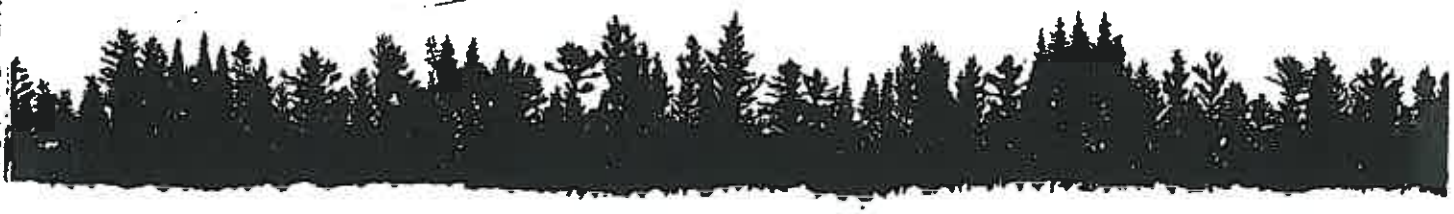
GROUNDWATER OF THE PINELAND SANDS AREA CENTRAL, MN

GROUND-WATER APPRAISAL OF THE PINELAND SANDS AREA, CENTRAL MINNESOTA



U. S. GEOLOGICAL SURVEY
Water—Resources Investigations 77—102

Prepared in cooperation with
WesMin Resource Conservation and Development Association
Headwaters Resource Conservation and Development Association
Pineland Sands Steering Committee
Minnesota Department of Natural Resources

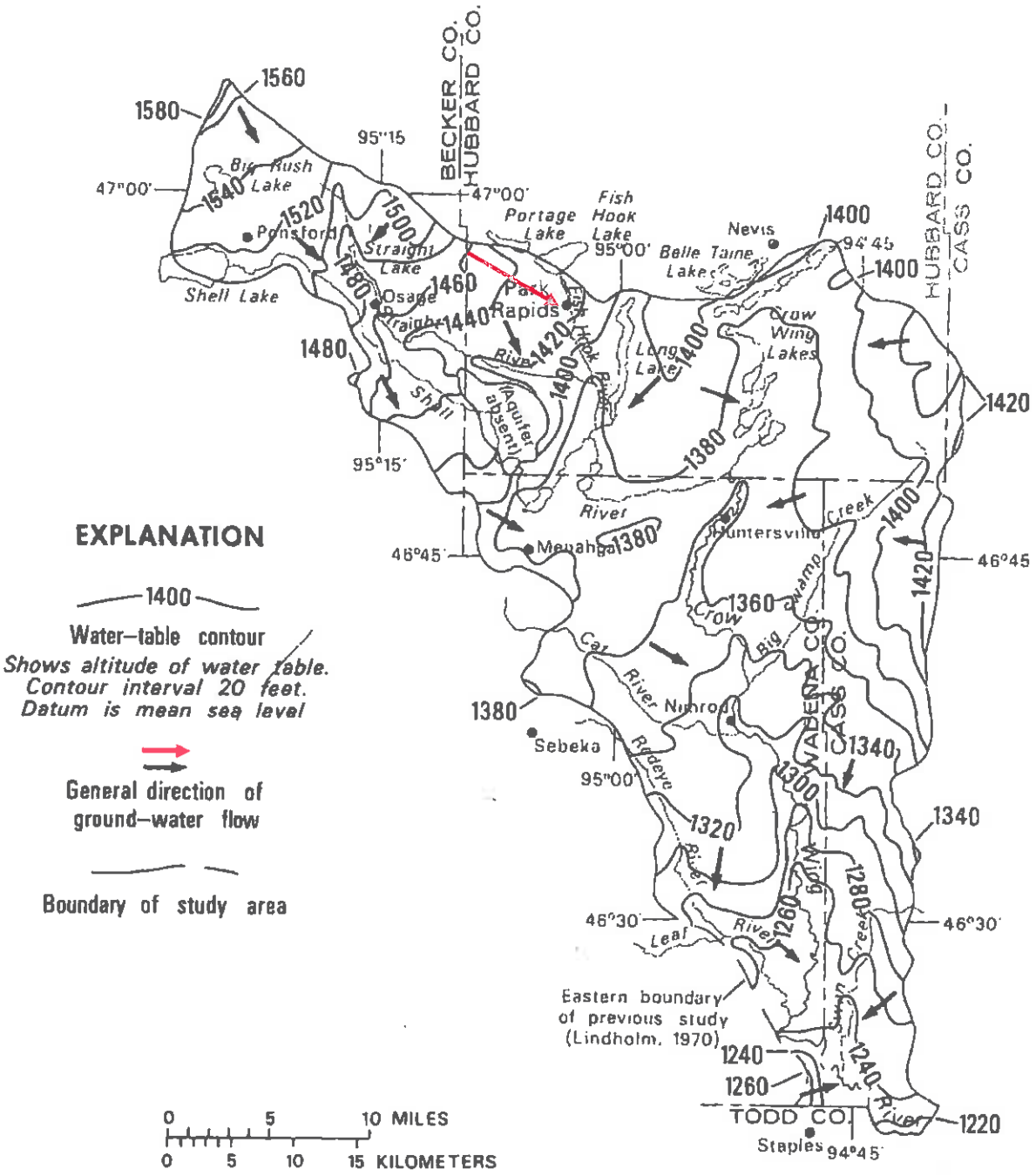


Figure 7.--Water-table configuration and general direction of ground-water movement.

