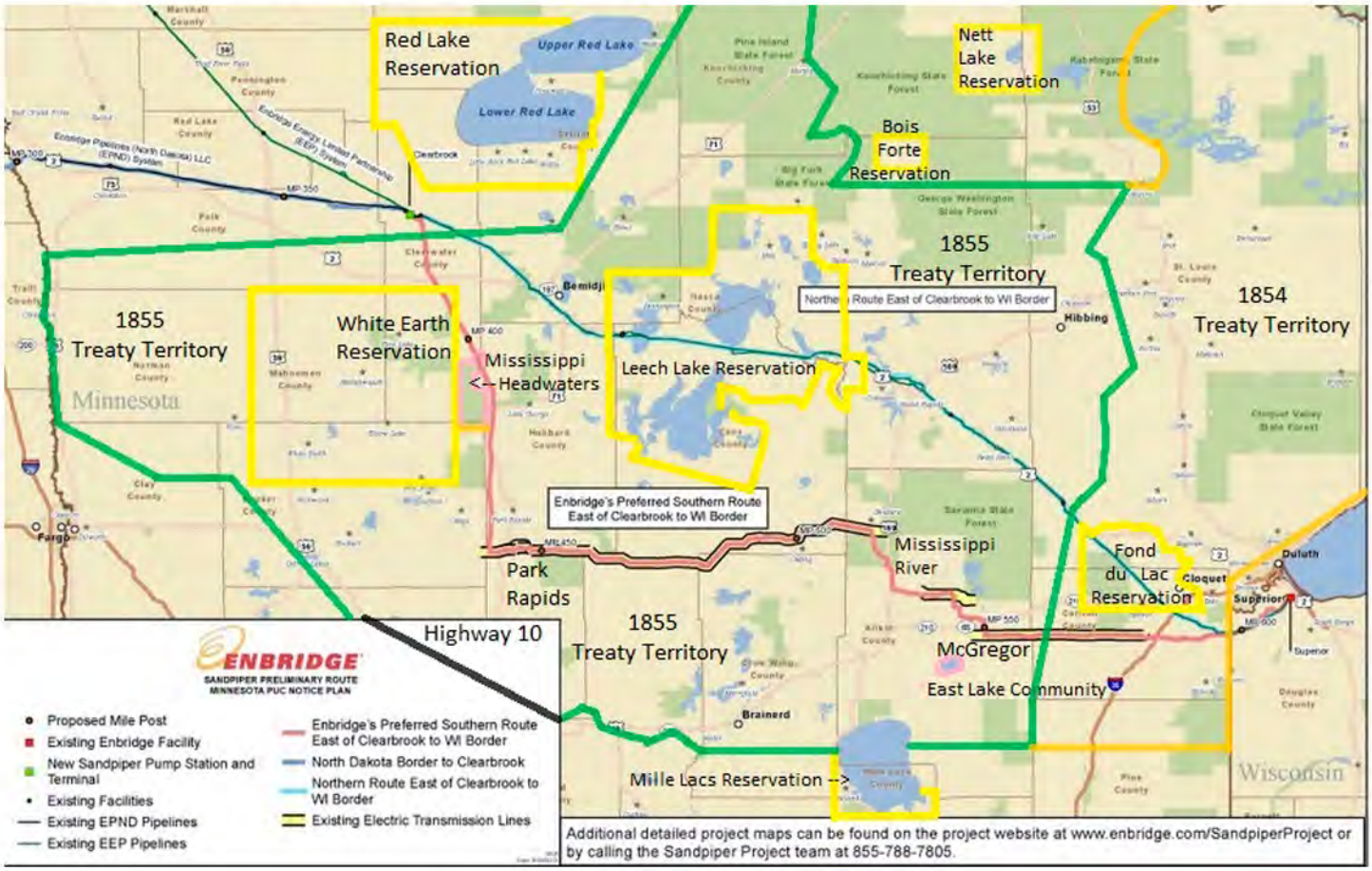




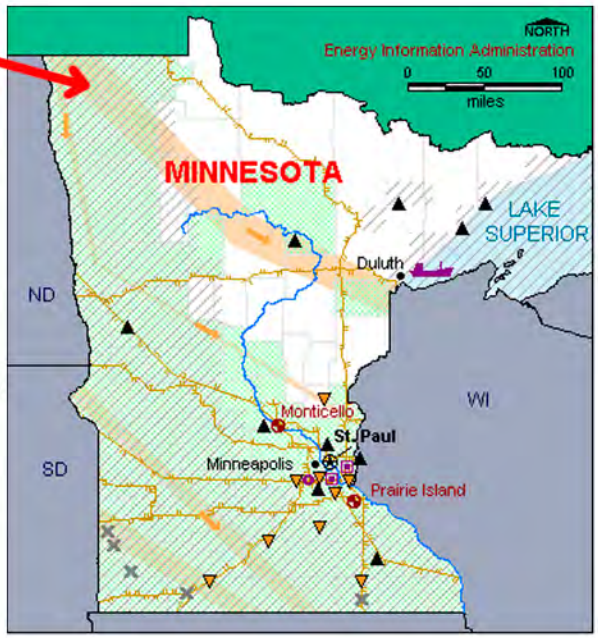
As currently planned with the exception of a few tax dollars and short term construction monies Minnesotans derive no long term benefits from these pipelines and assume all the risks from leaks/spills/ruptures. And eventually these pipelines will leak or break. Enbridge's spill history in Minnesota proves it true.

Friends of the Headwaters therefore recommends to the PUC, DOC and other state agencies that they enforce our MEPA statutes and deny the Certificate of Route permit for the Enbridge/NDPC's proposed Sandpiper pipeline corridor through Minnesota's prime lake country. A perfectly viable, low risk alternative is available south of our best waters.

In summary the *FRIENDS of the HEADWATERS* opposes the Enbridge/NDPC Sandpiper Pipeline route proposal as marked on the map below. What does it say about a company that would neglect to feature the state's most famous river, the Mississippi, on their proposed route map? Perhaps this is evidence of their true concern for Minnesota's valuable and cherished water resources.



Enbridge already has too large a footprint across Minnesota's Headwaters Country.



Too much is at risk, not only with the state's clearest lakes; ground water aquifers; fish and wildlife; wild rice; lake and riverfront homes, businesses, and communities; tourism industry; lands and forests; but there's also Lake Superior.

Does Enbridge's insistence on the pipeline ending at Superior portend a future of shipping oil on the Great Lakes? Ironic that a ship icon just happens to be on the adjacent map.

The people of Minnesota should not allow a Canadian corporation with its North Dakota Pipeline Company US subsidiary to dictate the terms of this project.

The company has yet to explain the need for Superior as the end point. This proposed pipeline route should not proceed without legitimate justification. Said reasoning should not include corporate profits.

Friends of the Headwaters believes up here a barrel of water IS worth more than a barrel of oil.

STATE OF MINNESOTA
PUBLIC UTILITIES COMMISSION

Beverly Jones Heydinger	Chair
Dr. David C. Boyd	Commissioner
Nancy Lange	Commissioner
Dan Lipschultz	Commissioner
Betsy Wergin	Commissioner

In the Matter of the Application of North Dakota Pipeline Company LLC for a Certificate of Need for the Sandpiper Pipeline Project in Minnesota	OAH Docket No. 8-2500-31259 PUC Docket No. PL-6668/CN-13-473
In the Matter of the Application of North Dakota Pipeline Company LLC for a Pipeline Routing Permit for the Sandpiper Pipeline Project in Minnesota	OAH Docket No. 8-2500-31260 PUC Docket No. PL-6668 / PPL-13-474

FRIENDS OF THE HEADWATERS COMMENTS ON CONSIDERATION OF SYSTEM ALTERNATIVES AND THE LEGAL BASIS FOR CONSIDERATION OF SYSTEM ALTERNATIVES IN THE NEED AND ROUTING PROCEEDINGS

Friends of the Headwaters ("FOH") hereby provides its comments in response to the Minnesota Public Utilities Commission ("Commission") Notice of Comment Period dated August 12, 2014. This notice identified the following topics for comment:

- What if any of the eight system alternatives identified in the Department of Commerce Alternative Routes Summary Report should be considered further in these proceedings?
- What is the legal basis for determining whether a system alternative should be considered in the certificate of need proceeding?

- What is the legal basis for determining whether a system alternative should be considered in the route permit proceeding?

In response, FOH provides the following comments and also incorporates by reference its August 5, 2014, Reply Comments on the Comments and Recommendations of the Minnesota Department of Commerce on Selection of Alternative Routes ("FOH August 5 Comments").

I. CONSIDERATION OF SYSTEM ALTERNATIVES

Selection of so called "system alternatives" by the Commission under Minn. Stat. Ch. 216G ("Routing Law") and Minn. Stat. Ch. 116D, the Minnesota Environmental Policy Act ("MEPA"), must take into consideration the "underlying" need for the Project, the potential for an alternative to reduce environmental impacts, and an alternative's apparent feasibility with regard to this need. The factors that should be considered in the Commission's consideration are discussed in the FOH August 5 Comments at 24-27, 37-39.

A. The Alleged Underlying Need for the Project

FOH contests the overall need for the Project and intends to present evidence that the Commission must deny NDPC a Certificate of Need for failing to meet its burden of proof under Minn. Stat. § 216B.243 and Minn. R. Ch. 7853. This being said, NDPC has alleged a number of facts in its Application for a Certificate of Need ("CON Application") related to commercial demand for the Project and its plan to upgrade its infrastructure to meet this alleged demand. As described in detail in the FOH August 5 Comments at 6-8, NDPC has described the commercial purpose of the Project as follows:

> The Project's purpose is to transport the growing production of domestic crude oil from the Bakken and Three Forks formations in the Williston Basin of eastern Montana and western North Dakota to meet the increased demands of refineries and markets in the Midwest and the East Coast.

NDPC Environmental Impact Report ("EIR") at 1-2 (footnote omitted). In its CON Application, NDPC describes this purpose similarly:

> Enbridge's shippers will use the pipeline for the transportation of crude oil to Enbridge's breakout tankage facilities at Clearbrook, Minnesota or Superior, Wisconsin. At Clearbrook, the crude oil will be delivered to interconnected facilities operated by Minnesota Pipe Line Company for delivery to Minnesota refineries. At Superior, the crude oil will be delivered into the Enbridge Mainline System and other third-party pipelines for delivery to refineries in the Midwest and the East Coast.

CON Application at Section 7853.0230 at 5 (footnotes omitted.) Thus, NDPC has described three potential markets for the transportation services to be offered by the Project:

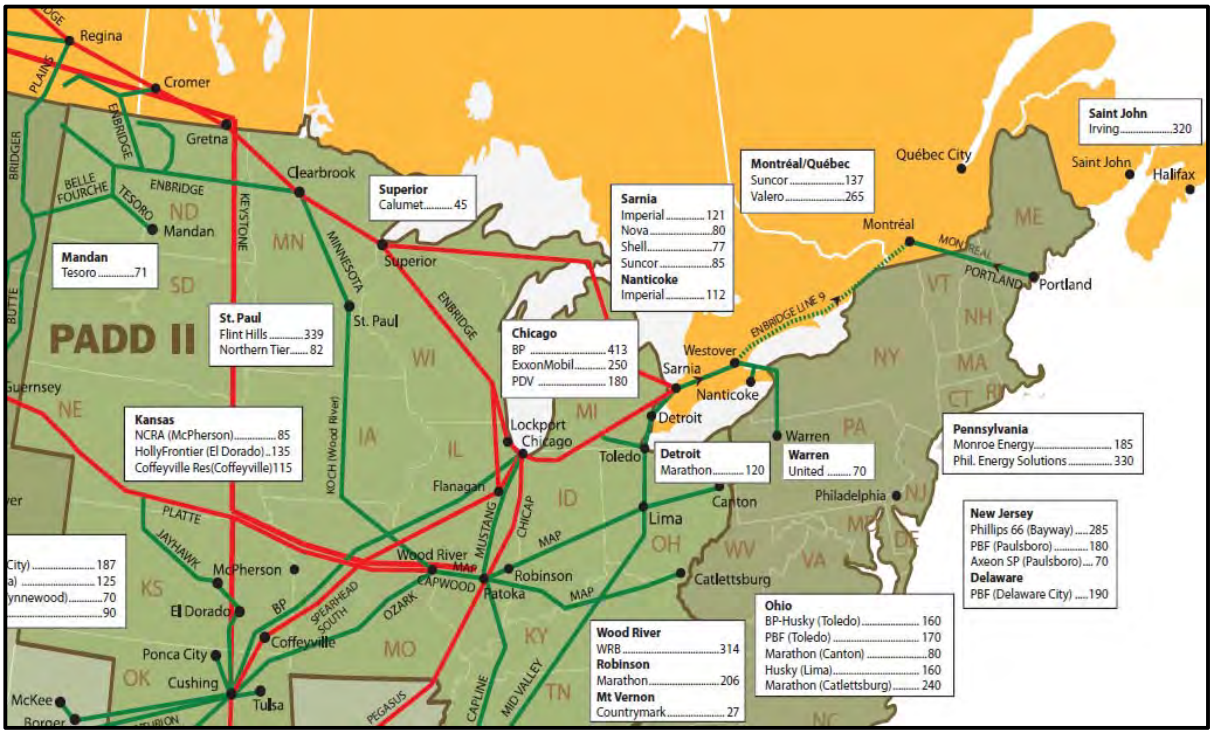
- Minnesota refineries;
- Midwestern refineries; and
- East Coast refineries.

NDPC has also claimed that serving these refinery markets require that the Project connect to its Clearbrook and Superior Terminals.

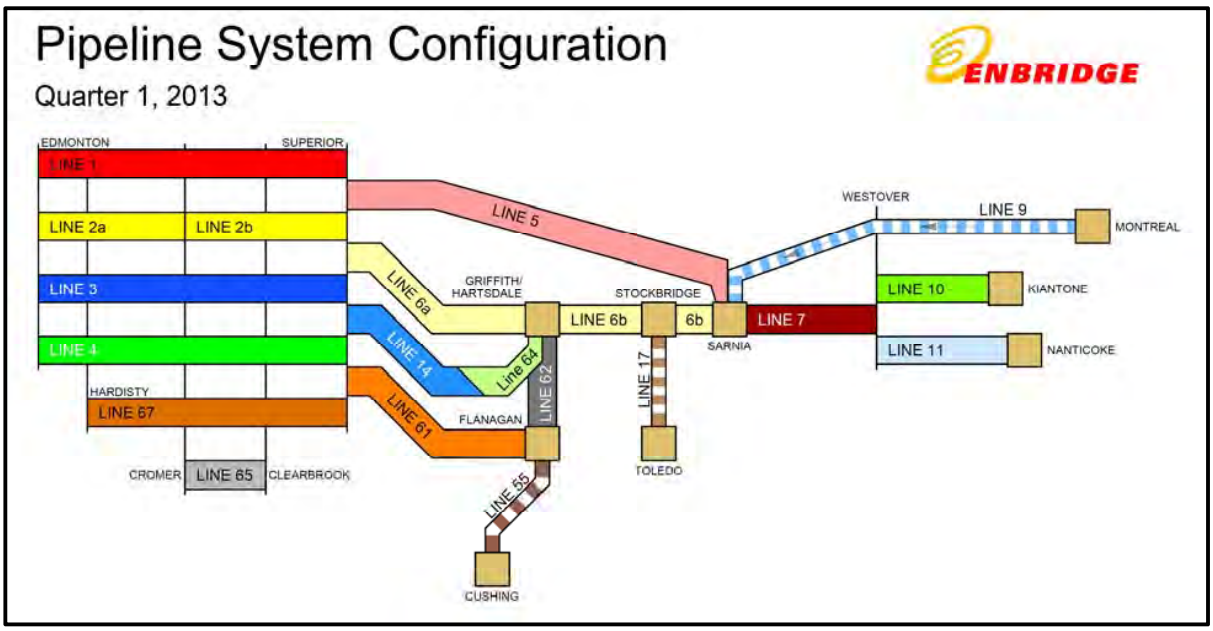
The following discusses the NDPC and Enbridge pipelines systems at issue, the alleged demand for the transportation services to be provided by the Project, and the need for NDPC to ship crude oil on the Project to this demand via the Clearbrook and Superior Terminals.

1. Description of Pipeline Systems at Issue

The following map provides a simplified view of the pipeline systems at issue in this proceeding.



In addition, Enbridge has published the following System Configuration graphic that schematically describes its Mainline System. (A complete map and system configuration graphic are included as Attachment A).



Together, the foregoing map and graphic show that the Clearbrook Terminal serves two structural purposes:

1) to transfer crude oil to the Minnesota Pipeline for delivery to Minnesota refineries; and
2) to accept oil from the North Dakota Pipeline for delivery to the Superior Terminal.

They also show that the Superior Terminal has four structural purposes:

1) delivery of crude oil via local pipeline to the Calumet Refinery in Superior, Wisconsin;
2) delivery of crude oil via Line 5 to the Sarnia Terminal in Ontario;
3) delivery of crude oil via Lines 6a, 14, and 64 to the Lockport Terminal in northern Illinois;
4) delivery of crude oil via Line 61 to the Flanagan Terminal in northern Illinois.

FOH notes that no U.S. East Coast refineries are served by pipelines, nor are the Canadian East Coast refineries in Quebec City, Quebec, and St. John, New Brunswick.

