From:	Hartman, Larry (COMM)
To:	Nelson, Casey (COMM)
Subject:	FW: Public comment Docket No. PL9/PPL-13-474
Date:	Friday, April 04, 2014 5:57:58 PM
Attachments:	FOH Comment Letter to Hartman 4-4-14.doc

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From: mel smith [mailto:mnfriendsoftheheadwaters@gmail.com]
Sent: Friday, April 04, 2014 1:17 PM
To: Hartman, Larry (COMM)
Subject: Public comment Docket No. PL9/PPL-13-474

Dear Mr. Hartman,

Please find attached #1 of two documents drafted by Friends of the Headwaters regarding the Enbridge/North Dakota Pipeline Company Sandpiper route proposal.

It is expected these documents will be posted on the eDocket website as soon as possible.

Hard copies will be postmarked and mailed "Certified" to your office from the Park Rapids post office today.

Thank you for your attention to these matters.

Sincerely,

Richard Smith
President
Friends of the Headwaters

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.

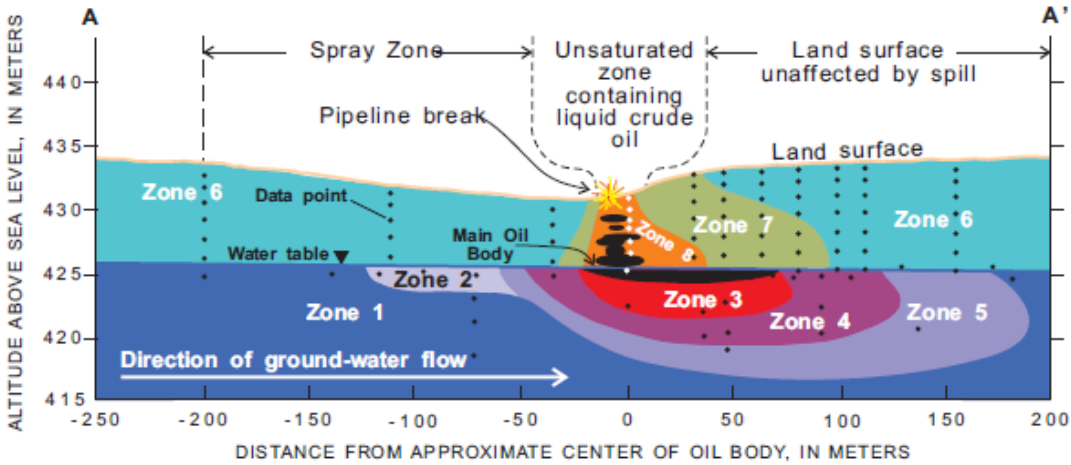


Figure 4. Geochemical zones in the unsaturated and saturated zones at the North oil pool, 1997 (Modified from Baedecker and others, 1993).