From Helgsen 1977

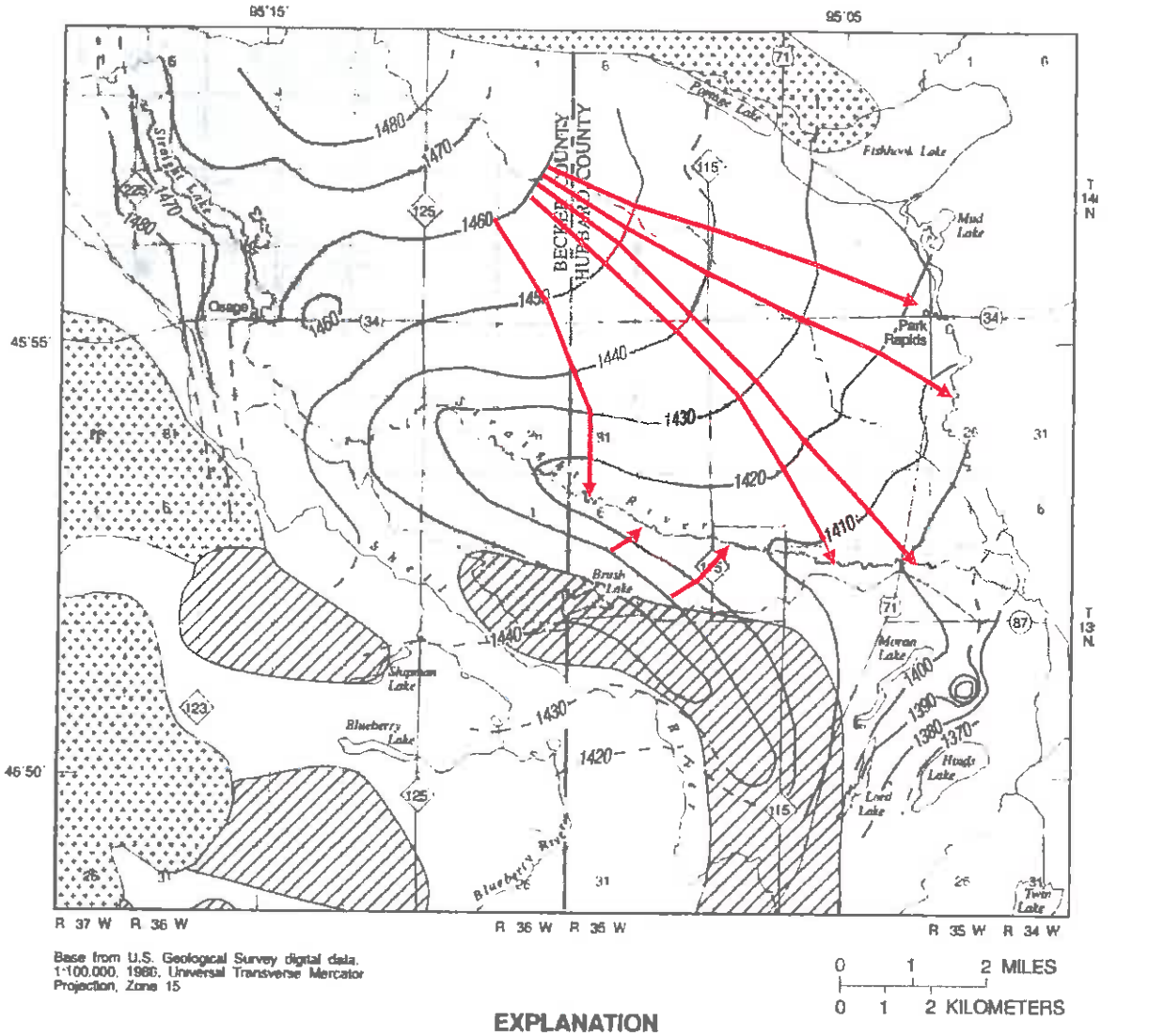


Figure 15.–Altitude of potentiometric surface (water table) of surficial aquifer during August 1988.

From Stark 1994

GROUND-WATER APPRAISAL OF THE PINELAND SANDS AREA, CENTRAL MINNESOTA

Table 1.--Range of values of hydraulic conductivity for surficial outwash in the Pineland Sands area.

Predominant material (Wentworth scale)	Hydraulic conductivity (ft/day)
Clay or silt (< 1/16 mm)	Less Than 10
Sand, very fine (1/16-1/8 mm)	10-50
Sand, fine (1/8-1/4 mm)	50-100
Sand, medium (1/4-1/2 mm)	100-400
Sand, coarse to very coarse; gravel (> 1/2 mm)	400-600

Table 2.--Results of aquifer tests in the Pineland Sands area.

Location	Length of test (hours)	Pumping rate (gal/min)	Aquifer properties		
			Transmissivity (ft^2/day)	Average hydraulic conductivity (ft/day)	Storage coefficient
134.32.7bcb2	48	300	10,700	320	0.18
140.34.27acc	48	75	12,000	440	.25
140.35.23dca2	72	145	8,700	360	.23
140.37.12ddb	53	960	36,800	630	.18

hydrologic properties of the surficial and uppermost confined-drift aquifers and of the uppermost confining unit. Several synoptic measurements of water levels in wells were made during the investigation. These data were used to prepare maps showing position of the water table in the surficial aquifer, and the potentiometric surface of the uppermost confined-drift aquifer.

Ground-water-level and temperature data were measured in nested wells with electronic data loggers, which were installed at different depths (fig. 5). The locations of these nested wells were selected to represent irrigated (site G) and nonirrigated (site H) parts of the watershed, and to monitor ground-water conditions near the stream (sites A, B, D, and F).

Average values of transmissivity of the surficial aquifer were determined by Helgesen (1977). Average values of transmissivity for the aquifer were estimated by multiplying the estimated-average value of horizontal hydraulic conductivity at a site by the thickness of the aquifer at that location. The method was assumed reasonable because the aquifer materials in the investigation were relatively homogeneous. Vertical hydraulic conductivity of the uppermost confining unit was estimated from a finite-difference ground-water-flow model by simulating vertical hydraulic-head differences across the confining units. Transmissivity of the uppermost confined-drift aquifer was estimated from ground-water-flow model analyses.

Ground-water withdrawal data were obtained from the Minnesota Water-Use-Data System at the MDNR. These data were verified by spot checks during the summer of 1988 at approximately 40 locations using a noninvasive flow meter. Water-use data for 1988 were used to represent ground-water withdrawals for model simulations.

A three-dimensional, finite-difference, ground-water-flow model (McDonald and Harbaugh, 1988) was used to better understand the ground-water flow system, hydrologic budgets, hydraulic properties of hydrogeologic units, and the interactions between the stream and aquifer systems. The model was calibrated to steady-state conditions based on hydrologic data (potentiometric surfaces and streamflow) collected during this investigation. The model also was used to examine the effect of irrigation on regional ground-water levels and stream discharge.

Water from the drift aquifers and from the Straight River was analyzed for major chemical constituents and nutrients to provide baseline water-quality data for use in future assessments and to identify trends caused by land-use practices. Water was collected from 17 wells screened in the surficial aquifer and from 5 wells screened in the uppermost confined-drift aquifer. Grab samples were collected from 4 sites along the Straight River during the summer of 1988.

A stream-temperature and transport model of the Straight River (Jobson, 1975, 1979, 1980a, 1980b, and Schoellhamer and Jobson, 1986) was used to simulate temperature conditions in the stream and the effect of changes in ground-water discharge to the stream on stream temperature. The model simulated steady-flow conditions of the stream similar to those during the summer of 1988.