To understand the possible need for the Project to pass through the Clearbrook and Superior Terminals, it is necessary to determine the potential customer demand for service through these terminals. The following analyzes potential customer demand for U.S. Bakken Formation crude oil in U.S. and Canadian markets in relation to the specific functional purposes of the Clearbrook and Superior Terminals. This analysis shows that there is absolutely no need for additional crude oil pipeline service to the Clearbrook Terminal, and that what need exists related to the Superior Terminal is for transportation service to the Flanagan Terminal in

Northern Illinois, such that direct service to the Flanagan Terminal would meet most if not all of Enbridge's predicted customer need.

2. The Alleged Need for a Route Connection to Clearbrook and for Additional Pipeline Capacity to Ship Oil to Minnesota Refineries

Although Enbridge does not include service to Minnesota refineries in its statements of purpose, it nonetheless implies that part of the purpose for the Project is to provide service to these refineries. The Commission should understand that available evidence unequivocally shows that there is no need for additional crude oil pipeline deliveries from North Dakota to Minnesota through the Clearbrook Terminal.

On March 14, 2014, the St. Paul Park Refining Company ("SPPRC"), which owns the 89,000 bpd St. Paul Park Refinery, filed a Protest at the Federal Energy Regulatory Commission (Attachment B) in which it states, *inter alia*:

> this Protest demonstrates that the proposed expansion pipeline and expansion surcharge (a) are not needed, (b) do not have broad shipper support, [and] (c) will provide no benefit to shippers taking delivery at Clearbrook . . . .[1]
>
> * * *
>
> SPPRC does not believe the expansion pipeline proposed by NDP is necessary or desirable to meet the transportation needs of SPPRC.[2]
>
> * * *
>
> the purported shipper benefits cited by NDP have no value to SPPRC."[3]

In addition, the SPPRC Protest contains substantial evidence in the form of 104 pages of expert affidavits and documentation in support of SPPRC's position.[4] It also severely criticizes a

[1], *Petition for Declaratory Order of North Dakota Pipeline Company*, FERC Docket No. OR14-21-000. PROTEST OF ST. PAUL PARK REFINING CO. LLC (March 13, 2014) at 1.
[2] *Id.* at 4.
[3] *Id.*
[4] *Id.* at s.

NDPC study that alleges need for the Project.[5] Thus, the SPPRC has stated in unequivocal terms that there is no need for the Project to connect to the Clearbrook Terminal for ultimate delivery to the St. Paul Park Refinery, or for that matter to the Flint Hills Refinery.

Although FERC denied this Protest, it did so on procedural grounds and did not review SPPRC's factual claims.[6] FERC stated:

> More importantly, and especially pertinent to the instant petition, because the Commission does not regulate the entry14 or exit15 into the oil pipeline business as it does with natural gas pipelines, there is nothing preventing an oil pipeline from building or expanding a pipeline on a traditional common carrier cost-of-service basis and making the required initial rate filing thirty days prior to the requested effective date. Therefore, while the protesters criticize North Dakota Pipeline's study and assert there is no need for the proposed expansion and extension of the system, the arguments have no bearing on our determination here. Since the Commission does not have jurisdiction to grant certificates to oil pipelines or otherwise authorize or prevent construction, determining whether a pipeline is needed is not within its authority. Therefore, the Commission denies the protesters' requests to reject this petition based upon an alleged lack of need for the new construction or that issues concerning the justification for expanding the pipeline require examination at a hearing, before a declaratory order approving the general framework for the project is granted.

(Emphasis added, footnotes omitted.) FERC did not explain how an unneeded pipeline can ever have reasonable rates, nor did it discuss the fact that pre-approval of a tariff structure tends to promote pipeline development because there is almost no risk that FERC will impose a tariff that does not allow a return on investment. In contrast to FERC, the Commission has "jurisdiction to grant certificates [of need] to oil pipelines or otherwise authorize or prevent construction, determining whether a pipeline is needed . . . ." Thus, the claims of SPPRC are relevant to this proceeding.

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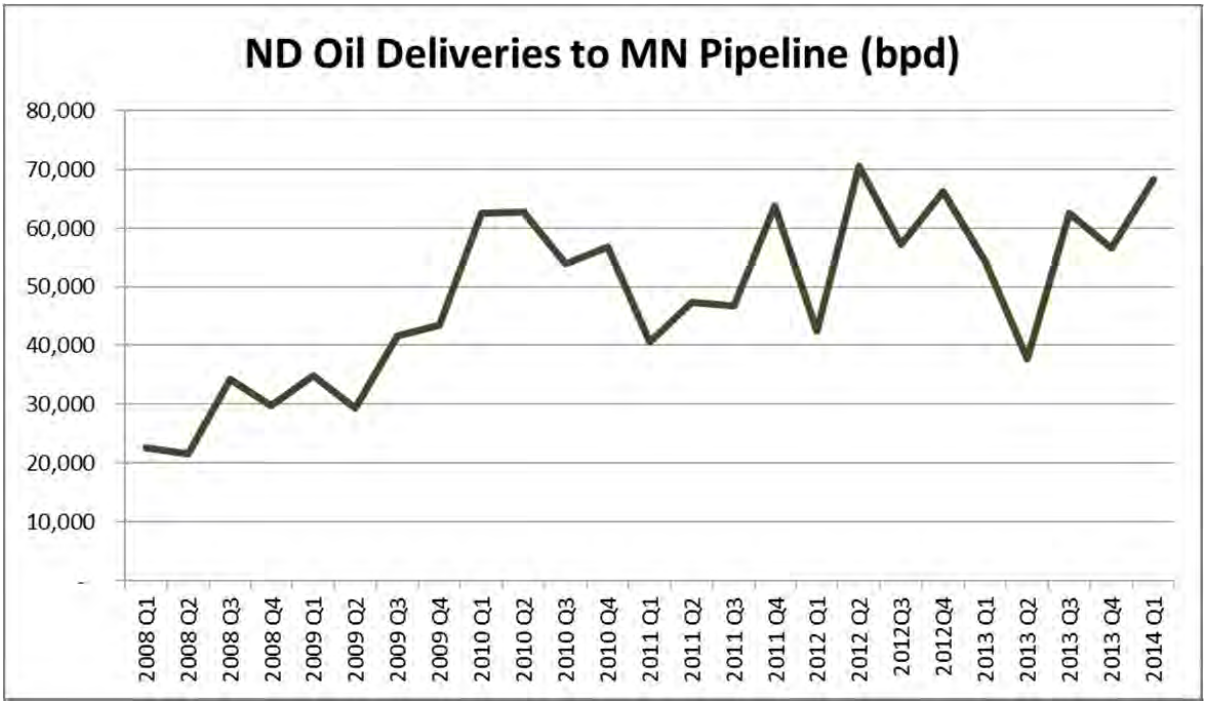
[5] *Id.* at 7-9.

[6] Petition for Declaratory Order of North Dakota Pipeline Company, FERC Docket No. OR14-21-000. Order on Petition for Declaratory Order (May 15, 2014) at 9.

Flint Hills Resources, LP, ("Flint Hills"), which owns the 339,000 bpd Flint Hills Refinery in Rosemount, Minnesota, also filed comments in the same FERC docket (Attachment C).[7] While Flint Hills did not directly challenge the need for the Project, it did argue that it and other uncommitted shippers should "not bear financial responsibility for underutilization of the Sandpiper Project should shipper demand be less than NDPC anticipates . . . ."[8] Much of Flint Hill's comments relate to the financial risk resulting from underutilization of the Project. It seems unlikely that Flint Hills would focus on underutilization unless it anticipated a significant risk of it.

With regard to historical deliveries of U.S. Bakken Formation crude oil to Minnesota refineries by Line 81, FERC data filed by NDPC (and its predecessor) and the Minnesota Pipeline Company show the following quarterly deliveries[9]:



[7] *Petition for Declaratory Order of North Dakota Pipeline Company,* FERC Docket No. OR14-21-000. Comments of Flint Hills Resources, LP.
[8] *Id.* at 11
[9] This data is available at ferc.gov and comprises a substantial volume of material and therefore has not been attached hereto.

The data also shows that deliveries from North Dakota have been relatively stable for the past four years, ranging between approximately 50,000 bpd and 60,000 bpd, compared to a total refining capacity in the Twin Cities of 428,000 bpd. Assuming that Minnesota's refineries are operating at about 90% capacity, approximately 14% of the crude oil refined in Minnesota comes by pipeline from North Dakota. The average annual deliveries are shown below:

Year	BPD
Average 2010	58,993
Average 2011	49,650
Average 2012	59,087
Average 2013	51,569

The data filed at FERC by NDPC and the Minnesota Pipeline Company indicate that:

(1) the current capacity of the North Dakota Pipeline System (210,000 bpd) far exceeds historical deliveries to Minnesota refineries from North Dakota; and

(2) deliveries of North Dakota oil by pipeline to Minnesota are stable and show no sign of increasing.

NDPC has claimed that the Project will benefit Minnesota by providing redundant service to Clearbrook,[10] but the value, if any, of such redundant service appears low given that Minnesota's refineries have relied on the existing pipeline service from North Dakota for years and have not found it unreliable. FOH asserts that the benefit of such redundant service should not outweigh the risks to Minnesota's environment caused by the Project, and should not itself require service to the Clearbrook Terminal.

Taken together, the Protest filed by SPPRC and the FERC data indicate that Minnesota refineries do not need the Project such that connecting the Project to the Clearbrook Terminal is unnecessary. Although the Flint Hills refinery did not make as clear statements as SPPRC, it did

[10] CON Application, Section 7853.0230 at 5.

voice concerns about the risk of underutilization of the Project, including the risk that construction of the Project could unnecessarily increase Minnesota refinery costs. Such concern indicates that Flint Hills is likewise concerned about the future need for the Project. This position also suggests that there is no need for the Project route to pass through Clearbrook.

Moreover, NDPC has proposed to configure the Project so that no oil can be introduced into it from the Enbridge's Mainline System at Clearbrook. In the absence of a need to deliver crude oil to or receive oil at Clearbrook, there is no reason at all for the Project route to go through Clearbrook, except to the extent it might provide redundant service, which likely is of little to no value.

Given this information, the Commission should find that for the purposes of selecting alternative routes for further study, there is no need for such routes to connect to the Clearbrook Terminal. In fact, the evidence presented herein indicates that the Project could not be built at all or could bypass the Clearbrook Terminal without having any adverse impacts on Minnesota's refineries or Enbridge's downstream operations. Therefore, the Commission should find that connection to the Clearbrook Terminal and deliveries to Minnesota refineries are not a necessary component of the Project, such that it must consider "system alternatives" that do not include a connection to Clearbrook.

3. The Alleged Need for a Route Connection to the Superior Terminal

Evaluating the alleged need for the Project to end at the Superior Terminal is somewhat more complex, but can be understood through a systematic analysis of each of the downstream markets served by this terminal. The following provides a preliminary analysis. Although a full analysis of need will depend on completion of the contested case hearing under Minn. Stat. Ch. 216G, the purpose of the following analysis is to help the Commission gain an adequate

understanding of the customer needs alleged by NDPC in relation to the Superior Terminal, so that it can better understand why it must consider "system alternatives" that could feasibly meet Enbridge's alleged underlying purpose and need for the Project by connecting to other Mainline System terminals.

As noted, Enbridge can ship oil from the Superior Terminal directly to one refinery and three other terminals that serve differing refinery market. Specifically, from the Superior Terminal, Enbridge can ship crude oil:

1) via local pipeline to the Calumet Refinery in Superior, Wisconsin;
2) via Line 5 to the Sarnia Terminal in Ontario, which terminal serves a number of refineries in Sarnia, as well as refineries downstream in Detroit, Michigan, Warren, Pennsylvania, Nanticoke, Ontario, and Montreal, Quebec;
3) via Lines 6a, 14, and 64 to the Lockport Terminal in northern Illinois, that transfers oil for delivery to refineries in Illinois, Detroit, Ohio, the Sarnia Terminal and all the refineries served by it, as well as refineries in the Midwest and Gulf Coast; and
4) via Line 61 to the Flanagan Terminal in Illinois, which can serve essentially the same refineries as Lines 6a, 14, and 64, but which also has a higher capacity connection to the U.S. Gulf Coast.

The question before the Commission with regard to the Superior Terminal is whether this is the only delivery point on the Enbridge Mainline System that could feasibly serve the customer needs alleged by Enbridge. Each of the foregoing delivery options is discussed below, in turn.

Deliveries to the Calumet Refinery

The Calumet Refinery, which refines primary light crude oil, is one of the smallest in the U.S., with a rated capacity of only 45,000 bpd.[11] This capacity is dwarfed by the Mainline System's current light crude oil capacity of 1,254,300 bpd.[12] Thus, the Calumet Refinery is adequately served by existing light oil pipeline capacity to the Superior Terminal and does not itself justify a routing requirement that the Project terminate at the Superior Terminal.

Deliveries Via Line 5 to Sarnia, Ontario, and Downstream Refineries

Line 5 begins at the Superior Terminal and ends at the Sarnia Terminal in Ontario, Canada. However, Line 5 is not the only Enbridge pipeline to Sarnia, because Line 6b also terminates at Sarnia. Thus, it is possible to ship light crude oil to northern Illinois and then on to Sarnia.

It is not possible to ship crude oil from Sarnia further south than perhaps Toledo, Ohio, though it is not clear that all of the refineries in Toledo have access to this crude oil. Thus, Line 5 at most serves only three U.S. Midwestern refineries: the Detroit Marathon Refinery and the PBF and BP-Husky Refineries in Toledo, Ohio. To FOH's knowledge, none of these refineries has announced plans to refine greater amounts of light sweet crude oil, or to increase their overall capacity. Also, all of these refineries are also served by spurs off of Line 6b. and the Toledo refineries are also served by the Mid-Valley Pipeline from the south, such that the pipeline infrastructure that currently serves them is adequate to meet their needs. Thus, the evidence indicates that these refineries will have no increased demand for U.S. Bakken Formation crude oil, and to the extent that marginal increases might be needed, they are currently served by two other pipelines in addition to Line 5. As such, demand from these three

[11] CAPP North American Pipeline Map, Attachment A.
[12] Enbridge System Configuration, Attachment A.

Midwestern U.S. refineries does not justify increased shipments of U.S. Bakken Formation crude oil through the Superior Terminal on Line 5.

Crude oil shipped on Line 5 can also reach the small United Refining Refinery in Warren, Pennsylvania, but this refinery consumes mostly heavy crude oil and has no expansion plans. Therefore, this refinery, too, provides no justification to ship increased amounts of Bakken Formation crude oil to the Superior Terminal for transportation on Line 5.

Other than the foregoing U.S. refineries, Line 5 serves only eastern Canadian refineries. With regard to the need for increased shipments of Bakken Formation crude oil to eastern Canada, a group of NDPC's customers also filed a protest in Enbridge's FERC tariff case ("Shipper Protest") (Attachment D), in which they alleged that this need was specious.[13] The Shipper Protest includes the following statement about NDPC's claim that the Project serves refinery needs in eastern Canada:

> [NDPC's] suggestion that Bakken crude can break into the Eastern Canadian market is also fanciful. This region receives large quantities of its pipeline crude oil supplies from Western Canadian producers and Canadian producers view this area as a target market for their growing production. It is faulty economic logic to assume that those producers will permit their markets to be eroded by Bakken crude oil without taking responsive action. Furthermore, 330,000 bpd of Eastern Canadian refining capacity is not even connected to pipelines.[14]

(Emphasis added.) The Shipper Protest also states:

> there is no economic basis to [NDPC's] conclusion that the construction of the Sandpiper pipeline will permit Bakken crude oil to replace existing crude oil supplies to U.S. Mid-Continent and Eastern Canadian refineries. . . . these refineries are currently buying Western Canadian crude oil and Canadian producers will

[13] Petition for Declaratory Order of North Dakota Pipeline Company, FERC Docket No. OR14-21-000, Protest and Opposition and Renewed Motion to Intervene of Concord Energy LLC, Enserco Energy LLC, Enwest Marketing LLC and WPX Energy Marketing, LLC in Response to North Dakota Pipeline Company LLC Petition for Declaratory Order (March 14, 2014).
[14] *Id.* at 21.

> certainly not permit American Bakken crude deliveries to undercut their markets. In fact, . . . when faced with price competition in the past, Canadian producers have taken whatever measures they believed necessary to preserve their market. There is every reason to believe that they will continue to do so in the future, particularly in view of the long distance pipelines that TransCanada and Enbridge are building from Western Canadian crude oil fields to Eastern Canadian refineries.[15]

(Footnotes omitted.) In short, it is very unlikely that eastern Canadian refineries will demand U.S. Bakken Formation crude oil because they are already supplied by domestic Canadian crude oil producers. Moreover, all of the refineries served by pipeline in eastern Canada are owned by companies (Imperial Oil, Nova, Shell, and Suncor) that also own crude oil extraction facilities in the Tar Sands Region, such that they can buy crude oil from themselves. Therefore, it appears very unlikely that these eastern Canadian refineries will demand Bakken Formation crude oil deliveries through the Superior Terminal via Line 5.

With regard to Enbridge's alleged need to transport oil by pipeline to U.S. East Coast refineries, which are in New Jersey, Pennsylvania, and Delaware, this is not currently physically possible because none of these refineries are served by pipelines. The same is true for Canada's coastal refineries in Quebec City and St. John. Thus, it appears that deliveries to these refineries do not create a need to ship Bakken Formation crude oil through the Superior Terminal to Line 5.

Therefore, available evidence indicates that NDPC and Enbridge have no need to ship oil to the Superior Terminal for delivery via Line 5 to Sarnia, because none of the refineries served by Line 5 are likely to demand more or even any U.S. Bakken Formation crude oil. As such, the Commission should not assume that deliveries to the Superior Terminal for transportation on Line 5 are a substantial purpose of the Project.