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

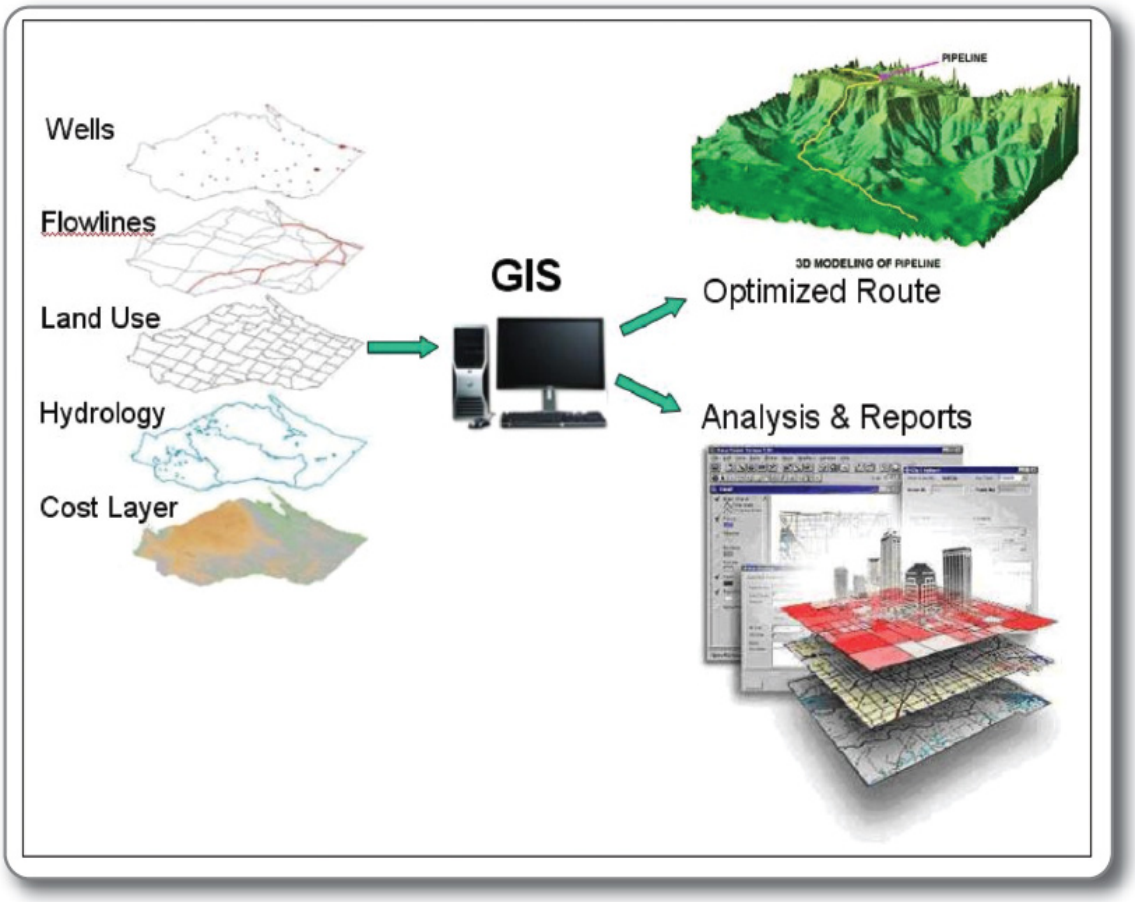
5.1.1.20.1 General

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

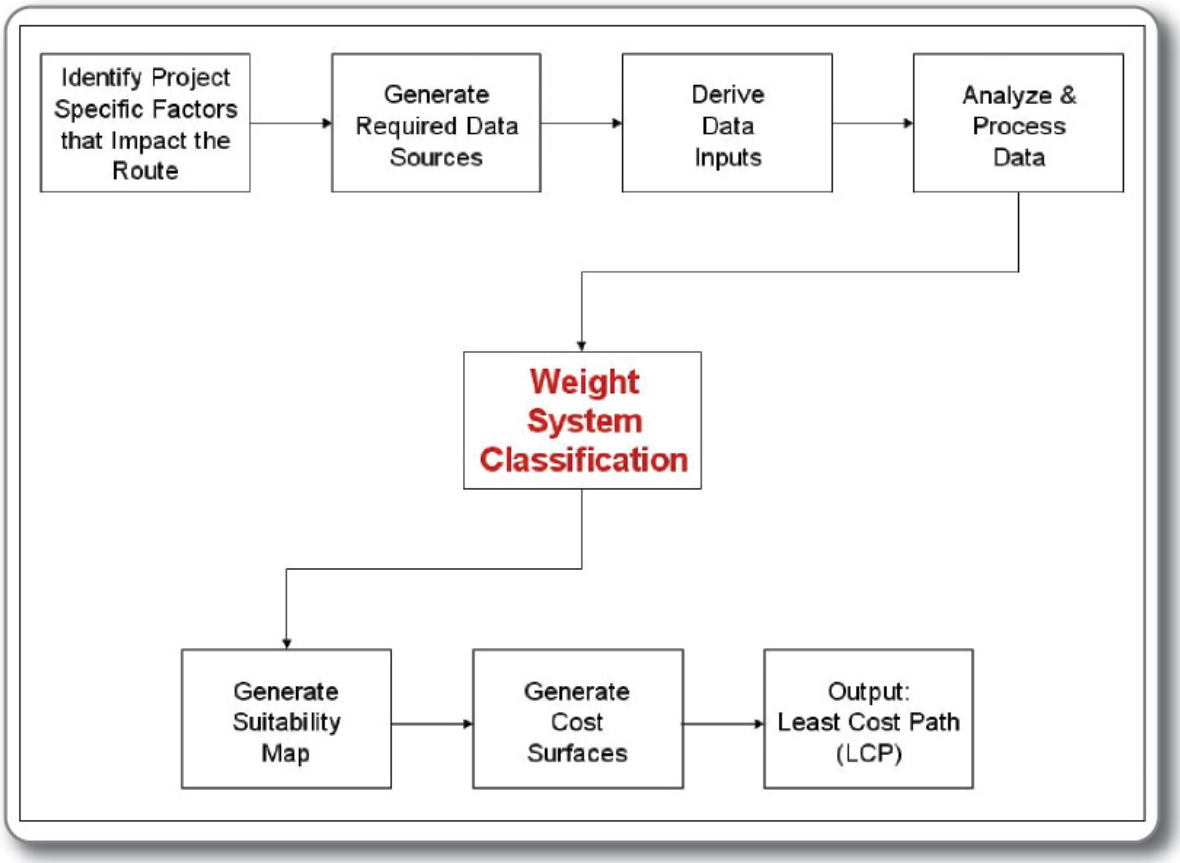


Fig. 3: Pipeline Optimization Methodology

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.