Test-Hole and Well-Numbering System

Two systems of numbering wells and test holes were used for this investigation. The first system used was the MGS Minnesota unique-well number system that associates a well with Universal Transverse Mercator coordinates. The second system of numbering is based on the U.S. Bureau of Land Management's system of land subdivision (township, range, and section). Figure 6 illustrates this numbering system. The first numeral of a test-hole or well number indicates the township, the second the range, and the third the section in which the point is located. Uppercase letters after the section number indicate the location within the section; the first letter denotes the 160-acre tract, the second the 40-acre tract, and the third the 10-acre tract. The letters A, B, C, and D are assigned in a counterclockwise direction, beginning in the northeast corner of each tract. The number of uppercase letters indicates the accuracy of the location number. For example, the number 140N.36W.22ADC indicates a test hole or well located in the SW1/4, SE1/4, NE1/4, Sec. 22, T.140 N., R.36 W.

Acknowledgments

The authors are grateful to well owners, well drillers, and State and local agencies for data used in preparing this report. Thanks also go to land owners who permitted test holes to be drilled and observation wells to be installed, and to well owners who permitted their wells to be sampled and measured. Special thanks are extended to Bill Alden, Hubbard County Soil and Water Conservation District, and to Bob Merritt, MDNR, Detroit Lakes, for their coordination of the investigation at the local level, and to Jerry Johnson, MDNR, St. Paul, for his help in preparation of the report figures.

Surface Water

The Straight River flows approximately 19 mi from its source in Becker County to its mouth in Hubbard County where it discharges to the Fishhook River (fig. 1). The

between 1 and 10 TU. The average residence time of these mixed waters probably ranges from about 40 to a few-hundred years. Ancient waters contain concentrations of ^{14}C less than 50 percent of modern and no detectable tritium (less than 1 TU).

Water from 19 wells was collected and analyzed for ^{14}C and tritium. Results of the analyses of water from wells screened in the surficial aquifer showed that waters from that aquifer were isotopically recent, regardless of the depth of the well. Tritium concentrations generally were greater that 50 TU. The uppermost confined-drift aquifer contains waters that are recent, vintage, and mixed. Increased tritium in the uppermost confined-drift aquifer was in areas of significant irrigation ground-water withdrawal, indicating that ground-water withdrawal may be inducing downward leakage of isotopically younger waters from the surficial aquifers. Waters from the deeper confined-drift aquifers generally have tritium concentrations of less than one TU and, based on ^{14}C data, are about 12,000 years old. Residence-time data are significant because they indicate that waters in both the surficial and in the uppermost confined-drift aquifers are susceptible to contamination from local recharge.

Stream-Aquifer Interactions

A dynamic set of hydrologic conditions cause water to move through aquifers and confining units (fig. 2) in the Straight River watershed, resulting in discharge to the Straight River. The direction and rate of water movement from the aquifers to the Straight River is affected by (1) aquifer recharge, (2) hydraulic conductivity, (3) hydraulic gradient, (4) hydraulic conductivity of the streambed and, (5) the hydraulic head difference between the stream and aquifer. Recharge to the surficial aquifer occurs everywhere the aquifer is present. Ground-water discharges into the stream along most of the length of the stream because the hydraulic head in the surficial aquifer is greater than the hydraulic head of the stream. Part of the water flows through the surficial aquifer and part flows through surficial aquifer, confining units, and the uppermost confined-drift aquifer before being discharged to the stream.

Comparison of the potentiometric surfaces of the surficial and the uppermost confined-drift aquifers (figs. 15 and 22) shows that the two surfaces have similar configurations. The differences in hydraulic head between the aquifers also indicate that downward leakage occurs in highland areas where ground water flows vertically downward to the uppermost confined-drift aquifer. In areas of discharge (near streams), water moves vertically upward from the uppermost confined-drift aquifer to the surficial aquifer and then to the stream.

Ground water flows into the Straight River Basin in the southwestern part of the investigation area, near the Shell River, where the ground-water basin does not coincide with the surface-water basin. Ground-water flow in this area is from the southwest. Hydraulic gradients indicate that flow from areas outside the Straight River Basin is significant and contributes to the relatively high base flow of the stream compared to streams with similar surface-basin areas.

Results of the hydrograph analysis (tab. 5) indicate that at least 95 percent of streamflow in the Straight River during the 1988 water year was derived from base flow. Using a technique developed by Wahl and Wahl (1988), which is based on a method proposed by the Institute of Hydrology (1980a, 1980b), the data also show that incremental base-flow decreases slightly in a downstream direction.

Base-flow gain measured between gaging stations allows for analysis of the spatial variability of base flow within the watershed. Because the area upstream from site B is more than half of the watershed area, the change in base flow per square mile supplying the sites downstream from site B is masked by the magnitude of area and flow upstream of site B and by the effect of Straight Lake. Incremental base flow, which represents base flow contributing only to the areas between sites, is 0.835 ft/yr (feet per year) for the area between sites B and D, and 0.759 ft/yr for the area between sites D and F. These values are expressed as depth of water over the contributing area.

Recharge commonly occurs during the spring from snowmelt and rain. Recharge also may occur during autumn. Rates of ground-water recharge usually are low in the summer and winter because most precipitation is lost to evapotranspiration or is held as snowpack. Stream-base-flow data indicate that a recharge rate of greater that 12 in./yr (inches per year) is typical for the surficial aquifer in the Straight River watershed. This rate is significantly greater than most estimates of recharge to sand plain areas in Minnesota, and is twice as great as mean annual runoff for the general area (Jacques and Lorenz, 1988). The rate is also significantly greater than the average value of ground-water recharge (5.1 in./yr) reported by Helgesen (1977) for the Pineland Sands.

Recharge, estimated from base flow in the Straight River, may be larger than estimates of recharge to sand plain aquifers from other studies in Minnesota because of highly permeable surficial deposits, because of the contribution of underflow into the watershed, or because of a combination of these factors. This rate of recharge is one explanation for the sustained high base flow in the stream.

of water approximated sources of discharge, and little change in storage occurred. These simulations indicate that continuous irrigation at rates comparable to those of 1988, and given ground-water recharge similar to that of 1988, could result in water-level declines ranging from 0 to 10 ft in the surficial aquifer and 0 to 15 ft in the uppermost confined-drift aquifer. This lowering of the water table and the potentiometric surface could result in a reduction of stream base flow of about 34 percent compared to conditions of no ground-water withdrawal for irrigation (fig. 28).

Summary and Conclusions

The Straight River contains water that is cold and clear. The 75 mi^2 Straight River watershed is underlain by highly transmissive surficial and confined-drift aquifers. Ground-water withdrawals from these aquifers, which sustain flow of the Straight River, are increasing in response to changes in land use from dry-land farming to irrigated farming. A decrease in ground-water discharge to the stream caused by withdrawals for irrigation has potential to increase stream temperature, which would in turn affect the trout habitat in the stream.