[15] *Id.* at 35-36.

Deliveries Via Lines 6a, 14, and 64 to the Lockport Terminal in Northern Illinois

Shipments to the Superior Terminal can also be forwarded to the Lockport Terminal in northern Illinois via Lines 6a, 14, and 64, and from there on to refineries in the Chicago area. From the Chicago area, there are connections east on Line 6b to Toledo, Detroit, Sarnia, Warren, Pennsylvania, and eastern Canada; and connections south to Patoka, Illinois, from where pipelines continue to refineries in Toledo, Lima, Canton, and Catlettsburg, Ohio, Cushing, Oklahoma, and the U.S. Gulf Coast.

As previously discussed, the likelihood of increased demand for U.S. Bakken Formation crude oil shipments via the Lockport Terminal by refineries in Toledo, Detroit, or Sarnia, or in refineries downstream from Sarnia, is a best limited, if not "fanciful." Thus, these refineries do not provide a need for increased Bakken Formation crude oil deliveries to the Superior Terminal for delivery to the Lockport Terminal.

The other refineries directly served by the Lockport Terminal are three Chicago area refineries:

(1) BP's 413,000 bpd Whiting Refinery, which recently completed a major modification to allow it to process primarily heavy sour crude oil, such that it will likely demand much less light crude oil;

(2) Exxon Mobil's 250,000 bpd Joliet Refinery, which is configured to process primarily heavy sour crude oil; and

(3) PDV/CITGO's 180,000 bpd Lemont Refinery in Lemont, Illinois; which is also configured to process primarily heavy sour crude oil, originally from its parent corporation in Venezuela.

Due to the configuration of these refineries, it is doubtful that they will demand greater supplies of U.S. Bakken Formation crude oil. Thus, it is unlikely that Enbridge can show a need to ship U.S. Bakken Formation crude oil via the Superior and Lockport Terminals to these refineries.

It is also possible to ship crude oil from Chicago to the Patoka Terminal in southern Illinois on the 100,000 bpd Mustang Pipeline, for delivery to refineries in Ohio, the southern Midwest, and the U.S. Gulf Coast. However, the small size of the Mustang Pipeline means that relatively little crude oil can flow through the Superior and Lockwood Terminals to these more distant markets. Instead, it appears that Enbridge intends to serve these more distant markets via Line 61 and the Flanagan Terminal.

Therefore, service through the Superior Terminal on Lines 6a, 14, and 64 to the Lockwood Terminal, is mostly confined to refineries in the Chicago area, Toledo, Detroit, Sarnia, and refineries downstream from Sarnia. As previously discussed, none of these refineries are likely to demand greater quantities of light sweet U.S. Bakken Formation crude oil. Therefore, there appears to be little reason for Enbridge to need additional pipeline capacity from North Dakota to the Superior Terminal for service to these refineries. This conclusion is also supported by the opinion of an expert who provided a sworn declaration included in the Shipper Protest, which declaration states:

> As far as the U.S. Midwest– *i.e.*, Eastern PADD II – is concerned, there are 13 refineries located in Michigan, Illinois, Indiana, Kentucky, Tennessee and Ohio. These refineries collectively use approximately 2.5 million bpd of crude oil. In 2012, these refineries imported over 1.2 million bpd of crude oil. Ninety-seven percent of these imports were from Western Canada. Canadian crude oil producers delivered a total of approximately 1.7 million bpd into the entire American Midwest region in 2012. <u>I do not believe that there is any real possibility that Western Canadian producers will permit North Dakota Bakken crude oil to replace any of the crude oil Mid-Continent refiners are now receiving from</u>

> Western Canada. In fact, if anything, Western Canadian crude oil will occupy an increasing portion of this PADD II market.[16]

(Emphasis added, footnotes omitted.) Thus, a number of Enbridge's shippers also believe that demand in the eastern Midwest for U.S. Bakken Formation crude oil will at best remain stagnant, but will more like drop due to increased pressure from Canadian crude oil imports.

Therefore, the Commission should not assume that the Project needs to connect to the Superior Terminal to allow increased quantities of light sweet U.S. Bakken Formation crude oil to flow via Lines 6a, 14, and 64 and the Lockport Terminal to downstream refineries. Since the need for increased service to the Lockport Terminal is at best limited and at worst non-existent, the Commission should not require alternative routes to terminate at the Superior Terminal based on a need to provide service to the Lockport Terminal.

Deliveries Via Line 61 to the Flanagan Terminal in Northern Illinois

The largest potential new pathways for oil from the Superior Terminal are on either:

- Line 61 to the Flanagan Terminal, which has a maximum capacity of 1,200,000 bpd, but currently is rated at only 400,000 bpd; or
- the yet to be announced Line 66 project to the Flanagan Terminal, which will likely be an 800,000 bpd pipeline.

From the Flanagan Terminal, Enbridge can at present, or plans via expansions, to ship crude oil to:

1) the Chicago area and markets downstream from Chicago on Line 6b or the Mustang Pipeline;

[16] Shipper Protest, Exhibit D, Sworn Declaration of Robert P. Garner in Support of Enwest Marketing Llc's Protest and Opposition to North Dakota Pipeline Company LLC's Petition for Declaratory Order and Enwest's Motion to Intervene at 13.

2) the Patoka Terminal, which has connections to Ohio refineries, Wood River, and possibly the U.S. Gulf Coast (if Marathon reverses its Capline Pipeline); and

3) the Cushing Terminal, which has connections to a number of refineries in southern states, as well as to U.S. Gulf Coast refineries via the Seaway Pipeline.

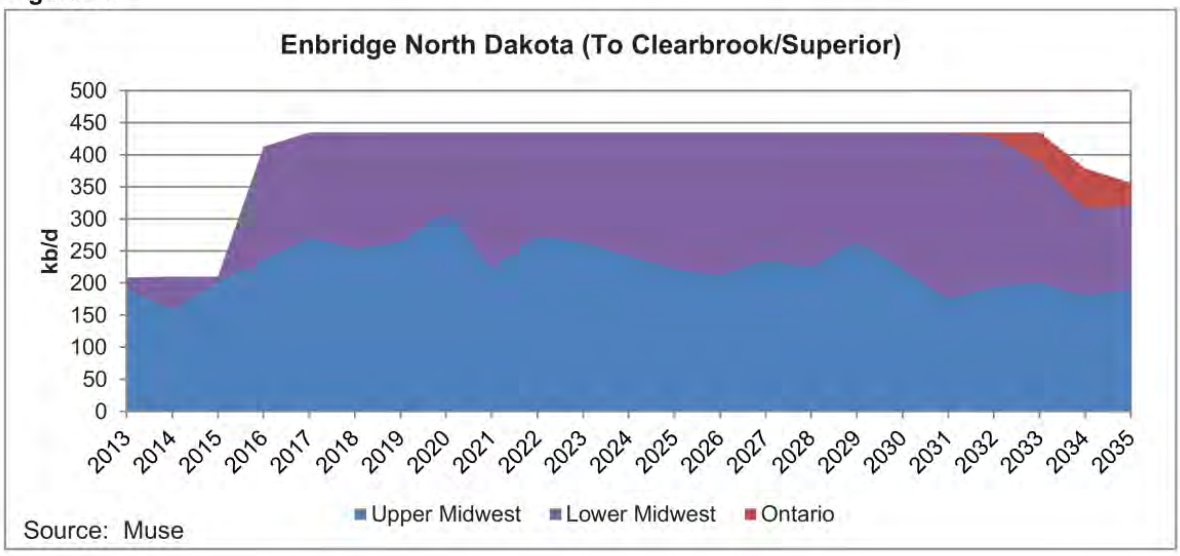
Each of the foregoing shipping options is discussed below.

Although crude oil can or will be able to flow from the Flanagan Terminal to the Chicago area via Enbridge's planned Line 78, as previously discussed, the likelihood of increased shipments of U.S. Bakken Formation crude oil to these markets is limited or even non-existent. There are no pipelines from Chicago to the U.S. East Coast refineries, increased demand by eastern Canadian refineries for U.S. Bakken crude oil appears "fanciful," and the refineries in the upper and eastern Midwest are primarily configured to refine heavy crude oil, which is provided by competing Canadian crude oil suppliers, and these refineries have not announced any significant expansions of light sweet crude oil refining capacity.

In contrast, Enbridge's planned pipeline expansions from the Flanagan Terminal south on the Southern Access Extension or Flanagan South Pipeline suggest that Enbridge's primary target market for the Project is the lower Midwest or U.S. Gulf Coast. From the Flanagan Terminal, Enbridge plans to ship oil via the Southern Access Extension to the Patoka Terminal and from there to Ohio refineries on Marathon's MAP Pipeline, and possibly to the U.S. Gulf Coast should Marathon reverse its Capline Pipeline to Louisiana. It also plans to ship crude oil on the Flanagan South Pipeline to Cushing, Oklahoma, which has connections to a number of southern refineries and the U.S. Gulf Coast. Thus, the primary new crude oil pathways planned or being built by Enbridge all pass through the Flanagan Terminal, which is intended to serve refineries in Ohio, a number of southern states, and the U.S. Gulf Coast.

This conclusion is also supported by the recently filed Direct Testimony of Neil Earnest, which provides the following chart on page 48 of the attached Schedule 2 Report.

Figure 18



While FOH does not agree that the historical or forecast data on which this chart is based are accurate, it does show that almost all of the new markets that Enbridge hopes will use the Project are in the "Lower Midwest." It shows that currently Enbridge is shipping between 150,000 to 200,000 bpd of U.S. Bakken Formation crude oil to the "Upper Midwest" and almost none of this oil to the "Lower Midwest." This forecast predicts that shipments to the "Upper Midwest" will increase to an average of approximately 250,000 bpd and then decline. In contrast, it predicts that shipments of U.S. Bakken Formation crude oil to the "Lower Midwest" will increase from current levels of 25,000 bpd or less to about 225,000 bpd. Thus, this chart reinforces FOH's contention that the primary purpose for the Project anticipated by NDPC and Enbridge is to ship more Bakken Formation crude oil to the Flanagan Terminal for shipment south.

This chart also confirms the contention in the SPPRC and Shipper Protests that shipments to eastern Canadian refineries are unlikely, because it shows no forecasted shipments to Ontario refineries until about 2032, which is far enough in the future to make such shipments entirely speculative.

To the extent that Enbridge hopes to ship crude oil to Ohio refineries, its best route is not through the Lockport Terminal and Chicago, but via the Flanagan Terminal and the planned Southern Access Extension to Patoka and then on Marathon's MAP Pipeline System to the Ohio Refineries.

Thus, the underlying need hoped for by NDPC and Enbridge is not primarily to deliver more oil through Lines, 5, 6a, 14, and 64 to the Sarnia, Lockwood and Chicago area Terminals, but rather on Lines 61 and 66 to the Flanagan Terminal for delivery through the Patoka and Cushing Terminals to markets to the south.

Given this underlying alleged need to move oil to the Flanagan Terminal, it is reasonable for the Commission to investigate "system alternative" options that serve the Flanagan Terminal, because such alternatives could meet most if not all of Enbridge's underlying alleged need.

B. The Commission Must Select One or More Routes that Connect to the Flanagan Terminal and Avoids Minnesota's Pristine Aquatic Resources, Because Such Route Would Meet Most if Not All of Enbridge's Alleged Underlying Need and Likely Reduce Environmental Impacts

In response to the Commission's January 31, 2014, Notice of Application Acceptance and Public Information Meetings, FOH volunteers proposed a number of alternative routes, including the routes enumerated by the Department of Commerce Report dated July 17, 2014, ("DOC Report") as SA-04, SA-05, SA-06, SA-07, and SA-08. In addition, Honor the Earth proposed a route that followed Interstate 29 to Interstate 94 through Minnesota, and the

Minnesota Pollution Control Agency ("PCA") proposed route SA-03 and voiced support for consideration of other routes through central Minnesota.

The general policy intent of these routes was to avoid going through Minnesota's most pristine aquatic and wild rice while still providing crude oil transportation service to northern Illinois. It is true that these routes are not technically specific and were based on uncertainty about Enbridge's alleged commercial need for its Project, but the Commission should not expect citizens to provide alternative routes with the same level of precision as that possessed by NDPC and Enbridge. Instead, FOH suggests that the Commission understand that its purpose should be to focus on the underlying policy goals of citizen commenters and then direct the Department of Commerce to develop more precise alternative routes that meet these goals.

Moreover, the Commission should consider these routes in light of the June 25, 2014, approval by the North Dakota Public Service Commission of a route through North Dakota, because this approval did not exist during Minnesota's routing comment period. Should this approval have been made before or during Minnesota's comment routing comment period, citizens would have adapted their routes to it. The Commission has the discretion to recognize this recent development and modify previously proposed routes accordingly.

1. FOH Combined Routes

After reviewing all of its own proposed routes, as well as the routes proposed by Honor the Earth and the PCA, in light of the North Dakota approval, the DOC Route Report, and the more detailed need analysis presented in these comments, FOH proposes that the Commission adapt different elements of the various proposals into an alternative route or routes that likely meet the policy goals of the citizen commenters, as well as many Minnesotans, while still

meeting most if not all of Enbridge's alleged need. Specifically, FOH proposes the following combined route alternatives:

a) **Combined SA-03, SA-07, and SA-04 Route**: Due to the completion of the North Dakota Public Service Commission routing process, FOH proposes to start SA-04 at the terminus of the North Dakota route and then follow SA-03 south along the Viking Pipeline to the point where the Viking Pipeline turns east. At his point, this proposed alternative route would continue south to the Magellan Pipeline and follow it to the SA-04 route (Alliance Pipeline), from where it would follow the Alliance Pipeline to northern Illinois and ultimately the Flanagan Terminal. The policy purpose of this route is to combine the SA-03, SA-07, and SA-04 routes so as to recognize the North Dakota approval and follow existing pipeline corridors to the maximum extent possible while avoiding northern Minnesota's aquatic resources and providing crude oil transportation service to northern Illinois.

b) Combined SA-03 and SA-08 Route Extended Through Wisconsin:

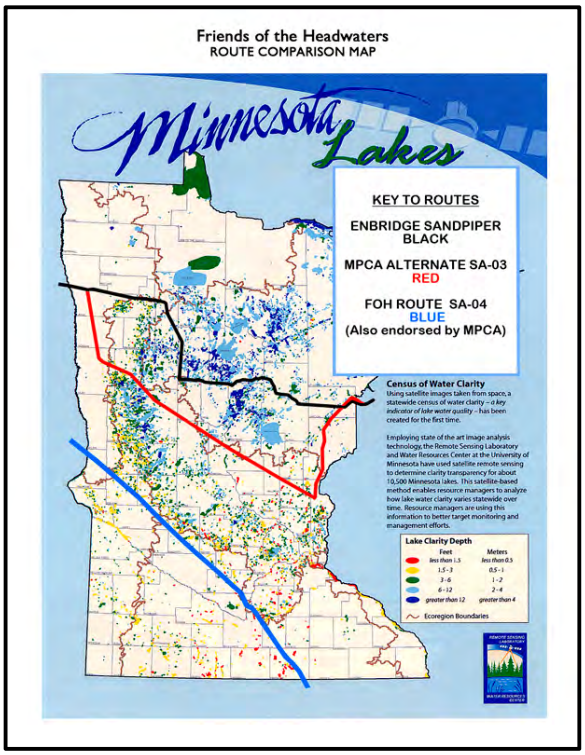
This proposed route is intended to acknowledge the decision of the North Dakota Public Service Commission by entering Minnesota at the terminus of the approved route in North Dakota, then following SA-03 south along the Viking Pipeline to the point that it turns east, and continuing south from there to the SA-07/SA-08 routes, at which point the route would follow the Magellan Pipeline to into central Wisconsin, to a connection with Line 61. The policy purpose of this route is to combine the SA-03, SA-07, and SA-08 routes so as to follow existing pipeline corridors to the maximum extent possible while avoiding northern Minnesota's aquatic resources and providing crude oil transportation service to northern Illinois.