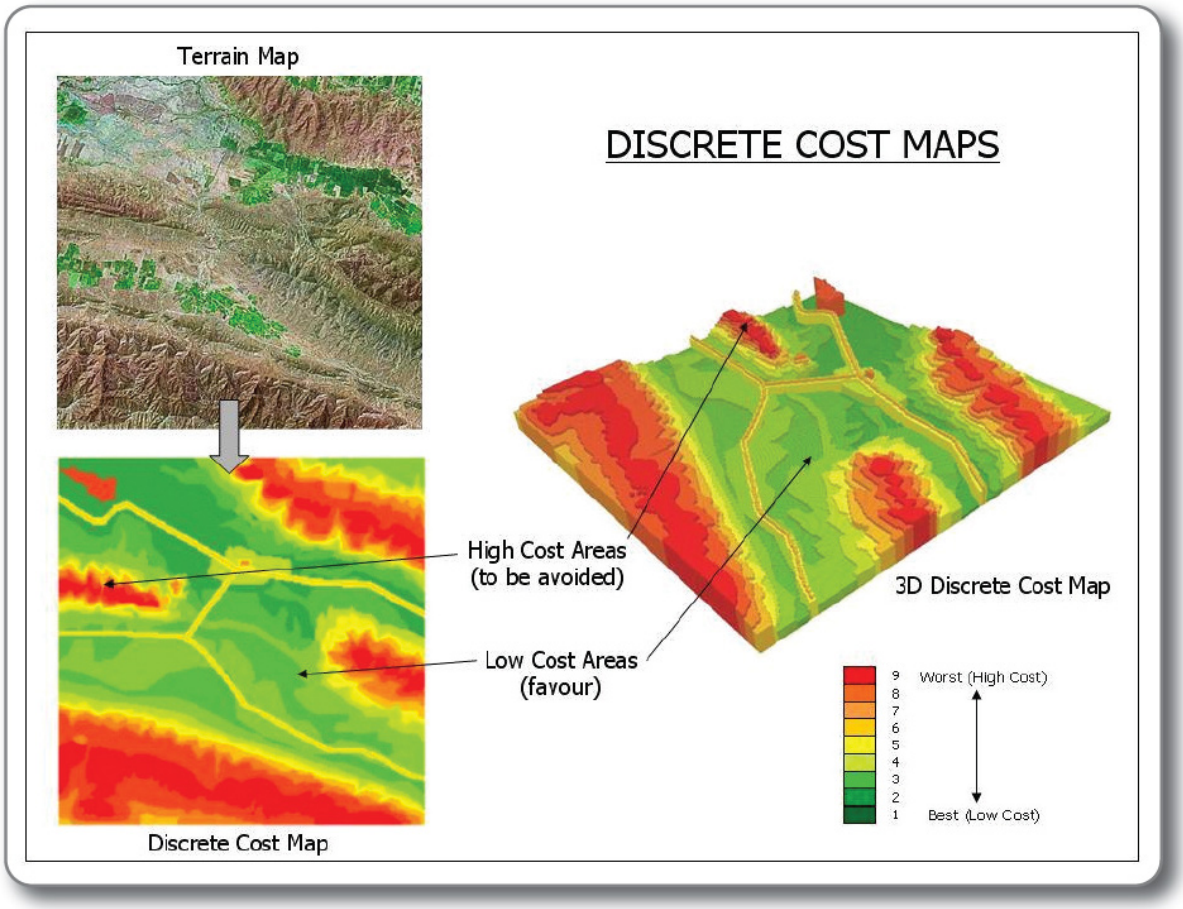


Fig. 4: Discrete Cost Map

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.

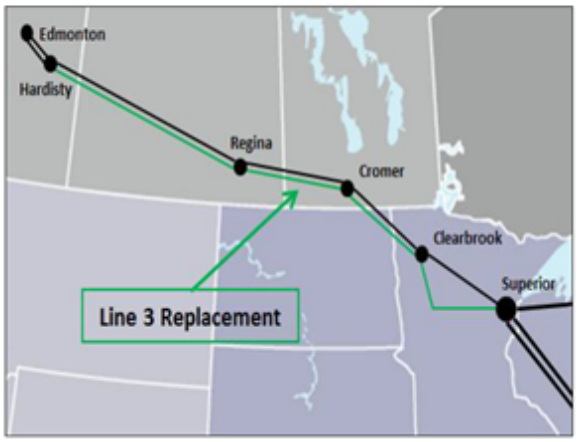
10. CUMMULATIVE IMPACTS

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