Data indicate a hydraulic connection between the stream and the surficial aquifer. Discharge of the Straight River increased from about 25 ft^3/s near the outlet of Straight Lake to about 51 ft^3/s near the mouth. The rate of gain in discharge during summer decreased downstream, possibly as a result of ground-water withdrawal for irrigation. Hydraulic conductivity values for the surficial and uppermost confined-drift aquifers average about 255 and 300 ft/d, respectively, based on results of previous studies and model simulations. The water table in the surficial aquifer and potentiometric surface of the uppermost confined-drift aquifer slope toward the Straight River at a gradient of about 10 ft/mi.

Daily fluctuations of stream temperature are as great as 15°C during the summer. Ground-water discharge cools the stream during the summer and warms it in the winter. Results of stream-temperature model simulations indicate that daily changes in stream temperature are strongly influenced by solar radiation, wind speed, stream depth, and ground-water inflow. Nitrate concentrations in water from shallow wells completed at the water table are greater, at least locally, than the limit set by the MPCA. Nitrate concentrations in water from deeper wells and in the stream generally are less than 1.0 mg/L.

Results of simulations made using ground-water-flow and stream-temperature models developed for the study indicate that a significant decrease in ground-water flow may result from ground-water withdrawal at rates similar to those in 1988, and that this reduction in discharge to the stream may result in an increase in stream temperature of as much as 0.5 to 1.5°C.

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10/2007

Aitkin County

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Your Birding and Nature Trail Guide

250 -

P 8
PP 9-10
PP 11-13

Sandpiper

HONOR THE EARTH
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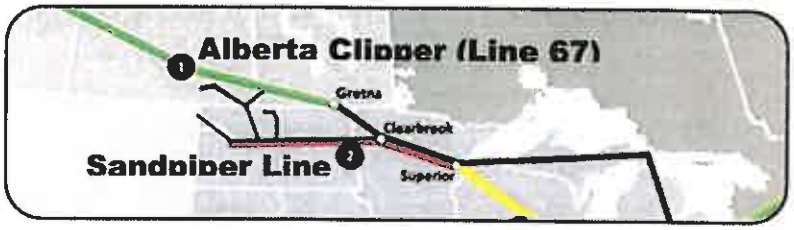
MINNESOTA PIPELINE INFORMATION FOR TRIBAL GOVERNMENTS

Newly proposed pipeline development proposals in Minnesota would put Native communities at risk with the transportation of dangerous fossil fuels.

Minnesota is at a crossroads. Extreme extraction is accelerating and will continue exponentially without interference. Presently, seven pipelines cross northern Minnesota. Enbridge Inc. wants to add two more.

The Risks: • Ceded territories of the 1837, 1854 and 1855 Chippewa Treaties • the Mississippi headwaters • Important lakes for sacred Wild Rice beds • Wetlands in the Lake Superior basin • Pristine farmlands.

We have an extensive history of mining and pipeline activity across this state, but these new pipelines carry something very different than what we are familiar with.

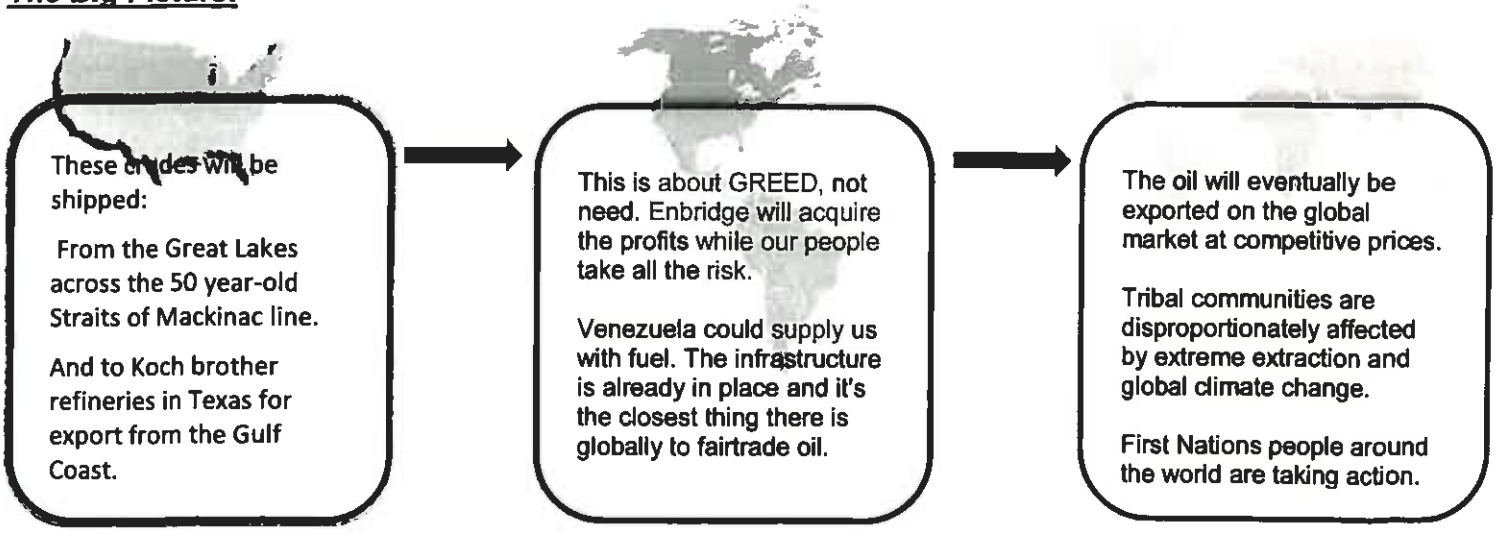


- **Alberta Clipper Line 67** could ship more of the world's dirtiest oil than the controversial Keystone XL. Hazardous DilBit from the Athabasca Oil Sands of Alberta, Canada are being shipped to the Great Lakes refineries in Superior, WI. The 36" pipeline built in 2009 would not expand but would spend $159 million to increase the volume from 450,000 barrels-per-day (bpd) to 800,000 bpd.

- **Sandpiper Line** is a new $2.5 billion line to ship 375,000 bpd of natural gas extracted through a risky process of hydraulic fracturing in the Bakken Oil Fields of North Dakota.

Enbridge Inc.: Enbridge Inc. is a privately owned Canadian energy company established in 1949. They operate the world's longest crude oil and liquids pipeline systems through Canada and the United States. In Minnesota, nearly 1.5 million gallons of oil have spilled out of Enbridge/Lakehead pipelines over the past 30 years. They are responsible for the world's largest oil spill in Michigan's Kalamazoo River – 843,000 gallons.

The Big Picture:



HONOR THE EARTH

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How do Tribal Governments Protect Tribal Rights and Resources from Regional Development?