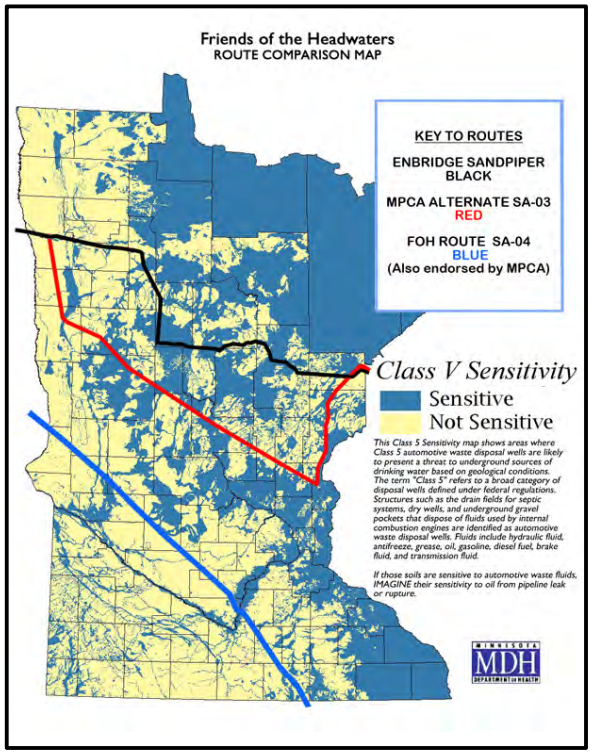
c) Combined SA-03, SA-07, and Wood River Pipeline Route:

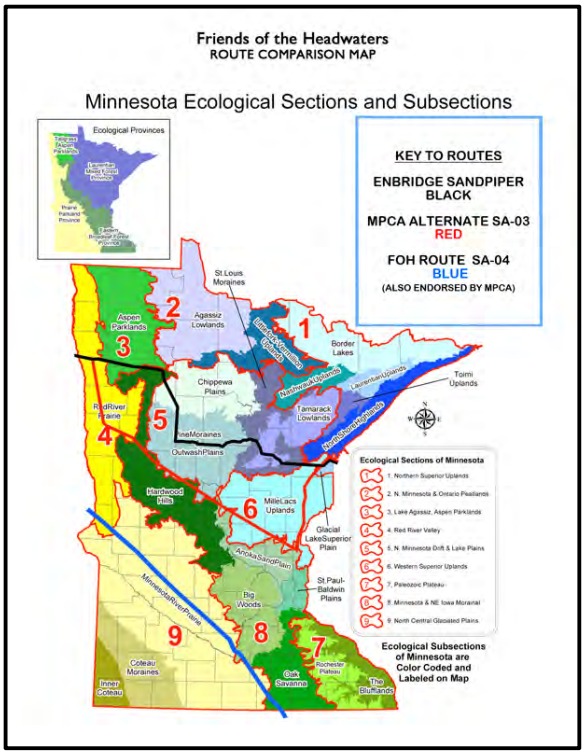
This proposed route is intended to acknowledge the decision of the North Dakota Public Service Commission by entering Minnesota at the terminus of the approved route in North Dakota, then following SA-03 south along the Viking Pipeline to the point that it turns east. At this point, this proposed alternative route would continue south to the Magellan Pipeline and follow it to the terminus of the Wood River Pipeline, from where Enbridge would purchase and use the Wood River Pipeline to transport crude oil to its Flanagan South Pipeline and/or Wood River. The policy purpose of this route is to combine the SA-03, SA-07, and currently mothballed Wood River Pipeline so as to follow existing pipeline corridors to the maximum extent possible and fully utilize existing pipeline infrastructure within the state while avoiding northern Minnesota's aquatic resources and providing crude oil transportation service to central Illinois. Although the Wood River Pipeline has been discussed by a number of commenters, FOH believes the Commission would be remiss if it did not at least investigate why an existing unused pipeline through Minnesota that could serve much of the need alleged by Enbridge is not being used by the industry.

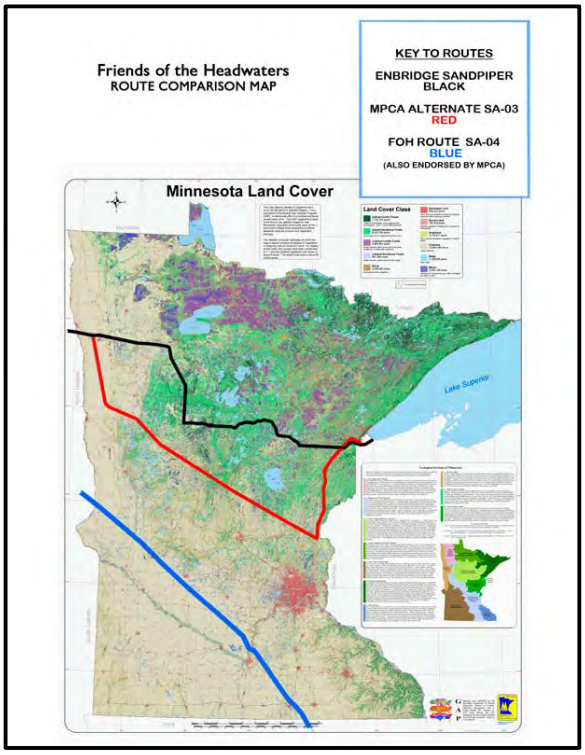
2. The Environmental Advantages of FOH's Proposed Combined Routes Relative to the NDPC Preferred Route

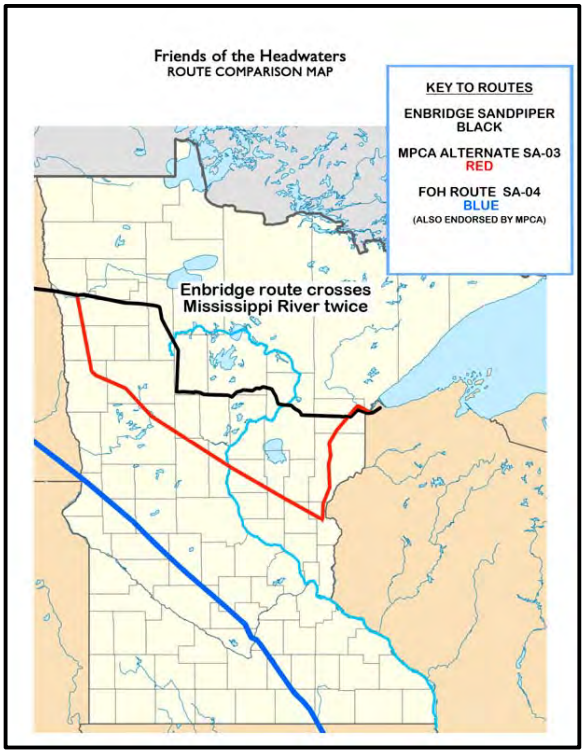
As previously described in FOH written and oral comments, the NDPC proposed route cuts through the heart of Minnesota's pristine lake county, Mississippi River headwaters, and the wild rice that grows abundantly in this region. In addition, it impacts sensitive soil types and ground water resources. In contrast, the routes proposed by citizens and the PCA seek to avoid these impacts while continuing to serve Enbridge's alleged commercial need for the Project. The following maps show with great clarity that NDPC's proposed route puts critical environmental resource at risk.

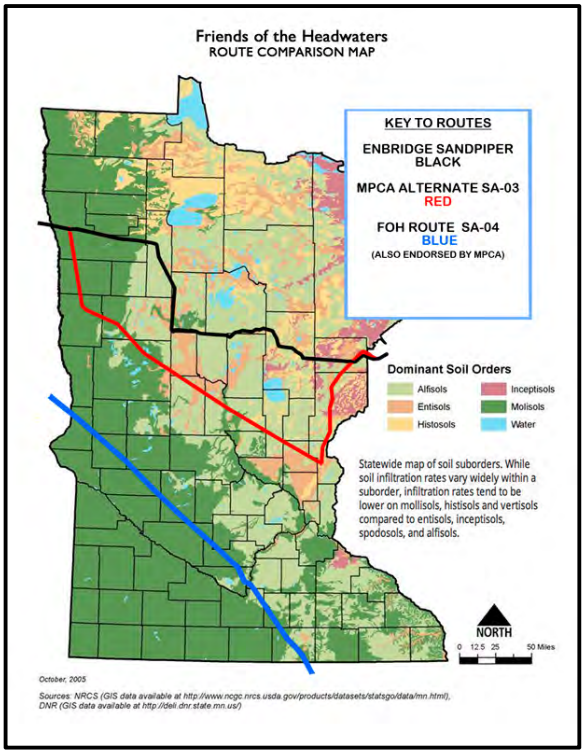

Friends of the Headwaters
ROUTE COMPARISON MAP
Minnesota Lakes
KEY TO ROUTES
ENBRIDGE SANDPIPER
BLACK
MPCA ALTERNATE SA-03
RED
FOH ROUTE SA-04
BLUE
(Also endorsed by MPCA)
Census of Water Clarity
Using satellite images taken from space, a statewide census of water clarity – a key indicator of lake water quality – has been created for the first time.
Employing state of the art image analysis technology, the Remote Sensing Laboratory and Water Resources Center at the University of Minnesota have used satellite remote sensing to determine clarity transparency for about 10,500 Minnesota lakes. This satellite-based method enables resource managers to analyze how lake water clarity varies statewide over time. Resource managers are using this information to better target monitoring and management efforts.
Lake Clarity Depth
Feet
Meters
less than 1.5
less than 0.5
1.5 - 3
0.5 - 1
3 - 6
1 - 2
6 - 12
2 - 4
greater than 12
greater than 4
Ecoregion Boundaries


Friends of the Headwaters
ROUTE COMPARISON MAP
KEY TO ROUTES
ENBRIDGE SANDPIPER
BLACK
MPCA ALTERNATE SA-03
RED
FOH ROUTE SA-04
BLUE
(Also endorsed by MPCA)
Class V Sensitivity
Sensitive
Not Sensitive
This Class 5 Sensitivity map shows areas where Class 5 automotive waste disposal wells are likely to present a threat to underground sources of drinking water based on geological conditions. The term "Class 5" refers to a broad category of disposal wells defined under federal regulations. Structures such as the drain fields for septic systems, dry wells, and underground gravel pockets that dispose of fluids used by internal combustion engines are identified as automotive waste disposal wells. Fluids include hydraulic fluid, antifreeze, grease, oil, gasoline, diesel fuel, brake fluid, and transmission fluid.
If those soils are sensitive to automotive waste fluids, IMAGINE their sensitivity to oil from pipeline leak or rupture.
MINNESOTA
MDH
DEPARTMENT OF HEALTH


Friends of the Headwaters
ROUTE COMPARISON MAP
Minnesota Ecological Sections and Subsections
KEY TO ROUTES
ENBRIDGE SANDPIPER
BLACK
MPCA ALTERNATE SA-03
RED
FOH ROUTE SA-04
BLUE
(ALSO ENDORSED BY MPCA)
Ecological Provinces
Ecological Sections of Minnesota
1. Northern Superior Uplands
2. N. Minnesota & Ontario Peatlands
3. Lake Agassiz, Aspen Parklands
4. Red River Valley
5. N. Minnesota Drift & Lake Plains
6. Western Superior Uplands
7. Paleozoic Plateau
8. Minnesota & NE Iowa Morainal
9. North Central Glaciated Plains
Ecological Subsections of Minnesota are Color Coded and Labeled on Map


Friends of the Headwaters
ROUTE COMPARISON MAP
KEY TO ROUTES
ENBRIDGE SANDPIPER
BLACK
MPCA ALTERNATE SA-03
RED
FOH ROUTE SA-04
BLUE
(ALSO ENDORSED BY MPCA)
Minnesota Land Cover
Land Cover Class
Lake Superior


Friends of the Headwaters
ROUTE COMPARISON MAP
KEY TO ROUTES
ENBRIDGE SANDPIPER
BLACK
MPCA ALTERNATE SA-03
RED
FOH ROUTE SA-04
BLUE
(ALSO ENDORSED BY MPCA)
Enbridge route crosses
Mississippi River twice


Friends of the Headwaters
ROUTE COMPARISON MAP
KEY TO ROUTES
ENBRIDGE SANDPIPER
BLACK
MPCA ALTERNATE SA-03
RED
FOH ROUTE SA-04
BLUE
(ALSO ENDORSED BY MPCA)
Dominant Soil Orders
Alfisols
Inceptisols
Entisols
Mollsols
Histosols
Water
Statewide map of soil suborders. While soil infiltration rates vary widely within a suborder, infiltration rates tend to be lower on mollisols, histisols and vertisols compared to entisols, inceptisols, spodosols, and alfisols.
NORTH
0 12.5 25 50 Miles
October, 2005
Sources: NRCS (GIS data available at http://www.ncgc.nrcs.usda.gov/products/datasets/statsgo/data/mn.html),
DNR (GIS data available at http://deli.dnr.state.mn.us/)

While it is true that all routes have an impact, it is also true that some routes have fewer environmental impacts than others. The foregoing maps make clear that the NDPC preferred route has far more significant impacts to treasured resources then the alternatives proposed herein. According, if one or more proposed routes appear to be feasible to the extent that they could reasonably be expected to substantially meet the need alleged by the NDPC, then MEPA requires that the Commission include them for consideration within the Comparative Environmental Analysis ("CEA").

3. The Economic Merits of the Various Routes to the Flanagan Terminal Are Uncertain and Require Consideration of the Cost of the Line 61 and 66 Projects in Comparison to SA-04

It seems likely that NDPC will continue to present economic evidence related to the alternative routes in an effort to convince the Commission that they are not feasible. FOH understands that MEPA requires consideration of alternatives without requiring detailed economic analysis ahead of time. Instead, the CON docket is intended to address economic analysis, such that the Commission should not base its routing decision for the CEA on economic data provided by Enbridge. Moreover, consideration of such data would be entirely unfair to citizens who do not have access to Enbridge's level of financial, personnel, and data resources.

II. What Is the Legal Basis for Determining Whether a System Alternative Should Be Considered in the Certificate of Need Proceeding?

The CON process is required by Minn. Stat. § 216B.243. This law does not expressly describe the range of alternatives that must be considered by the Commission. Due to the legislature's confusing decision to apply what was historically a law written for electric power line siting to underground pipelines, much of the language in this section relates poorly to the decision at hand. The only language in it that relates to the Commission's obligation to consider alternatives is in Subd. 3(6), which states in relevant part:

> No proposed large energy facility shall be certified for construction . . . unless the applicant has otherwise justified its need. In assessing need, the commission shall evaluate:
> (6) possible alternatives for satisfying the energy demand or transmission needs including but not limited to potential for increased efficiency and upgrading of existing energy generation and transmission facilities . . . .

In an effort to interpret this law, the Commission promulgated Minn. R. Ch. 7853. It also does not provide significant guidance with regard to the scope of alternatives that the Commission must consider. Part 7853.0120 requires that the Commission "consider only those alternatives proposed before the close of the public hearing and for which there exists substantial evidence on the record with respect to each of the criteria listed in part 7853.0130." Thus, this Part limits the Commission's consideration to (1) alternatives proposed before the end of the hearing, (2) for which substantial evidence exists with regard to the criteria listed in Part 7853.0130.

Part 7853.0130 states in relevant part:

> A certificate of need shall be granted to the applicant if it is determined that:
>
> * * *
>
> B. a more reasonable and prudent alternative to the proposed facility has not been demonstrated by a preponderance of the evidence on the record by parties or persons other than the applicant, considering:
> (1) the appropriateness of the size, the type, and the timing of the proposed facility compared to those of reasonable alternatives;
> (2) the cost of the proposed facility and the cost of energy to be supplied by the proposed facility compared to the costs of reasonable alternatives and the cost of energy that would be supplied by reasonable alternatives;
> (3) the effect of the proposed facility upon the natural and socioeconomic environments compared to the effects of reasonable alternatives; and
> (4) the expected reliability of the proposed facility compared to the expected reliability of reasonable alternatives;

However, when read in light of Part 7853.0120, it is clear that this language does not apply to a pre-determination of the alternatives that must be considered in the CEA, because parties that propose alternatives have until the "close of the public hearing" to meet this burden.

Minn. Stat. § 216B.243 and Minn. R. Ch. 7853 are not the only laws that govern the CON process. As more fully discussed in the FOH August 5 Comments, the Commission must prepare an environmental review for the CON decision, as well as the routing decision. Under MEPA, an EIS or alternative form of review must be prepared for "major governmental actions" "where there is potential for significant environmental effects" resulting from the action. Minn. Stat. § 116D.04, Subd. 2a. In this regard, Minn. Stat. § 116D.04, Subd. 1a(d), defines "governmental action" as activities, including projects wholly or partially conducted, permitted, assisted, financed, regulated, or approved by units of government . . . ." A key policy component of the MEPA process is "[a]n early and open process" "to determine . . . the alternatives which are appropriate for consideration in the statement." Minn. Stat. § 116D.04, Subd. 2a(f).

Here, granting a CON is a "major governmental action" within the meaning of MEPA, such that a decision under it requires an environmental review of the environmental impacts related to the Commission CON decision. The plain language of Minn. R. Ch. 7853 demonstrates that the Commission must consider environmental impacts within the CON docket. *See, e.g.*, Minn. R. 7853.0130(B)(3); 7853.0130(C)(2),(4); and 7853.0600 to 0800. Therefore, it cannot be argued that the Commission's decision in the CON docket has no environmental impacts. The Commission may choose to conduct a separate Environmental Impact Statement ("EIS") for the CON docket, or it may choose to include consideration of CON issues in its CEA, but it cannot ignore MEPA as it applies to the CON docket.

Thus, the answer to the Commission's question about "the legal basis for determining whether a system alternative should be considered" at this phase of the proceeding depends not on Minn. Stat. § 216B.243 or Minn. R. Ch. 7853, but on MEPA.

Moreover, to avoid irreparable conflicts between these laws, the Commission must simply ensure that its scoping process for the CEA considers not only route permit alternatives, but also non-route alternatives. Unfortunately, the Commission has not fully addressed its responsibilities in this regard and has chosen to elicit comments on only route alternatives. To rectify this situation, the Commission must open its docket to allow scoping related to the CON docket. After it identifies both route and non-route alternatives, the DOC-EERA will be able to complete a CEA or EIS that fully complies with MEPA.

Therefore, at this phase of this proceeding, the law that applies to the Commission's decision about the range of alternatives to consider is governed by MEPA. After the close of the public hearing, the Commission has discretion to disregard those alternatives that are not supported by substantial evidence. But, the Commission may not apply this "substantial evidence" test now, because the public hearing process has just begun.

III. What is the legal basis for determining whether a system alternative should be considered in the route permit proceeding?

The routing permit law, Minn. Stat. § 216G, does not specify the alternatives that must be considered by the Commission. Likewise, Minn. R. Ch. 7852 does not specify the alternatives that the Commission must consider. Instead, it states:

> A comparative environmental analysis of all of the pipeline routes accepted for consideration at public hearings shall be prepared by the commission staff or by the applicant and reviewed by the commission staff. This comparative environmental analysis must be submitted as prefiled testimony as required by part 1405.1900.

By reference the "comparative environmental analysis," the regulation makes clear that it defers to the policy standards for alternative review under MEPA Section. § 116D.04, Subd. 4a, including the policy standards for selection of alternatives. These policy standards are described more fully in the FOH August 5 Comments at 23-27.

Thus, the legal basis for determining whether a system alternative should be considered in the Commission's routing permit proceeding is the standard for alternative review provided by MEPA.

IV. CONCLUSION

For the foregoing reasons, FOH respectfully requests that the Commission issue an order:

1) requiring consideration of a route or routes that do not pass through northern Minnesota yet still serve the underlying need alleged by Enbridge;
2) directing the DOC-EERA to include consideration in the CEA those reasonable alternatives proposed by parties in the CON docket; and
3) directing the DOC-DER to consider all routes evaluated by the CEA to be alternatives in the CON docket.

Date: August 21, 2014

Respectfully submitted,

/s Paul C. Blackburn
Attorney for Friends of the Headwaters
P.O. Box 17234
Minneapolis, MN 55417
Phone: 612-599-5568
Bar No. 0391685

August 20, 2014

Mr. Burl Haar,
Executive Secretary,
Minnesota Public Utilities Commission
121 7th Place East, Suite 350
St. Paul, MN 55101-2147

Re: PUC Docket Numbers PL-6668/CN-13-373 and PL-6668/PPL-13-474
North Dakota Pipeline Company LLC Sandpiper pipeline

Dear Mr. Haar and the Honorable Public Utility Commissioners of Minnesota,

Please find attached testimony from Friends of the Headwaters (FOH) regarding routing alternatives for the proposed Enbridge/North Dakota Pipeline Company (NDPC) Sandpiper pipeline project.

Your attention and consideration of the enclosed contents is most appreciated. FOH and its members want to thank you for this additional opportunity to comment on the issue.

Sincerely,

Richard Smith
President
Friends of the Headwaters

P.O. Box 583, Park Rapids, MN 56470
mnfriendsoftheheadwaters@gmail.com
facebook.com/savemississippiheadwaters
www.friendsoftheheadwaters.org

POSITION PAPER

ENBRIDGE/NORTH DAKOTA PIPELINE COMPANY (NDPC) LLC
SANDPIPER PIPELINE PROJECT

Public Utilities Commission (PUC) Docket Number: PL-6668/PPL-13-473
Public Utilities Commission (PUC) Docket Number: PL-6668/PPL-13-474

August 20,2014

Prepared by
Richard Smith
Friends of the Headwaters (FOH)
P.O. Box 583
Park Rapids, MN 56470

Friends of the Headwaters opposes the Enbridge/NDPC Sandpiper pipeline as currently projected to cross Minnesota's lake country from Grand Forks, ND to Superior, WI. We believe this proposed corridor will NOT protect the high quality waters only this route. Enbridge/NDPC could not have picked a worse route across Minnesota's critical and valuable water resources.

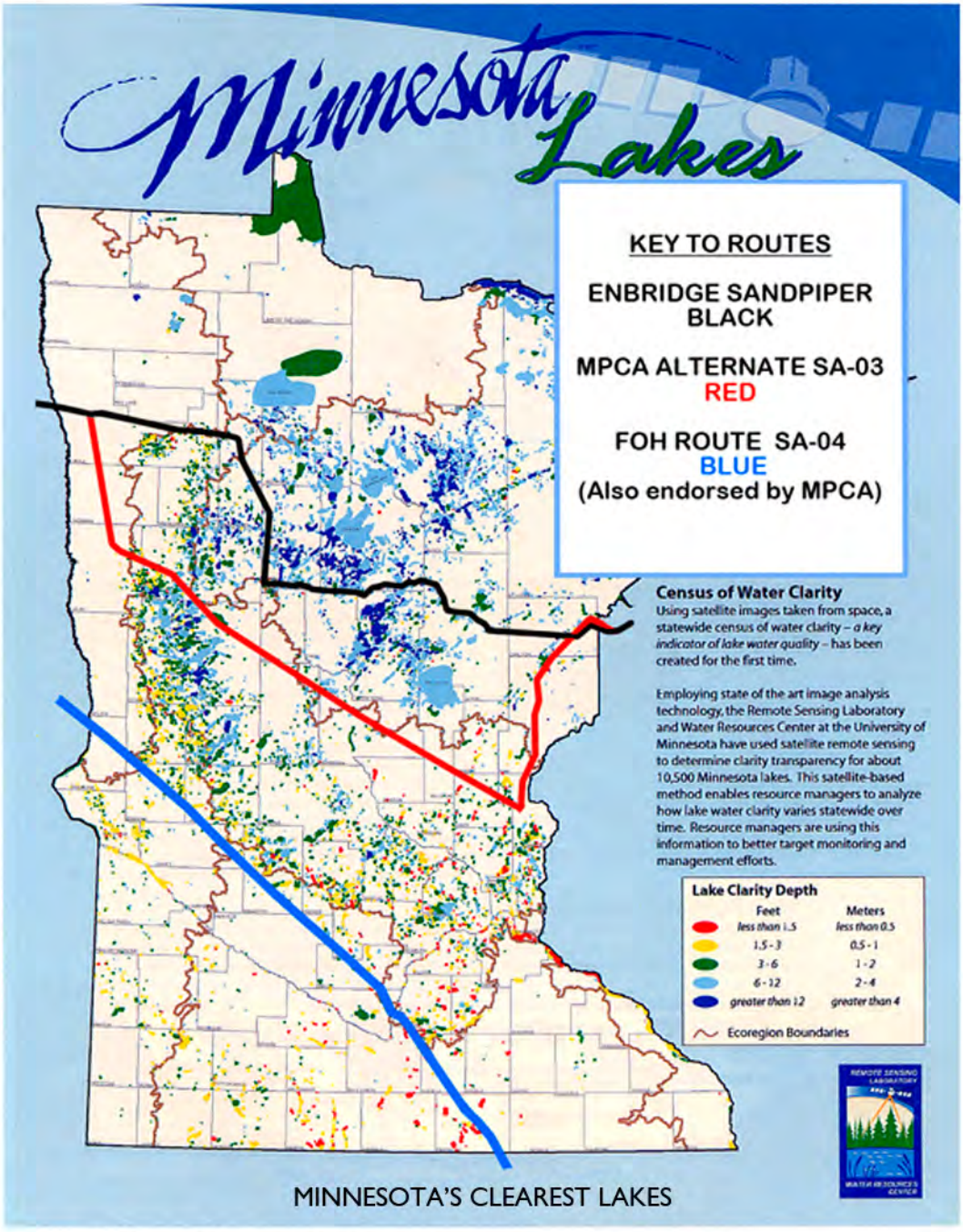
Therefore given the magnitude and scope of this project and the company's request to construct a large stretch of a totally new pipeline corridor with the already announced prospects of building an additional pipeline, the larger Line 3 Rebuild, in this new corridor, FOH is asking the Commissioners to give very serious consideration to the overall environmental and economic consequences of NDPC's proposed route through Minnesota's cherished water resources.

FOH believes there is a better way to accommodate the industry's demand for this new pipeline without exposing Minnesota's most sensitive waters to the potential risks inherent with pipeline facilities. Our suggested alternative route or routes would still provide construction jobs and dollars and retain the pipeline tax benefits for the state. These alternative routes would remove the risks to our lakes, rivers, wetlands, wild rice lakes and drinking water sources. These are issues that concern all Minnesotans who spend a great deal of money to be in, on and around water. This is also an issue about drinking water not only for Minnesota's northern communities and residents, but also the millions who reside in the Greater Minneapolis/St.Paul Metro area. For many that drinking water source is the Mississippi River.

Although FOH does not have remotely near the financial resources of Enbridge, through thoughtful, diligent research and many, many volunteer hours, FOH has produced viable testimony substantiating its proposed routes of which we are presenting below. Some of these maps were presented to you during my testimony at your August 7 hearing. (As an aside, thank you for your endurance and patience on what was a very long day for you all. The opportunity was most appreciated by many who spoke.) The maps have been altered to feature the two routes, NDPC's and SA-03, which you approved for inclusion in the CEA plus FOH's preferred route, SA-04.

Please note: these initial maps are to illustrate and compare the three routes to particular environmental features.

Friends of the Headwaters
ROUTE COMPARISON MAP



Clear lakes are the key to Minnesota's tourism business.

Fishing alone generates $342 million annually in tax revenue for the state. $4.3 billion in annual retail sales is earned from fishing, hunting and wildlife watching.*
*National Sportfishing Association

For Hubbard County tourism was $99M annually with 60% in June - Aug.
For Crow Wing County it was $150M with 49% in June - Aug.

A tourist dollar is spent by a person with a residence beyond 50 miles of the county.

Note that this study was completed during a recessionary economic period 2007-08. This is the latest study with local and county data.

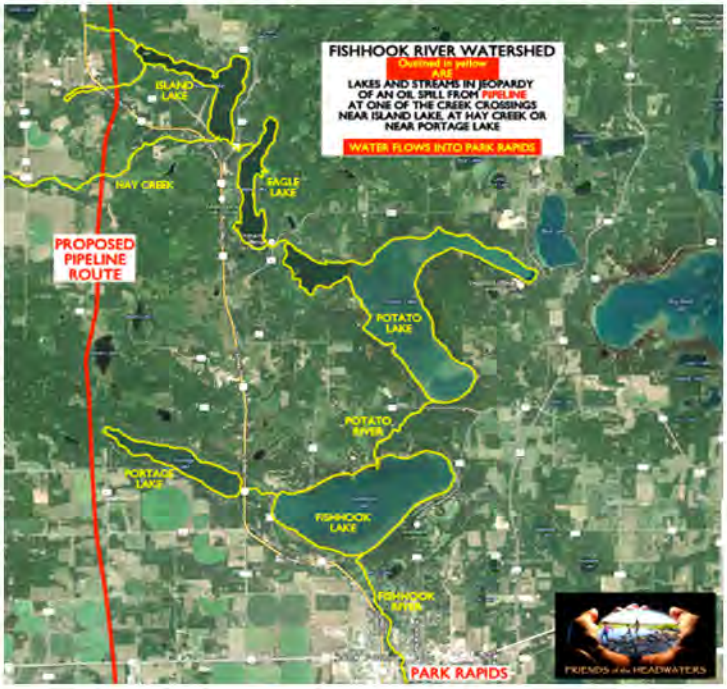
http://www.exploreminnesota.com/industry-minnesota/research-reports/researchdetails/download.aspx?id=811

Clear lakes mean high lake shore property values which is a key factor in available property taxes to their respective counties.

The Fishhook Watershed in Hubbard County is worth $2 billion alone.

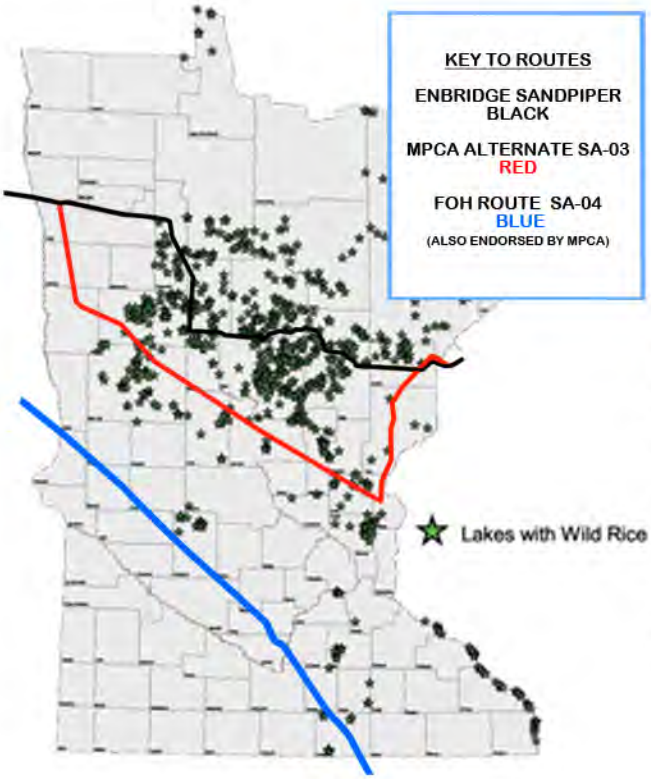
NDPC's proposed route crosses the largest tributary, Hay Creek, to the Fishhook Chain of Lakes, 4700 water acres.

If a large rupture on the order of the Enbridge 1991 Grand Rapids, MN spill (1.7 million gallons) occurs at Hay Creek near the top of that watershed, it would dramatically impact the property values on those lakes resulting in a significant loss of tax revenue to the county, state, Park Rapids and its school district. It will be years before the county recovers from the damage. Not only will it incur the loss of tax revenues, but also the loss of residents, small businesses, tourists, and property values.



Multiple those property values for the other lake chains along the proposed Sandpiper route. Whitefish, Pine River, Fifty Lakes, Big Sandy, Lake Superior, and others.

Friends of the Headwaters
ROUTE COMPARISON MAP

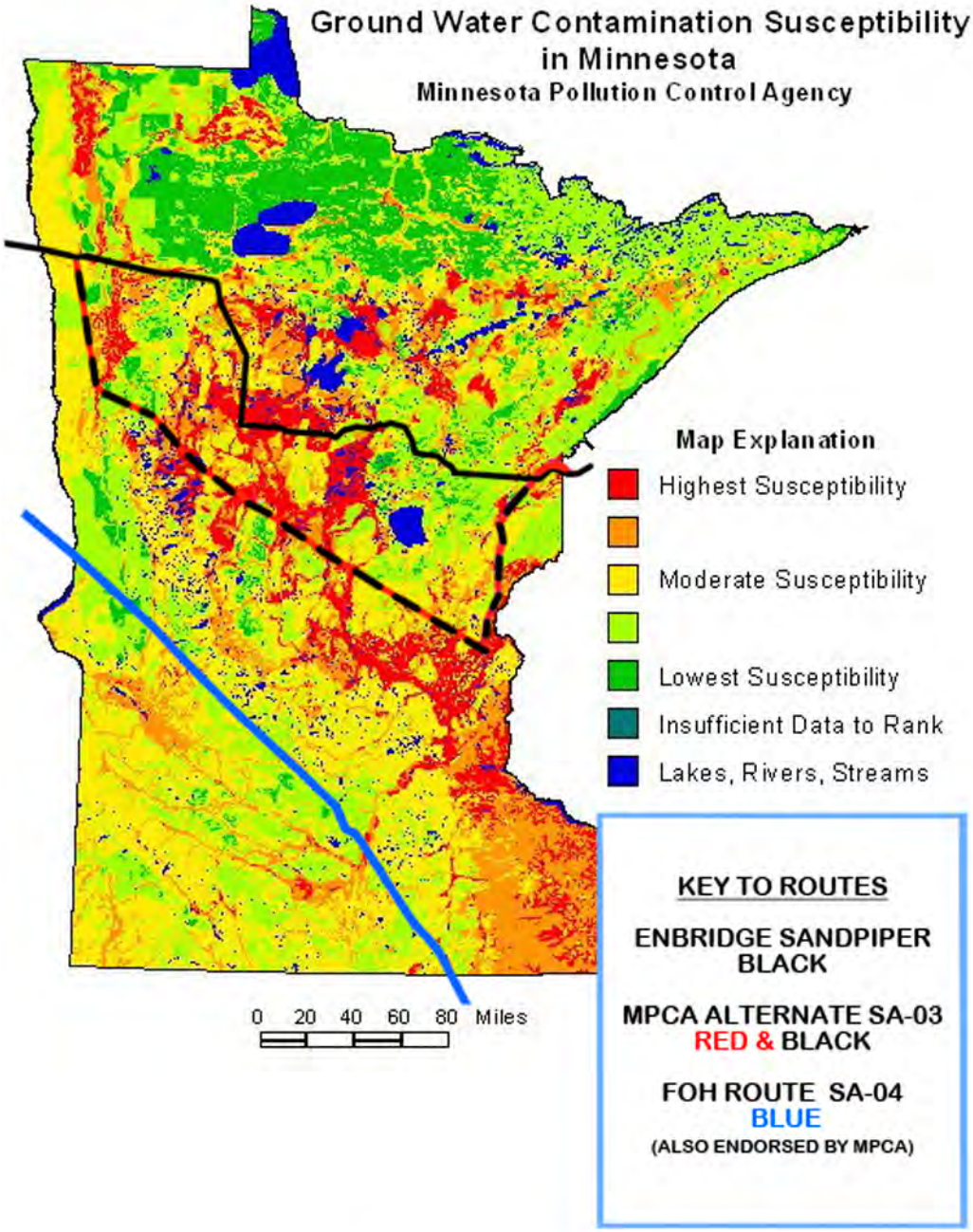


Could Enbridge have picked a worse route for jeopardizing the state's prime wild rice lakes and wetlands?

Wild rice is Minnesota's native grain and a part of our heritage and history. For the Ojibwe Nation it is their culture and identity. To them wild rice is priceless.

Research done during the Polymet Mine hearings showed wild rice to be extremely sensitive to sulfides and sulfates, which are found in most crude oils to varying degrees. Will a proper risk analysis be executed to determine the financial and social damage to the Ojibwe and all MInnesotans from a spill in these wild rice waters? Will that risk assessment also include the potential damage to Minnesota's waterfowl populations which depend on wild rice.

Friends of the Headwaters
ROUTE COMPARISON MAP



Nothing is more critical than our drinking water sources.