1. Demand The EPA Uphold Tribal members' Usufructuary Rights to Hunt and Fish –
   The U.S. federal government has responsibilities in relationship to treaty rights to preserve "the wild rice upon the lands, the rivers and the lakes included in the territory ceded." These rights are guaranteed to tribal members within the context of U.S. Federal law, as they are the Supreme Law of the Land. The Supreme Court has consistently upheld theses rights, most recently with the *Minnesota vs. Mille Lacs Band of Chippewa* decision to "preserve the Chippewa's hunting and fishing rights.

   Affirm that the EPA protect and restore treaty-covered resources within their program responsibilities as paralleled in a memorandum to the EPA which states "Treaties are law, equal in status to the federal laws under the U.S. Constitution, and that the United States has a responsibility to honor the rights and resources protected by treaties." (Western Washington Tribal Treaty Rights by Bob Perciasepe)

2. Demand the EPA to do a Cumulative Effects Analysis (CEA) on pipeline and mining activity –
   Honor was among the "fifty-nine conservation, business, faith-based and Native American tribal groups in Minnesota, Wisconsin and Michigan" who have united to ask the U.S. Environmental Protection Agency (EPA) to prepare a CEA of the negative effects of mining across the Lake Superior Basin "Citing Great Lakes Water Quality treaties with Canada, legal obligations to tribes on lands ceded to the United States, and a history of mercury contamination and other pollution, the groups have requested the first-ever comprehensive analysis of mining impacts on one of the most important fresh water resources on the face of the earth." (WaterLegacy.org)

   Affirm that request for a Region-wide CEA and demand it be expanded to include past, present and proposed pipeline activity in northern Minnesota.

3. Demand the State to require an Environmental Impact Statement (EIS) for the Sandpiper Line
   The National Environmental Policy Act of 1969 (NEPA), under U.S. environmental law, requires an EIS for development that "significantly affect[s] the quality of the human environment." Due to the relatively untouched nature of the wilderness area that the Sandpiper Line would potentially run through, the state of Minnesota must require an EIS for this new line to ensure that the depth of review for decision making is complete, fully outlining the need, alternatives, and extensive impacts.

Enbridge has been around for less than 65 years; Native People have been around for 9,000. Let us commit to protecting our people, our land and our natural resources from the pipelines of the north and other harmful impacts from extreme extraction of fossil fuels and precious metals.

Don't wait for western science to catch up to traditional knowledge.

Say "NO" to new pipelines

Say "YES" to Treaty Rights

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1999 – 2010 ENBRIDGE REPORTED 804 OIL LEAKS

CHALLENGE THE ENBRIDGE EXPANSION

Contents

Join Us in the Fight To Protect Mother Earth And Our People From the Pipelines of the North

Enbridge – A privately owned Canadian energy company, operating the world's longest crude oil and liquids pipeline system, through Canada and the United States.

A less than stellar record:

- the world's largest pipeline spill in U.S. History, spilling 1.5 million gallons into Michigan's Kalamazoo River System, which has not yet been cleaned up (2010)
- In Minnesota, nearly 1.5 million gallons of oil have spilled out of Enbridge/Lakehead pipelines over the past 30 years.
- An oil spill in Deer River, MN, which is within remote Leech Lake reservation boundaries, that was not even noticed until local fire-fighters noticed the oil sludge on the ground.

Enbridge Inc. is proposing two pipeline developments in Minnesota 1) the new Sandpiper pipeline from North Dakota and 2) the Alberta Clipper (Line 67 expansion), part of the Lakehead System, from Alberta, Canada.

*For now, our dependence on fossil fuels means reliance on pipelines; however, our economy and environment cannot sustain current levels of energy consumption forever. Oil from hydraulic fracturing and tar sands are **EXTREME ENERGY**. These practices violate treaty right and environmental protection standards.*

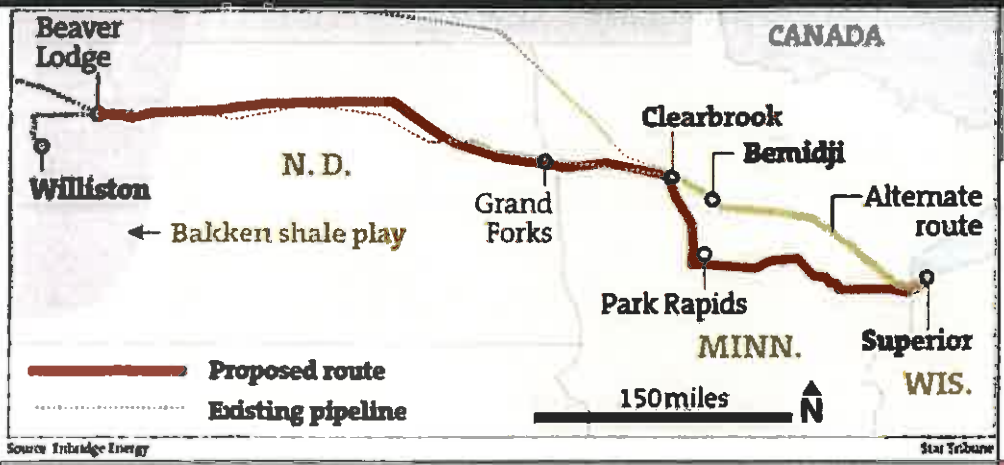
The cost of the pipelines and additional expansions constitute a huge investment. This is a lot of money which could go to different choices, like infrastructure repair, environmental protection, and efficiency. Ask yourself, ""how much is enough, and by when." If we do not act, sixty years from now, our grandchildren will be facing even more difficult questions and consequences.

The right questions need to be asked and answered, and policies and infrastructure put in place, by thoughtful people.

I would like our people to live from a land which is well taken care of, to carry on our way of life in peace. Most of us think of pipelines move something from one place to another, yet, along the way, pipelines bring risks to the North Country. We want to be the people who will be around for another 2,000 years.

Winona LaDuke, Honor the Earth

The Sandpiper Line



2 POTENTIAL ROUTES -
From Clearbrook, MN to Superior, WI

The Proposed Route:

Crosses 8 state forests, 3 state wildlife management areas, the North Country Trail and 13 trout streams, most of them in Carlton County

Crude Oil from the Bakken Fields of North Dakota

The Sandpiper Description:

The new Enbridge line is expected to run from the Beaver Lodge Station south of Tioga, North Dakota to Superior, WI. It is a 2.5 billion dollar investment. The project is approximately 616 miles in length. The 302 miles of the preferred route that run through Minnesota would have two outside diameters of 24-inches and 30-inches. While the estimated carrying capacity is 375,000 barrels –per-day (bpd) between Clearbrook, Minnesota and the Enbridge refinery in Superior, Wisconsin, the "Ultimate Design Capacity" for those widths has a maximum volume of 406,000bpd and 711,000bpd, respectively.