Those bright red areas on the above map, besides being extremely susceptible to contamination, also just happen to be critical aquifers. Besides providing drinking water these aquifers also irrigate thousands of acres of farmland for Minnesota's farmers and the state's agri-business economy.

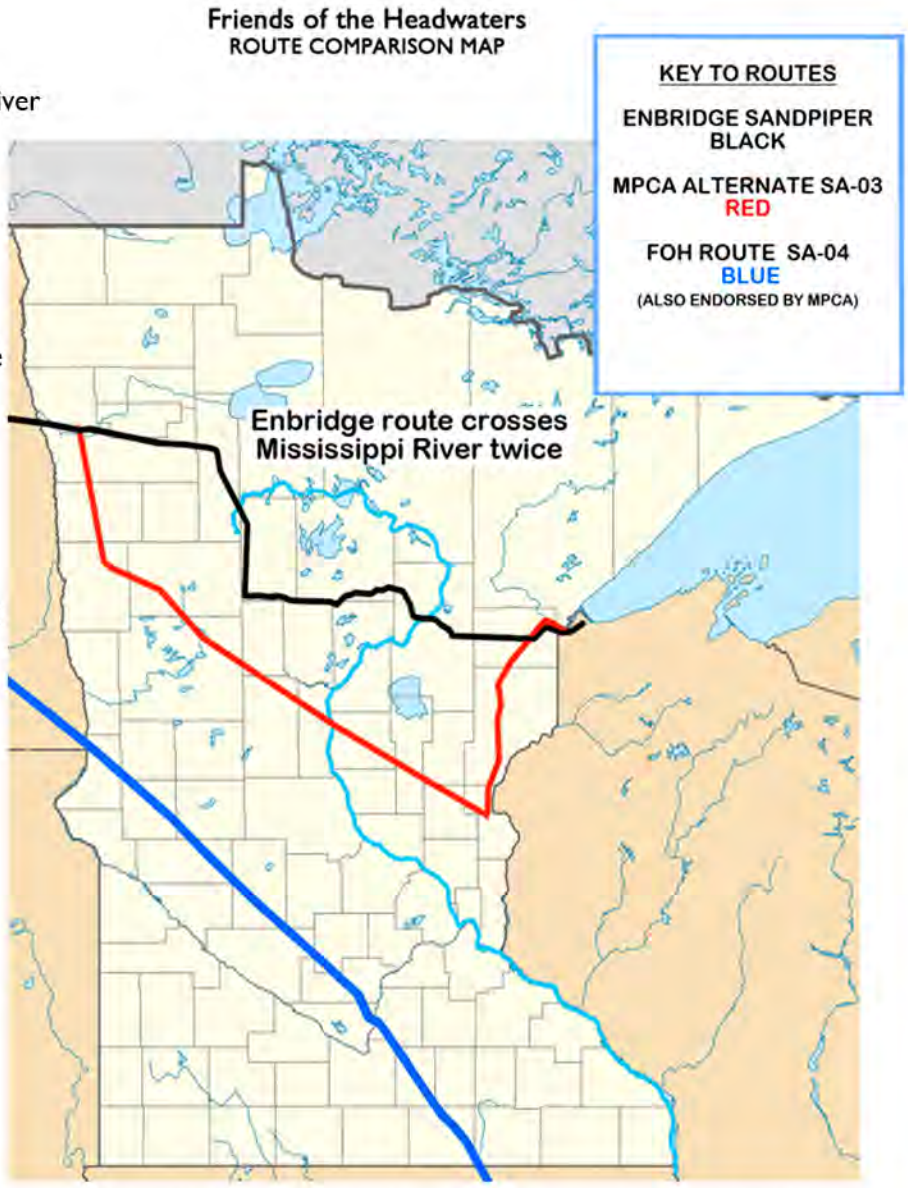
RDO/Lamb Weston Company in Park Rapids earns $500 million in annual revenue from potatoes. The Straight River aquifer not only grows great potatoes for MacDonald's french fries; it supports the county's largest employer; it supplies all the drinking water for the county seat, Park Rapids and provides clear, cold water for a nationally renowned brown trout stream. All that at that right turn elbow in the Enbridge/NDPC route.

Will the CEA evaluate the full environmental and economic consequences of a spill scenario in the Straight River aquifer? Will it include benzene, naphathalene, toluene in the analysis?

NDPC's proposed route will cross the Mississippi River twice. A spill on the river will expose downriver communities dependent on the river as a drinking water source to a toxic mix of carcinogenic chemicals.

Stan Sattinger, a registered mechanical engineer, provided this information on the risk to drinking water posed by the Alberta Clipper Line 67. Since the larger Line 3 Rebuild is planned to run parallel to the proposed Sandpiper corridor, the info herein on Line 67 should also apply here.

"A study by Professor John Stansbury of the Department of Civil Engineering of the University of Nebraska addressed worst-case spills from the proposed Keystone XL pipeline's crossings of the Missouri and Yellowstone Rivers. He predicted that benzene concentrations at either event would rise to 19 times the Safe Drinking Water Act Maximum Contaminant Level (MCL) for benzene at the spill location, and that concentrations in the plume would remain above the MCL for a distance of 450 miles downstream.



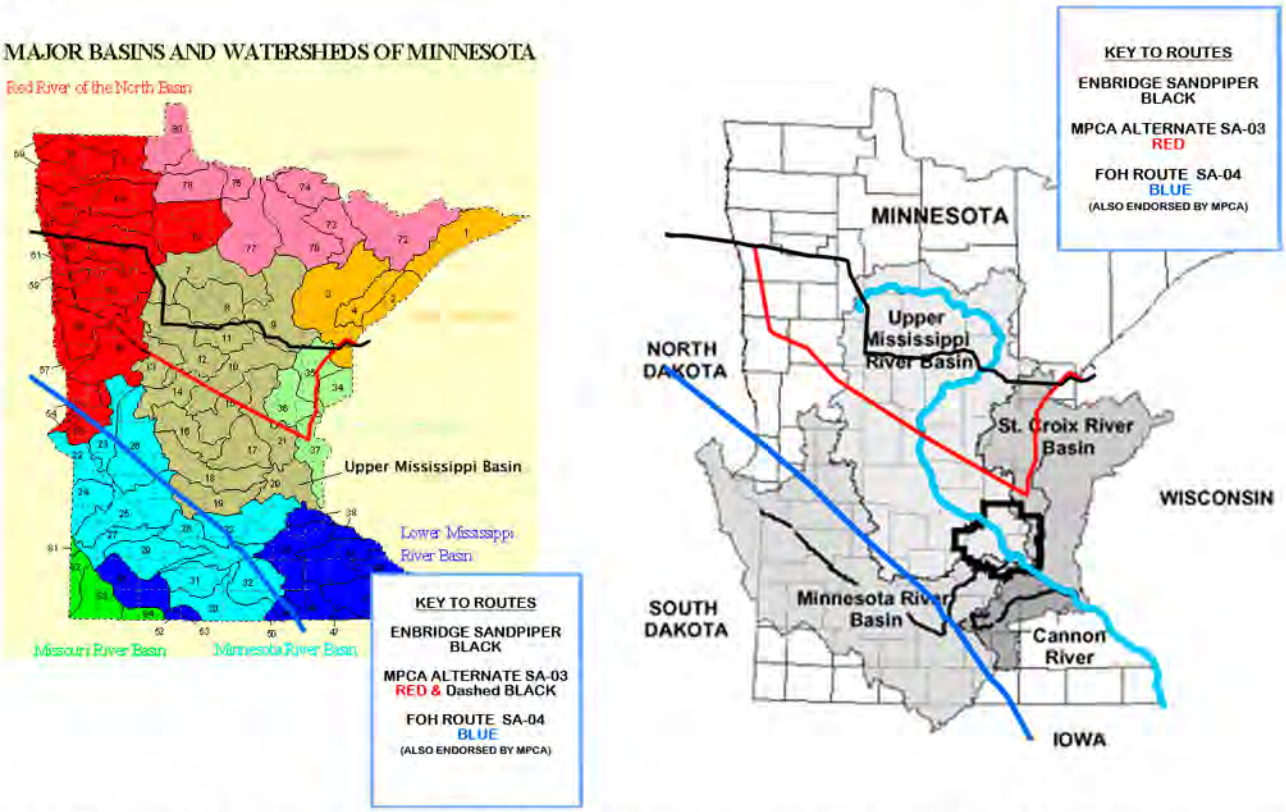
The benzene concentrations for a worst-case spill from the upgraded Line 67 at the town of Ball Club, Minnesota, crossing of the Mississippi River have been calculated using Prof. Stansbury's methods. At the spill location, the concentration would reach 32 times the MCL, and it would remain above the MCL over a distance of 280 miles as the plume travelled downstream. The drinking water intakes for the communities of Grand Rapids, Libby, Aitkin, Brainerd, Royalton, and St. Cloud would be affected. Serious health risks would be created for tens of thousands of Minnesota residents, and aquatic habitats and recreational activities would be compromised. Other chemical constituents from the spill would pose additional risks to humans and to aquatic species in the river.

This kind of analysis is not mandated by Section 7853.0620 Subpart 1, Point discharges to water, or any other section of Minnesota Rules, but I believe that it should be. This increased risk to drinking water supplies in Minnesota is a risk that should not be taken."

Note: his Mississippi River crossing point (Ball Club, west of Grand Rapids) is much farther upstream than the second proposed Sandpiper/Line 3 Rebuild/Mississippi River crossing point. A benzene spill on the river would pose a greater risk to drinking water supplies due to closer proximity to downstream communities including the Greater Minneapolis/St. Paul metropolitan region.

The first crossing point is a few miles downstream of our oldest state park, Itasca, home to the headwaters of the river. At that crossing the daily pipeline volume, 375,000 BPD or 15.750,000 gallons per day, will exceed the average daily volume of the young river by fourfold.

Enbridge proposed route has high risk potential for the headwaters of three major watersheds, Red River of the North, Lake Superior and the Mississippi plus exposure to the St. Croix National Wild and Scenic River watershed.

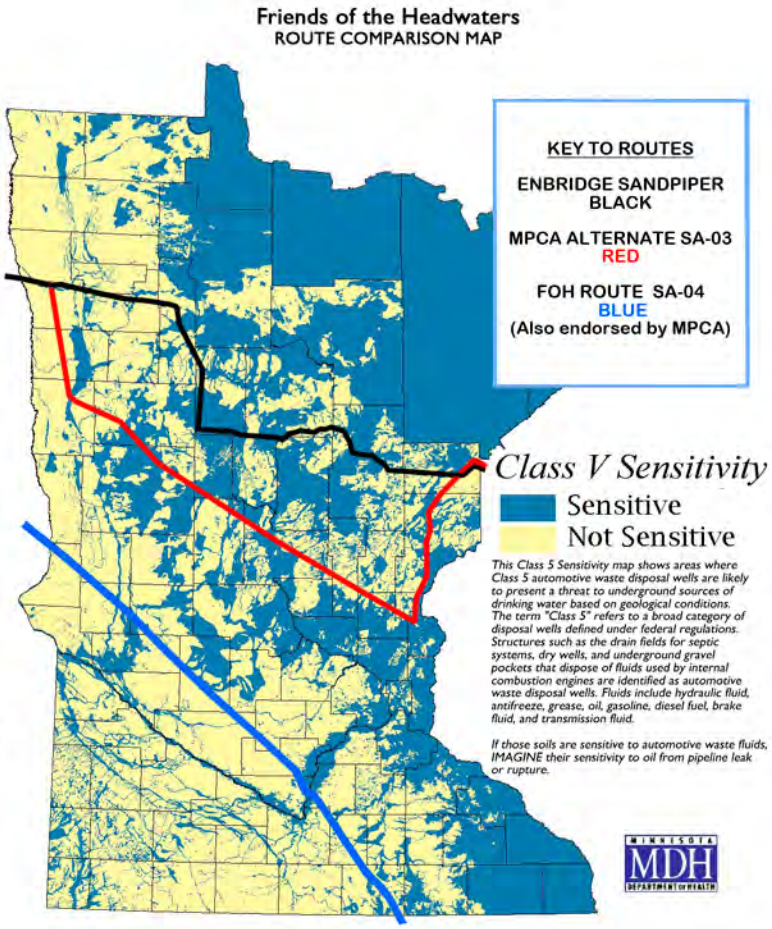


The MPCA listed 28 stream crossings along the Enbridge/NDPC Sandpiper route that if a spill or rupture were to occur, emergency response crews would not be able to access within 2000 ft of the crossing.

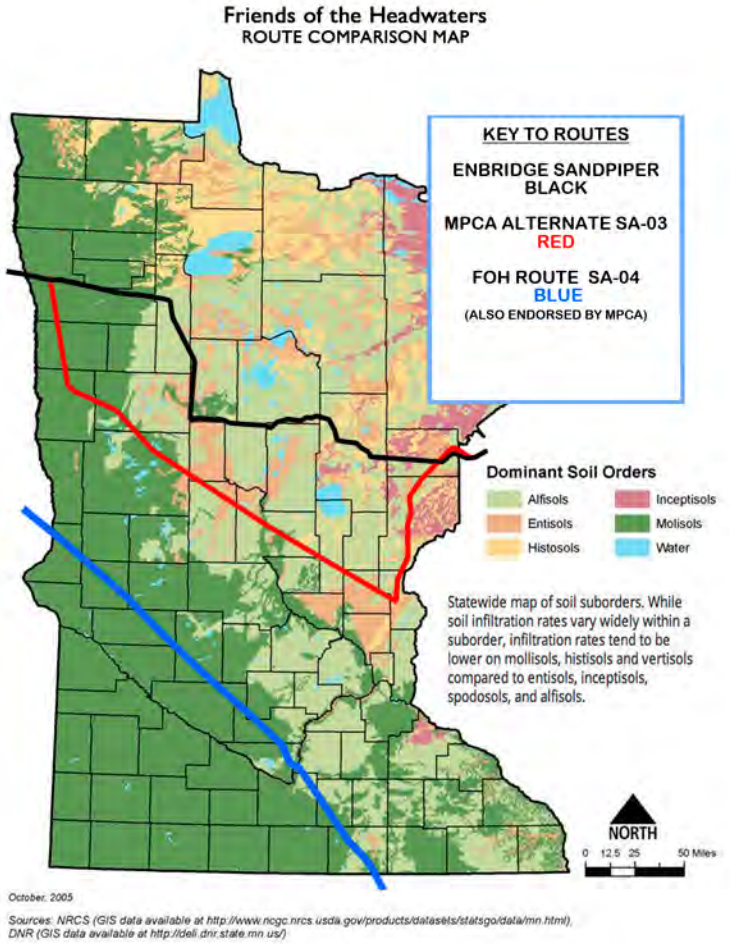
All pipelines leak eventually. While conducting a complete EIS for the Pebble Mine near Bristol Bay, Alaska, the EPA examined the history of pipeline spills relative to the age and mileage of all pipelines.They determined that every pipeline will leak at least once every 30 years over every 30 miles of length. Not surprising the history of Enbridge spills along their northern corridor in Minnesota fits that profile quite well. To quote from a 2003 MPCA report to the NTSB: "nearly three dozen non-third-party spills, leaks or ruptures on just one Enbridge 34 inch line between 1972 and 2003. About 87% of the petroleum gallons spilled from all Minnesota pipelines in the period 1991 to 2002 was from that Enbridge line. This is equal to about 48% of the reported gallons of petroleum spilled from all sources in Minnesota during that period. Included in the Enbridge 34 inch line spills are the 1.7 million gallon rupture in 1991 in Grand Rapids and the 250,000 gallon rupture on July 4, 2002 in Cohasset. 300,000 gallons of the Grand Rapids spilled flowed to a river. Luck with the timing of the spill and river ice conditions kept thousands of gallons of crude from entering the Mississippi River. Oil in the Mississippi would likely have fouled the St. Cloud, St. Paul, and Minneapolis drinking water intakes for months. Likewise the Cohasset spill could have easily entered the Mississippi River if it had happened in a different segment of that 34 inch pipeline."

How much higher are the construction costs of multiple bores under rivers and streams? What are the contingency plans and costs for controlling "frackouts" in stream beds during a bore. *Friends of the Headwaters* has learned a "frackout" occurred on nearly every stream or river bore during this area's last pipeline construction project in 2007. What are the costs and issues for winter construction of wetland areas along the route? How do the company and clean-up agencies access those wetlands areas in non-winter seasons if and when a leak/spill/rupture occurs? What are the economic consequences of summer construction and congestion issues with roads and traffic? How will availability of lodging not just for construction crews but also for tourists be affected. How will the compatibility of construction workers be with tourists, residents and local businesses. How trustworthy and reliable will these workers be with respect to property and paying for services. Some resort owners have informed *Friends of the Headwaters* they will not provide lodging for pipeline workers due to previous pipeline worker negative experiences. Will Enbridge/NDPC be financially responsible for covering damages or lost income from disreputable and irresponsible workers? *Friends of the Headwaters* believes only a properly executed EIS will provide the comprehensive assessment for the above scenarios.

The Class V Sensitivity map regards soils especially sensitive to the discharge of petroleum based materials. Compare those 'sensitive' areas along the Sandpiper route to the similar bright red areas indicated on the "Soils susceptible to ground water contamination" map.



The second soils map illustrates various soil types. The dark green area consists of mollisols, the soil order with lower infiltration rates. FOH's SA-04 traverses the lowest risk soils to infiltration, the migration and contamination of oil spill effluents.



Note: Enbridge's Mark Curwin, Senior Director for Strategic Coordination of Major Project Executions in the US, stated their construction preference is to build pipelines across farmland.

He made these remarks at a public meeting in Park Rapids on Jan. 29, 2014.

Mr. Curwin gave the reasons
of better soils,
easier construction,
easier access,
less natural habitat destruction,
cheaper and quicker.

After construction the farmland can be put back into crop production.

Access to leaks and spills is much easier.

Winter wetland construction would be at a minimum.

Should the state be sacrificing its natural resources to a new energy corridor when an existing corridor, the Enbridge/Alliance natural gas pipeline corridor, is already available and crosses the state at its lowest risk point to the environment and economy.

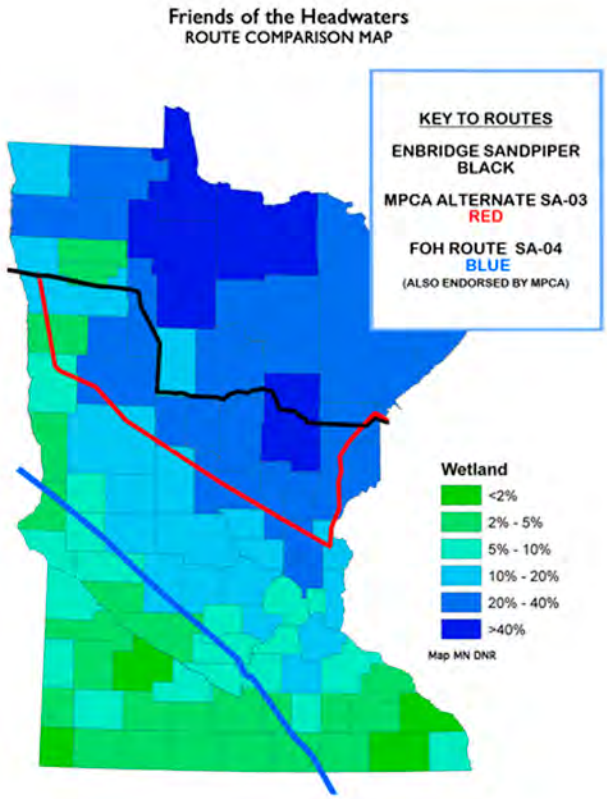
The MPCA conducted a comparative environmental analysis of the proposed routes (SA-01 to SA-08) listed on the DOC EERA's map . A high score was least damaging to the environment, a low score the most damaging.

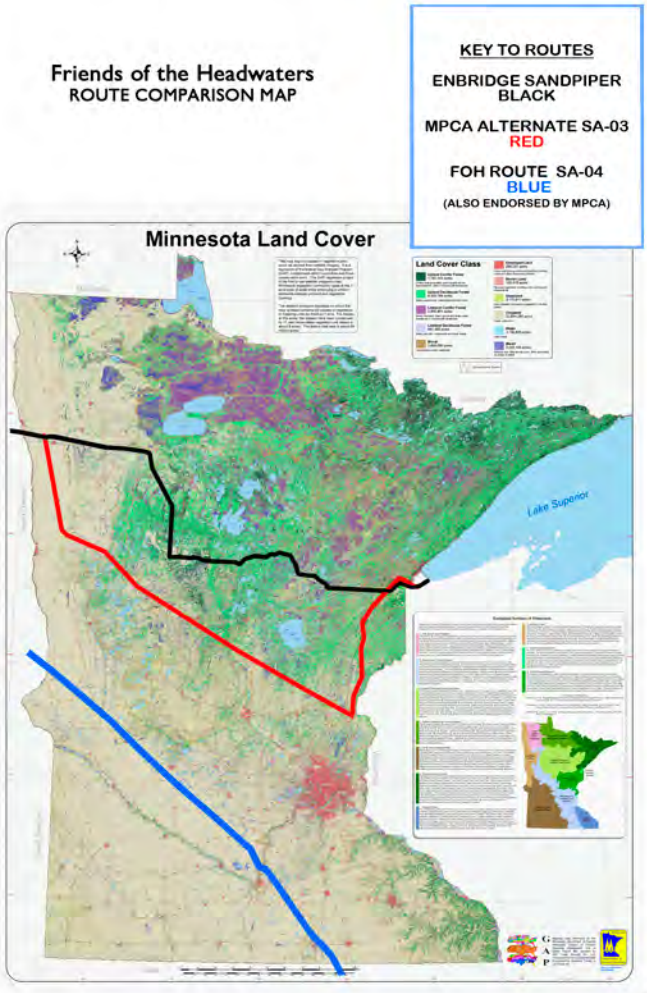
FOH's SA-04 scored the highest,

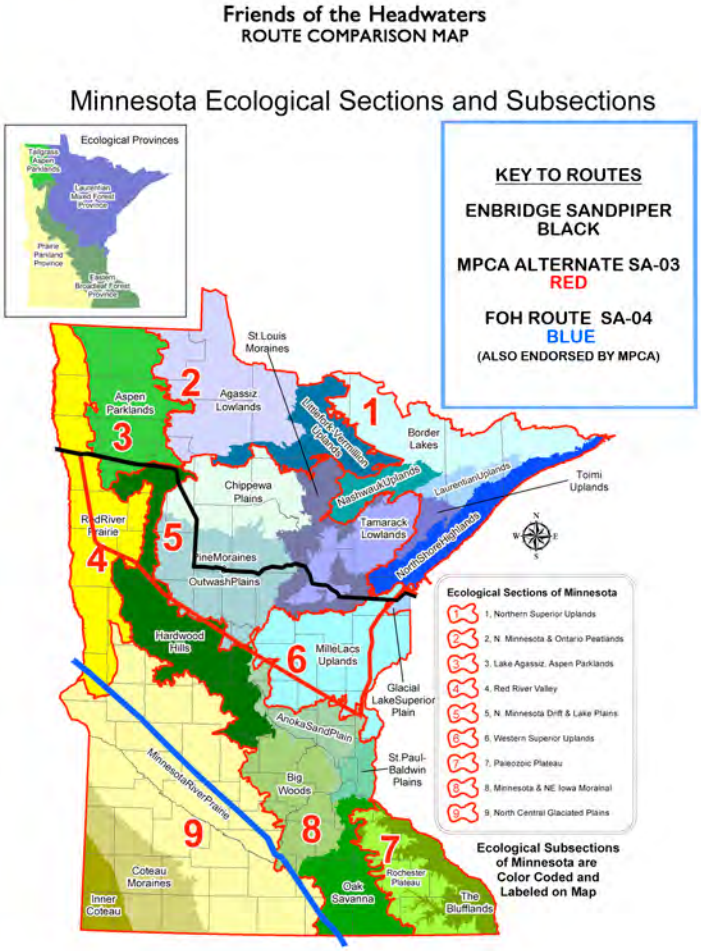
Enbridge Sandpiper - the lowest.

AT RISK: MINNESOTA'S

CLEAREST AND CLEANEST LAKES
GROUND WATER AQUIFERS
WILD RICE LAKES
WETLANDS
MOST SENSITIVE SOILS TO SPILLS
DIVERSITY OF VEGETATION
SENSITIVE ECOLOGICAL ZONES
THE LAKE SUPERIOR BASIN
HIGH VALUE RECREATIONAL AND RESIDENTIAL WATERS

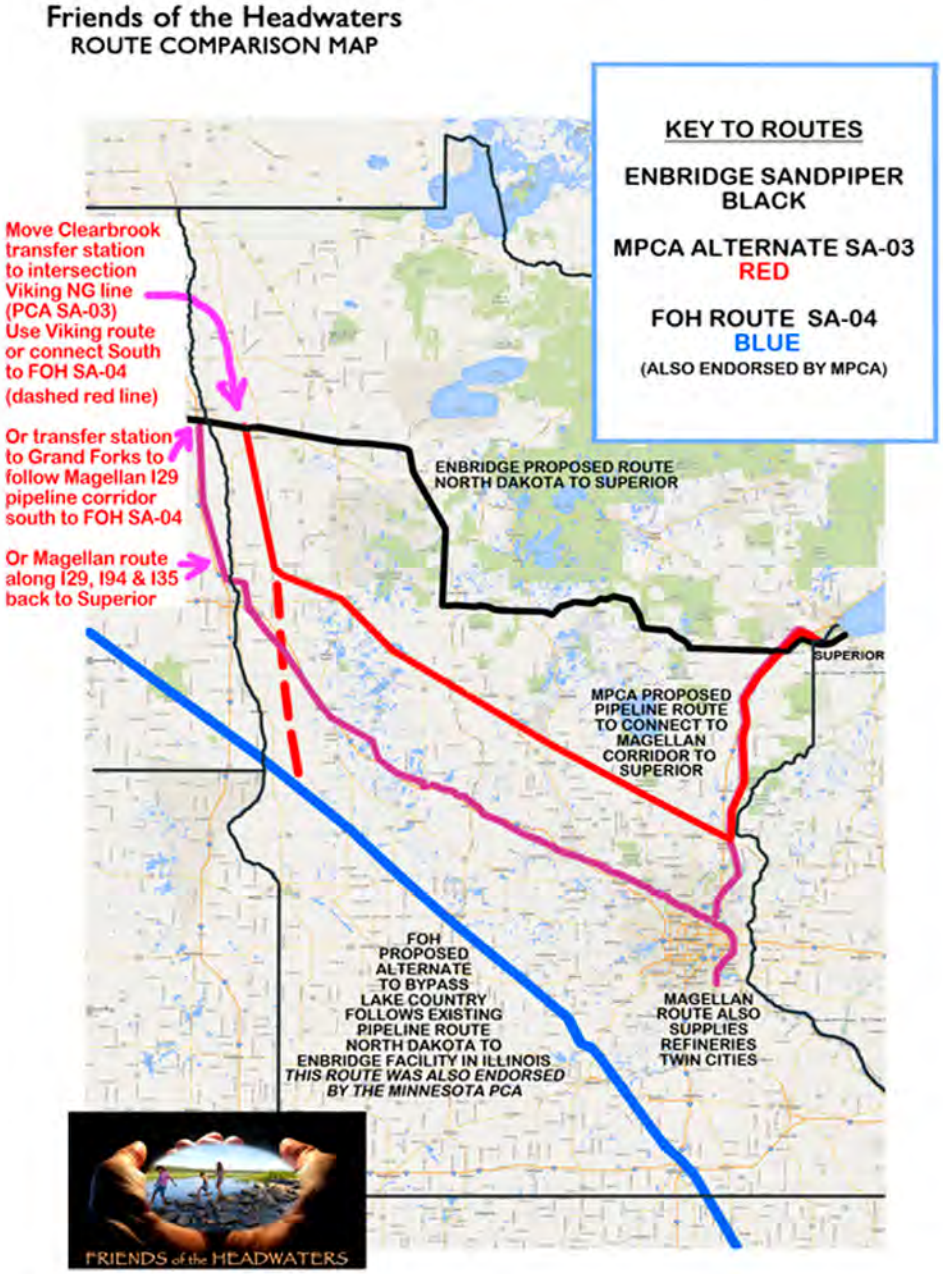




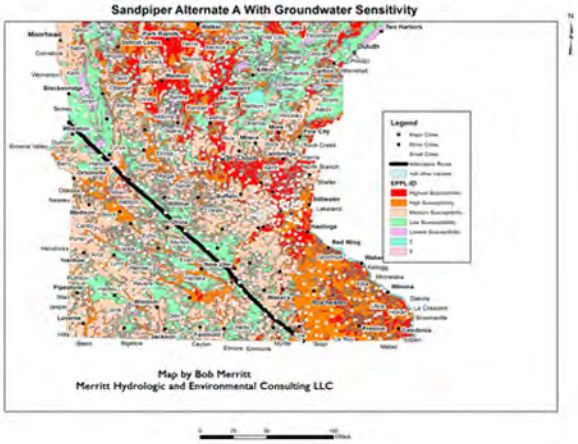


As illustrated above the risks to Minnesota's environment and especially its valuable and critical northern water resources and water-based economy are too great. Why is the state sacrificing these waters for so little gain when so much is at risk. Most of the oil traversing the state is traveling elsewhere. Now that a mostly new pipeline corridor is being proposed by Enbridge, a company with less than a stellar record, it is time for the state to slow down and strongly consider all the factors as to where this pipeline should be located. And as previously stated, the company's intention is to apply to the state for a permit next year to build another larger pipeline, the Line 3 Rebuild, next to the Sandpiper pipeline.

FOH proposes the state reject the company's requested route and consider the following option:
Move the Sandpiper proposed transfer station scheduled to be built near Clearbrook, but not at its current Clearbrook plant, west towards Crookston where the Sandpiper pipeline intersects the Viking natural gas pipeline corridor OR move the transfer station to North Dakota where the Sandpiper intersects the Magellan oil pipeline corridor. From either of those locations the Sandpiper can turn south along those existing corridors and connect to SA-04. SA-04 in its entirety connects to an existing Enbridge facility in Flanagon, IL. From Flanagon, oil can be moved on the Enbridge system either east to Canada or south to the Gulf, both of which are supply points Enbridge says they must meet. If it is necessary to meet an obligation to MinnCan and the Flint Hills Refinery in the south Metro, Enbridge can use the abandoned MinnCan Wood River pipeline to move oil north to Flint Hills. The Wood River line runs between Minneapolis and Missouri.

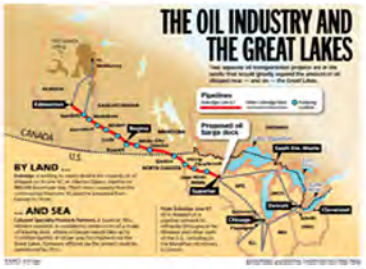


Two additional maps by Bob Merritt, hydrologist, showing FOH SA-04 in better detail.



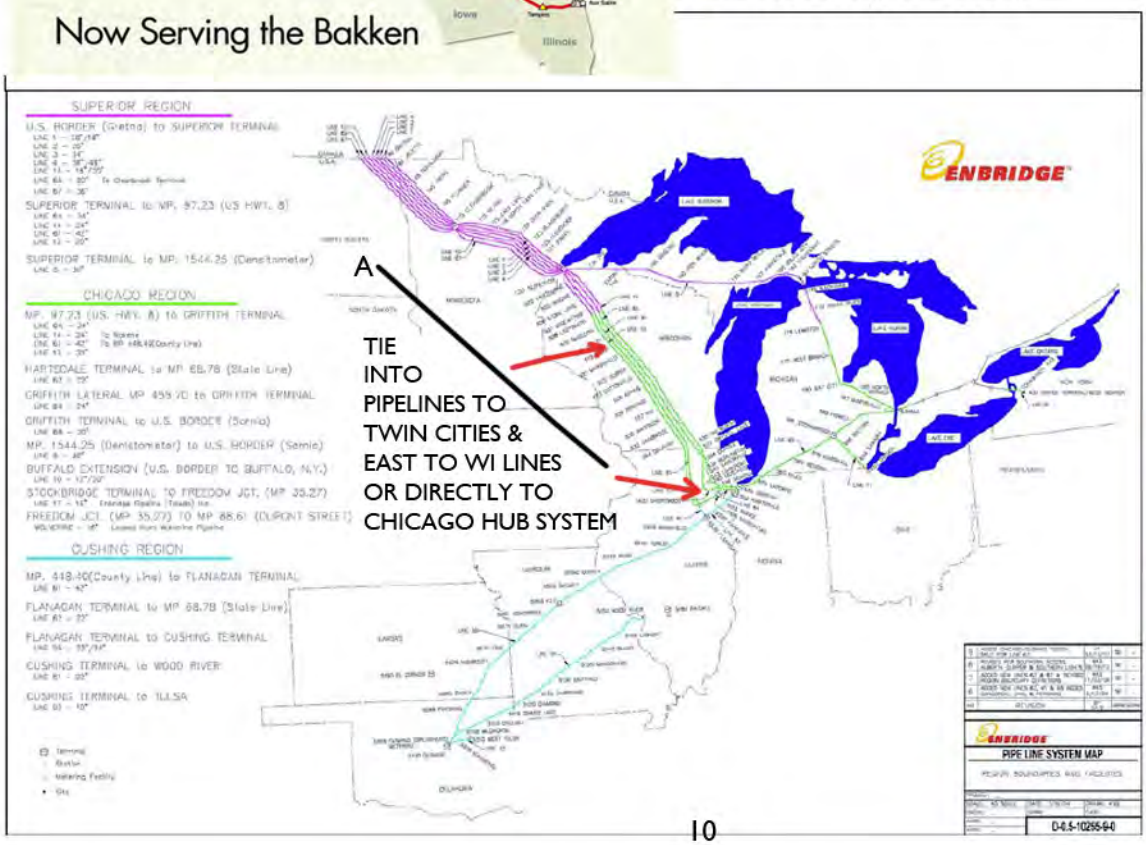
Minnesota still gets to keep jobs the construction will provide as well as North Dakota plus Iowa and Illinois.

Although the route does not end in Superior, it still ties into the existing Enbridge system in Illinois with routing options to Michigan and Ontario that avoid our greatest freshwater lakes of Lake Superior and the Mackinac Straits of Lakes Michigan and Huron.