Enbridge expects operation to begin in 2016. Now all of this hasn't been worked out exactly. There are a lot of permits ahead- and there are 16 proposed refinery expansions in the Great Lakes region, largely anticipating this pipeline and the Alberta Clipper expansion. Besides permitting and router approval, Enbridge will need to secure 2,000 Right-of-Ways from landowners living on the proposed pipeline routes.

Endangered/Threatened Species Along the Proposed Route:

- the Henslow's sparrow,
- Blanding's turtle
- the Dakota Skipper butterfly

The Alternative Route:

"The Alberta Clipper.... was proposed to go in the same area south of the reservation, but it was denied by the Minnesota PUC for fears of more contamination risks to wild rice beds. This alternate route for the Sandpiper would impact several hunting and gathering rights from the 1854 and 1855 treaty."

– Marty Cobenais

This is a "Contested Case" at the Minnesota Public Utilities Commission

What does Enbridge need from them?

» A Certificate of Need

&

» A Route Permit

600+ CHEMICALS USED

Only 353 have been reviewed

• Methanol • Benzene • Toluene
• Xylene • Ethyl benzene • Many more

All of the chemicals used above are known carcinogens

WARNING – The extraction of natural gas through hydraulic fracturing is cited as one of the main reasons methane has entered drinking water supplies HOWEVER, the Energy Policy Act of 2005, aka the Halliburton Amendment, exempts companies from disclosing the chemicals involved in fracking

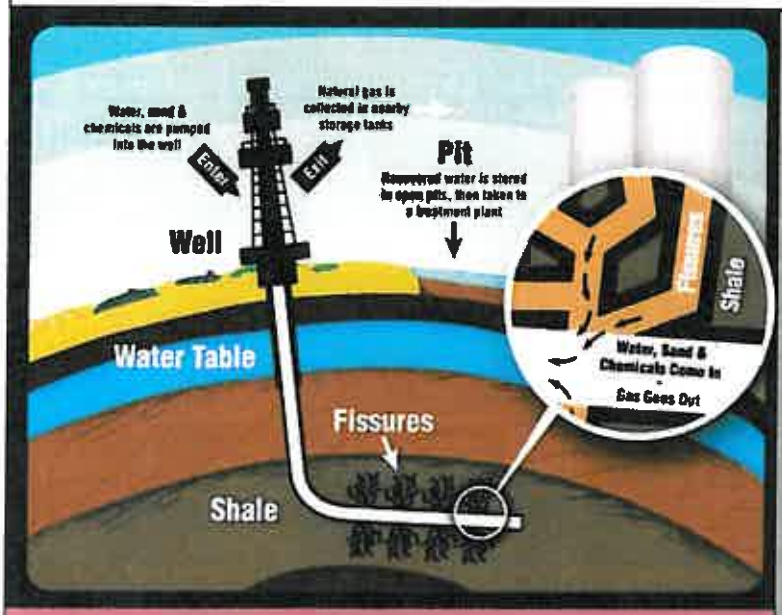
Bakken Crude Oil / Hydraulic Fracturing

What is Bakken Crude?

Now this is really the million dollar question. The Sandpiper line would carry Bakken Crude oil, from western North Dakota. *In short, it is not your mother's crude oil.*

North Dakota Bakken Crude is unconventional oil and very volatile in nature

Since Tar Sands is a sludgy form of oil, and it's mixed with multiple chemicals to move through the line, it makes it more corrosive, especially at high temperatures, which means there is a concern about pipeline breakage!



"FRAC" FACT: 20-80% of "Fracking Fluids" injected into wells get left behind; the remains are stored or disposed of into the environment. When millions of gallons of water are being used, the amount of chemicals per fracking operation is very large.

HIGH-VOLUME HYDRAULIC FRACTURING:

This is a process employed by numerous companies throughout the United States.

1. A truck delivers more than one million gallons of water to an extraction site
2. The water is mixed with sand to make up 99.9% of what is called "Frac Fluid'

What is in the remaining 0.1%?
We don't know - One of the challenges of is that they don't have to tell us what's in it!

3. At high pressures "Frac Fluid" is injected into wells
4. Around 10,000 feet below ground, the well turns horizontally
5. The pressurized mixture cracks the rock layer
6. Oil flows from the cracks, back up the well
7. The oil is taken by truck to pipelines for delivery maybe across the Great Lakes, maybe to Texas
8. Recuperated water is stored in open pits, then taken to a treatment plant

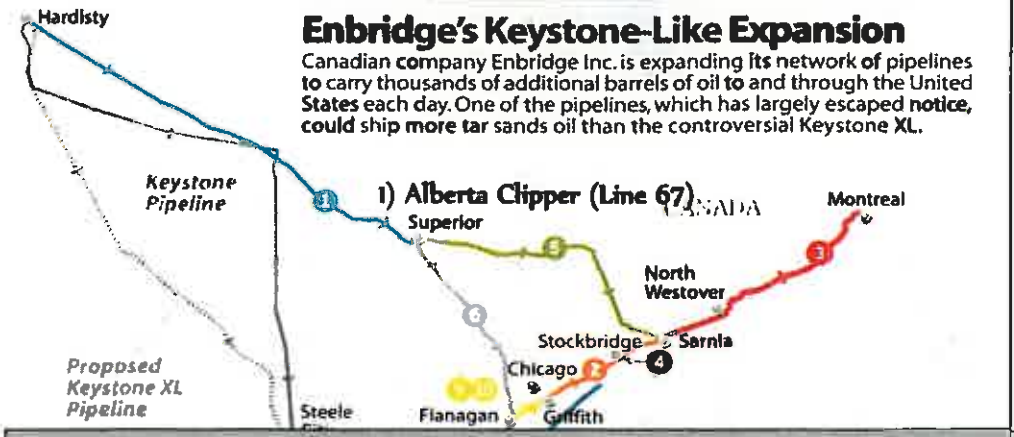
LANDOWNER RIGHTS

Property values are at risk. Landowners have a right to say "NO." Trespassing violations have occurred from Enbridge surveying. The Carlton County Land Stewards are a group deeply concerned about the proposal and they are joining us in our campaign to protect the land.

Communities Succeed Against Fracking!

A growing number of communities, cities, provinces and state have decided to oppose and seek a ban or moratorium on the "fracking" process. Ex British Columbia, First Nations in Northwest B.C. enacted a four-year moratorium against drilling for natural gas in their Sacred Headwaters. Currently a permanent ban on oil and gas development now exists, protecting their respective territory.

The Alberta Clipper (Line 67) Expansion



Enbridge's Keystone-Like Expansion

Canadian company Enbridge Inc. is expanding its network of pipelines to carry thousands of additional barrels of oil to and through the United States each day. One of the pipelines, which has largely escaped notice, could ship more tar sands oil than the controversial Keystone XL.