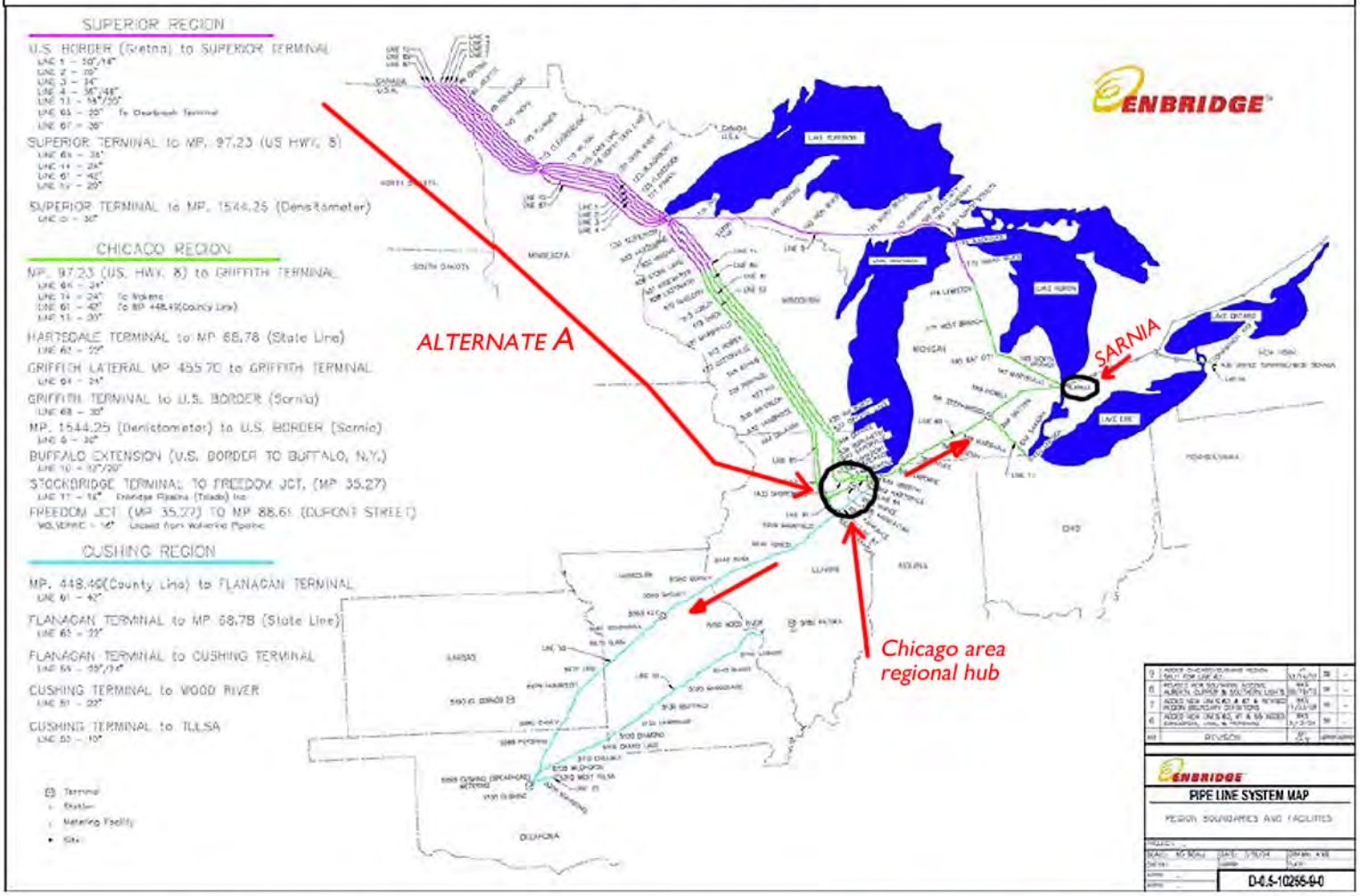
Since it's an existing corridor the company should have access to the mapping previously done for the pipeline already there. FOH SA-04 also intersects pipelines in southern Minnesota owned and operated by other companies which provide the option of re-routing Bakken crude to the refineries in Rosemont and Saint Paul Park in the south Twin Cities Metro.

The Illinois Hub also allows Enbridge access to its pipelines to Oklahoma and points south.

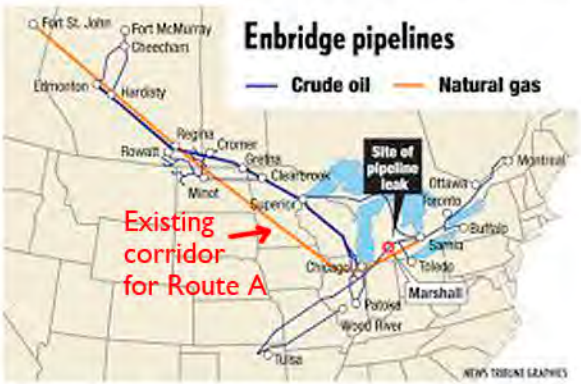


The *FRIENDS of the HEADWATERS* disputes Enbridge/NDPC's contention that the Sandpiper must end in Superior, Wisconsin. Enbridge has provided no rationale for the route ending in Superior other than "We want it. It connects to our existing system in Superior." The Alternate Route SA-04 proposed by *FRIENDS of the HEADWATERS* also connects to their existing system hub near Chicago, Illinois. It does not prevent Enbridge from then transporting the Bakken crude either south to Oklahoma and the Gulf Coast nor across Illinois, Indiana, Michigan and across the border to Sarnia, Ontario, Canada on their existing system.

Figure 7853.0510-2
Pipeline System Map



FOH SA-04 already fits into their existing pipeline corridor system as evidenced by the map at right. Alternate Route A also appears to be a more direct route from the North Dakota Bakken Oil Fields to the primary energy markets of the US Midwest.



Friends of the Headwaters believes the citizens of Minnesota have the right to determine the route parameters of this pipeline corridor, not Enbridge/NDPC. The considerations of the Sandpiper pipeline and the Line 3 Rebuild proposed to run alongside the Sandpiper should not be dictated to the citizens of Minnesota by the company. The company already has too many pipelines crossing Minnesota's most valuable waters and lands.
The cumulative risk of adding additional lines to this region is too high to have the routing parameters set by what Enbridge 'wants'. They should not be allowed to frame the debate on this issue. The citizens of Minnesota and this state's governing and regulatory agencies need to reject this framing by Enbridge/NDPC

and reframe the discussion regarding the need and route of the proposed Sandpiper pipeline as what is beneficial to Minnesota, its people, its communities and its natural resources. Until Enbridge/NDPC adequately provides a detailed explanation for demanding why the Sandpiper pipeline must end in Superior, Wisconsin, *Friends of the Headwaters* believes all alternative routes must be given full consideration, even those proposing a system overhaul of how and where Enbridge wants to cross the state.

If Enbridge/NDPC were truly committed to protecting our lakes, rivers, wetlands, aquifers and lands as they publically state they are, then prove it by not just giving Minnesotans statistics about how safe their pipelines are (their history says otherwise), but by actually moving their proposed route to the lowest risk part of the state as portrayed on the previously presented illustrated maps.

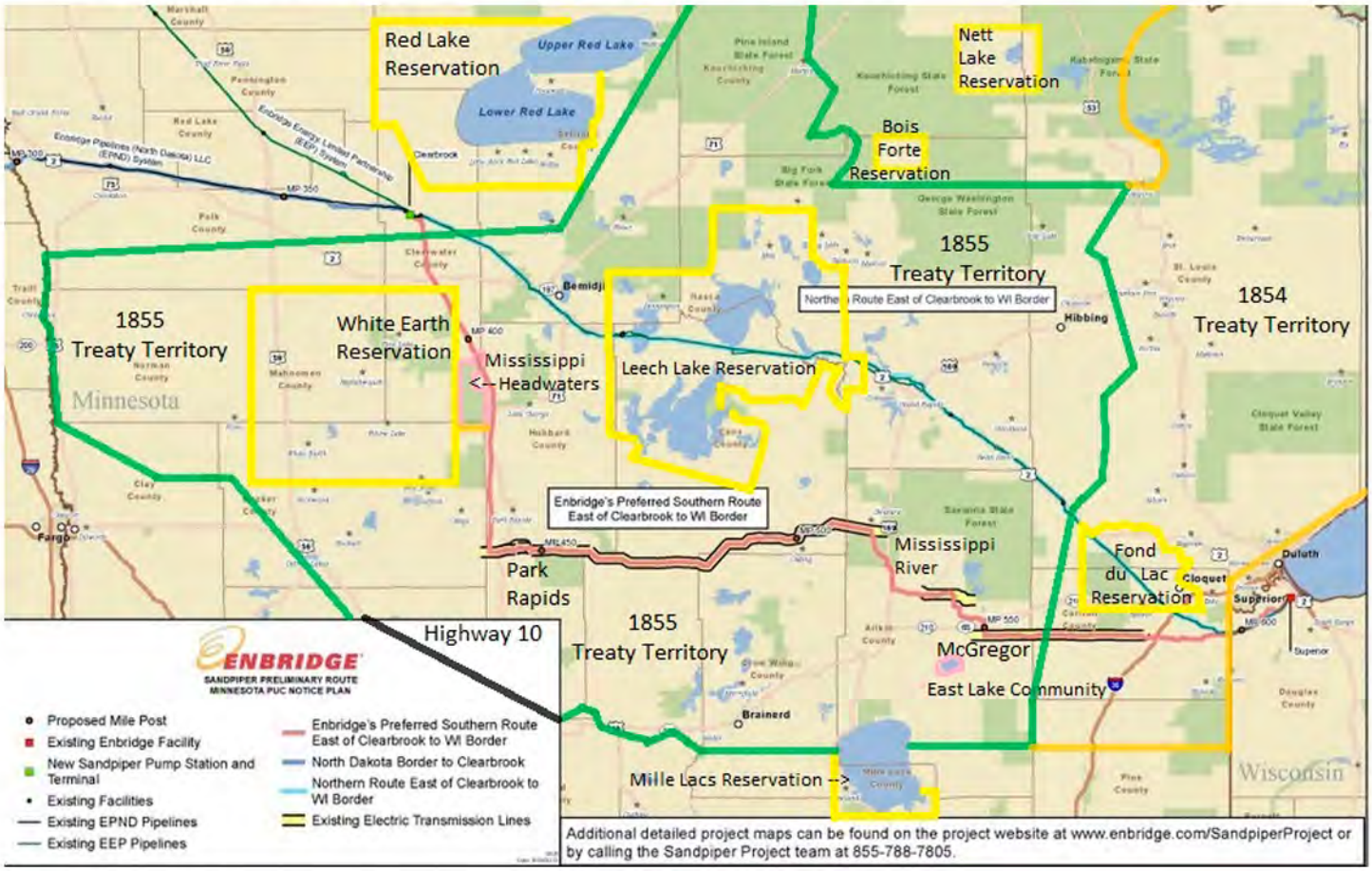
Costs should not be a factor. After all, once the Sandpiper is constructed, 375,000 barrels of oil will pass through it daily. At the current world price for a barrel of oil that amounts to $40 million dollars per day or $14.6 billion dollars annually. Even though Enbridge is charging a fee to move the amount of oil, it should not take too many years to recoup their construction costs. Plus it appears from the map below the company has plans to expand the pipeline system through Wisconsin. The money allocated for that extension could easily be applied to the extra construction costs of building Alternate Route A.

Since the company is adamant about Superior as a destination for the Bakken crude, perhaps this proposed extension in Wisconsin could be used to move the oil from the end of FOH SA-04 back north to Superior.

Enbridge has ambitious expansion plans not just in Minnesota but nationally it appears.

If their intensions are to expand rapidly towards the southern U.S. Alternative Route A would conform to those expansion plans more directly than their current proposed Sandpiper corridor.

In summary the *FRIENDS of the HEADWATERS* opposes the Enbridge/NDPC Sandpiper Pipeline route proposal as marked on the map below. What does it say about a company that would neglect to feature the state's most famous river, the Mississippi, on their proposed route map? Perhaps this is evidence of their true concern for Minnesota's valuable and cherished water resources.

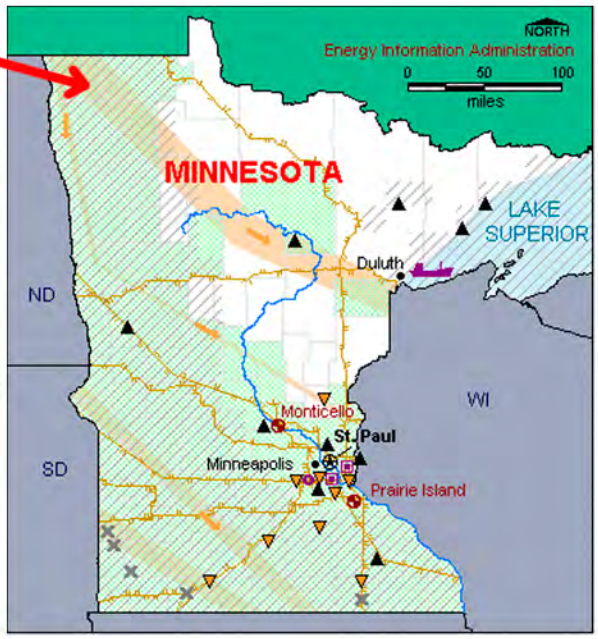


Enbridge already has too large a footprint across Minnesota's Headwaters Country.

Too much is at risk, not only with the state's clearest lakes; ground water aquifers; fish and wildlife; wild rice; lake and riverfront homes, businesses, and communities; tourism industry; lands and forests; but there's also Lake Superior.

Does Enbridge's insistence on the pipeline ending at Superior portend a future of shipping oil on the Great Lakes? Ironic that a ship icon just happens to be on the adjacent map.

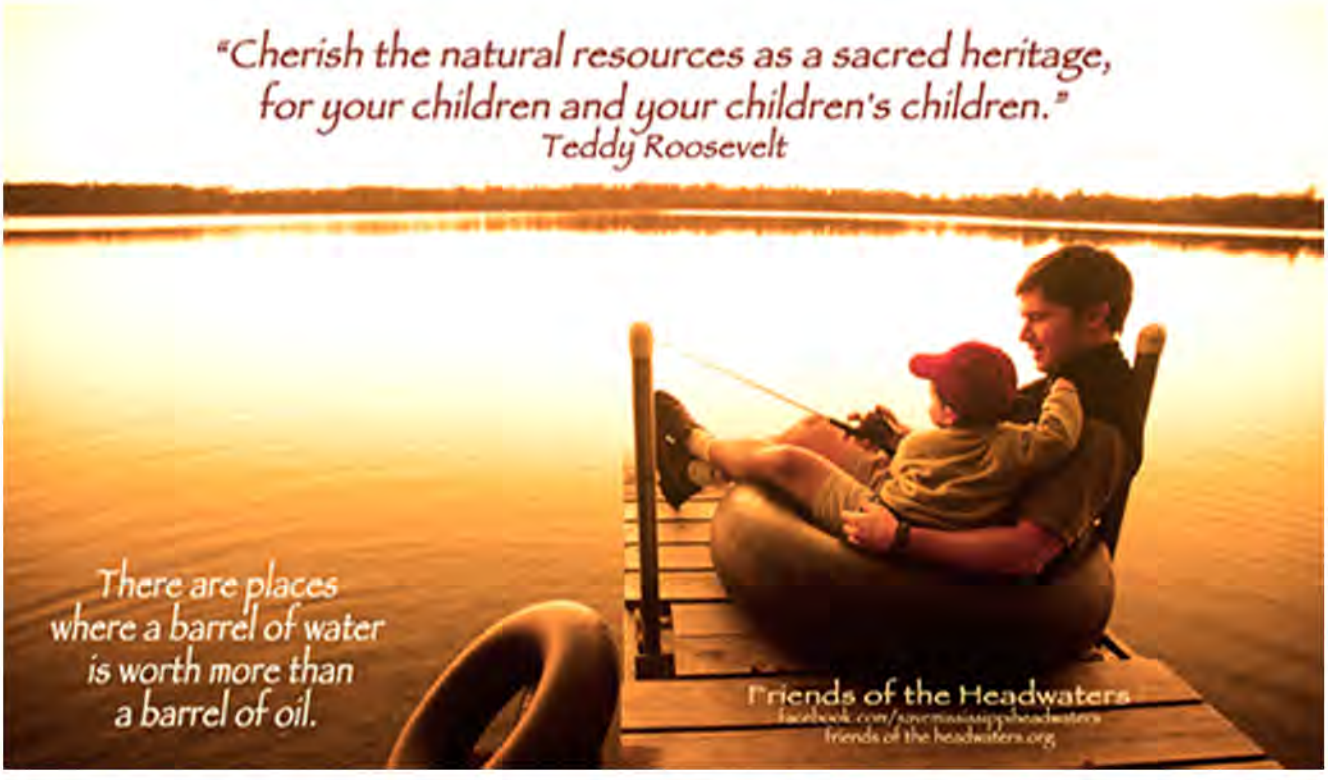
The people of Minnesota should not allow a Canadian corporation with its North Dakota Pipeline Company US subsidiary to dictate the terms of this project.



A project of this magnitude as planned through the heart of *"The Land of 10,000 Lakes"* must conform to the standards prescribed in MEPA.

"No state action significantly affecting the quality of the environment shall be allowed, nor shall any permit for natural resources management and development be granted, where such action or permit has caused or is likely to cause pollution, impairment, or destruction of the air, water, land or other natural resources located within the state, so long as there is a feasible and prudent alternative consistent with the reasonable requirements of the public health, safety, and welfare and the state's paramount concern for the protection of its air, water, land and other natural resources from pollution, impairment, or destruction. Economic considerations alone shall not justify such conduct."

Friends of the Headwaters does not believe this proposed multiple pipeline corridor with the Sandpiper and now Line 3 Rebuild can meet the high standards set above for quality, safety and sustainability of the lands and especially waters along the route.



Thank you for your attention and consideration.