The Enbridge pipeline goes through the northern pipeline corridor from Bemidji, across the Leech Lake and Fond du Lac reservations, and to Duluth on its way to Superior, WI

Tar Sands from Alberta, Canada

Clipper Description

The Alberta Clipper pipeline was built through our land in 2009, over the opposition of many concerned people. At, the same time, Enbridge built another pipeline, a "diluent" pipeline that transports toxic, lighter hydrocarbons back to Canada.

Enbridge plans to invest $159 million in extra pumping stations to increase capacity by 40 percent to 800,000 barrels-per-day (more than 25,000,000 gallons) to ship tar sands diluted bitumen & diluents. Although the corporation hopes to be operational in 2016, there are many obstacles ahead for Enbridge.

The Minnesota Public Utilities Commission approved the first of two expansions to the Alberta Clipper in July, 2013. The second and larger expansion has now been side tracked into a "Contested Case Hearing," due to local citizen outcry and written comments contesting facts presented by Enbridge during their application to the Minnesota Public Utilities Commission.

There will be public hearings during and an open written comment period in winter 2013-14. Several other Minnesota entities, the Department of Natural Resources, the Pollution Control Agency, and the State Historical Preservation Office also will have to approve this Alberta Clipper expansion.

Oil coming from the Alberta Tar Sands area is considered the dirtiest oil on the face of the Earth, and the Tar Sands extraction is the single largest industrial project in the history of the world.

Line 67 Route

Crosses hundreds of miles throughout Minnesota, and the Red Lake, Leech Lake and Fond du Lac reservations

Certificate of Need
Or
Certificate of Greed?

Enbridge justifies Canadian Tar Sands as a replacement for imports from "politically unstable countries." It has a great deal to do with the Koch brothers and the refineries they control in Texas. But Midwest drivers have not historically benefitted from the cheaper source of refinery feedstock.

"Expanding pipeline carrying capacity poses an extreme risk for the wetlands of northern Minnesota. This will be an ecological risk, and will be a huge risk to property owners in the North Country, whether tribal governments, tribal members, or any Minnesotan, including those who have an interest in public lands traversed by the pipeline."

Tar Sands

WHAT ARE TAR SANDS?

A sludgy form of bitumen, or asphalt, mixed with oil, and sand. In order to move it through the line, bitumen is diluted with gas "condensate" made from multiple chemicals and toxic unknown light hydrocarbons, like benzene and naphthalene, all known carcinogens. The mixture is called Dilbit.

Dilbit requires higher temperatures and more pressure. This makes it more corrosive, especially at high temperatures, and means there is a concern about pipeline breakage. The return line will also be transporting larger amounts of the very toxic, cancer causing diluents.

LAKEHEAD SYSTEM UNDER SCRUTINY

A Wisconsin Spill Prompted Federal Agencies to Take Action.

The Wisconsin State Journal, said there was an estimated 17,000 tons of soil contaminated by 50,000 gallons of oil in the Grand Marsh, WI.

After this spill, and multiple other failures, the United States Department of Transportation Pipeline and Hazardous Materials Safety Administration (PHSMA) ordered Enbridge to submit plans to improve the safety of the entire Lakeland System.

The Environmental Risks

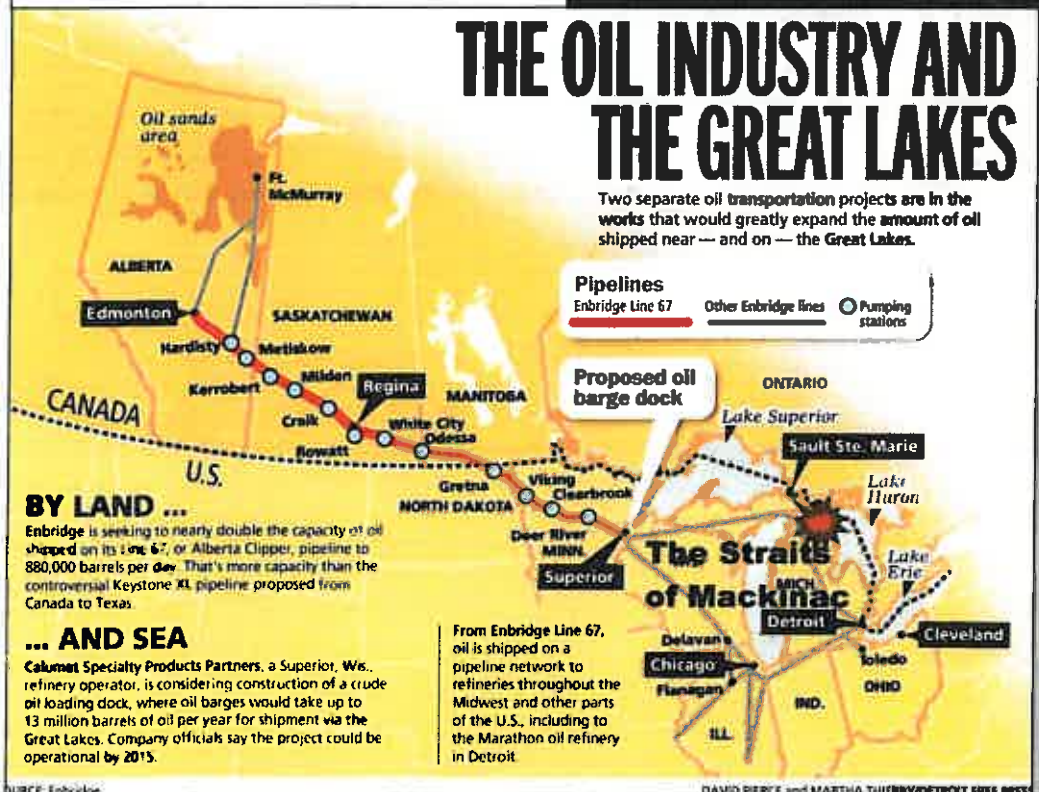
- Bitumen is heavier than water, & will sink without "condensate
- 15-20 times more acidic than conventional oil

- Up to 7 times as viscous (thicker and greater in volume)
- 16 times more likely to breach a pipeline than regular crude oil

Enbridge is determined to expand and risk more oil spills.

THE OIL INDUSTRY AND THE GREAT LAKES

Two separate oil transportation projects are in the works that would greatly expand the amount of oil shipped near — and on — the Great Lakes.



BY LAND ...

Enbridge is seeking to nearly double the capacity of oil shipped on its Line 67, or Alberta Clipper, pipeline to 880,000 barrels per day. That's more capacity than the controversial Keystone XL pipeline proposed from Canada to Texas.

... AND SEA

Calumet Specialty Products Partners, a Superior, Wis., refinery operator, is considering construction of a crude oil loading dock, where oil barges would take up to 13 million barrels of oil per year for shipment via the Great Lakes. Company officials say the project could be operational by 2015.

From Enbridge Line 67, oil is shipped on a pipeline network to refineries throughout the Midwest and other parts of the U.S., including to the Marathon oil refinery in Detroit.

SOURCE: Enbridge

DAVID PIERCE and MARTHA THIERRY/DETROIT FREE PRESS

The Straits of MacKinac

Of particular concern to many is the segment under the Straits of Mackinac (between Lake Huron and Lake Michigan) which is over 50 years old, and is no longer anchored in many places.

If a rupture occurs, it poses a dismal threat of contamination to the entire Great Lakes system.

Safety & Spills

The Pipeline and Hazardous Material Safety Administration (PHMSA)

This agency is responsible for monitoring pipeline safety nationally. They cover 2.5 million miles of present pipelines, with a scant 110 inspectors. Enbridge itself presently has 50,000 miles of pipelines. Monitoring headquarters are not local; it's in Edmonton,

In turn, pipeline developers, like Enbridge are getting exemptions in the integrity of the pipeline operation.

PHMSA has approved exemptions that threaten the integrity of the pipelines for companies utilizing land not considered "high consequence areas," like shallow aquifers, prime farmland, wetlands and wildlife habitats. **This may be the case in Northern Minnesota.**

Canada's National Energy Board reported Enbridge is not complying with safety standards at 117 pumping stations. In their recent letter to Enbridge they requested compliance.

ENBRIDGE SPILLS

Kalamazoo, Michigan Spill, 2010

The single largest pipeline oil spill in US history was the 2010 Kalamazoo spill. An Enbridge pipeline erupted and spilled 840,000 gallons of tar sands oil into a wetland that leaked into the Kalamazoo River during a planned shutdown. The environmental damage to the wetlands, Kalamazoo River, and Talmadge Creek continues and will likely never fully be erased.
Enbridge is still funding clean-up. Two years after the spill, the EPA ordered river dredging as the river is still contaminated. The total clean-up cost has exceeded one billion-dollars. According to testimony by Michigan lawmakers, "Federal regulators are investigating the 2010 rupture of Line 6B, part of the Enbridge-operated Lakehead pipeline system. The National Transportation Safety Board found Enbridge knew of a defect on the pipeline five years before it burst open and spilled around 20,000 barrels of oil into southern Michigan waters." (UPI, Michigan "Lawmaker Wary of Enbridge Plans," July 19, 2012.)

Deer River, Minnesota Spill, 2010

Oil pipelines spill. The more remote they are, the more likely a spill will receive little attention, if any. The oil spill in Deer River, which is within Leech Lake reservation, was not even noticed until local fire-fighters, who were out combating a forest fire beside the exposed pipeline, noticed oil sludge on the ground.

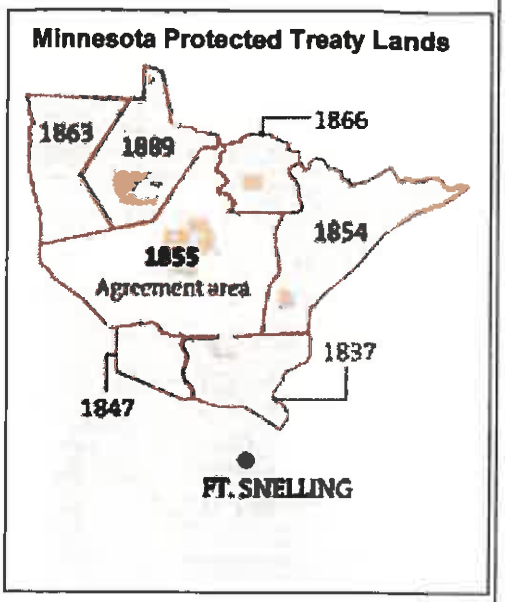
Lac Megantic Derailment, 2013

A crash of 72 train cars carrying Bakken crude oil "vaporized" 47 residence and leveled more than 40 buildings. According to the World News NBC "Firefighters said the hot-white-blaze left a scene of destruction like nothing they have ever seen before encountered." Crude oil is unconventional in many respects and is apparently more explosive.

Why Treaties Matter

Treaties Rights Require the U.S. to Protect the Land and Water for Tribal Use

Complex treaty agreements with the US government in *1837, 1842, 1855 and 1867* ensure the Anishinaabe of today would be able to eat and live as Anishinaabe in northern Minnesota. Just think; at that timemany Americans were not literate, but our ancestors still were able to negotiate treaties to protect our tribal resources.



According to Article 2 of the US Constitution, treaties are the supreme law of the land. I am thankful we have a constitution, which reminds us of our rights, and our covenant to each other.

Treaties are agreements between all of our ancestors.

The state of Minnesota continues to try and limit the Anishinaabe in our traditional way of life. The state of spent over $19 million alone on the litigation in the Mille Lacs 1837 Treaty lawsuit, two decades ago. The 1837 Treaty provided that the "...Chippewa Indians would cede these territories to the United States in exchange for cash and goods. The privilege of hunting, fishing and gathering the wild rice upon the lands, the rivers and the lakes included in the territory ceded, is guaranteed..."

Recently, Federal Judge John Tunheim upheld those agreements with the Anishinaabe. Tunheim, dismissed the indictments of five Anishinaabe, who were arrested in a on Leech Lake reservation for poaching, saying that the men were protected under the 1837 treaty. I am thankful he did. In his summary, Judge Tunheim emphasized that courts, including the United States Supreme Court, "have consistently interpreted the 1837 and subsequent Chippewa treaties to preserve the Chippewa's hunting and fishing rights" on and off ceded territory in Minnesota.

I would like our people to live from a land which is well taken care of. I would like us to carry on our way of life in peace.

To do this, our treaty rights need to be respected and our people need to eat the foods we were given. As White Earth Tribal Member Robert Shimek explains, "This is the classic clash between the culture of the state of Minnesota, the US, and those of our Indian people who uphold our Anishinaabe belief system and way of life. This is where we keep colliding in the courts, because we were instructed to take care of this earth in a certain type of way. And to respect and honor all things in the creation in a certain kind of way and to utilize these parts of the creation in a certain kind of order to sustain ourselves.

Our treaty rights are put at risk by the proposals, and our lives as Indigenous people are in jeopardy.

How Can Tribal Governments Protect Tribal Rights and Resources from Regional Development?

1. Demand The EPA uphold Tribal members' rights to hunt, fish and protect the land on and off ceded territory – Affirm that the EPA protect and restore treaty-covered resources within their responsibilities.
2. Demand the EPA to do a Cumulative Effects Analysis (CEA) on pipeline and mining activity in the Lake Superior Basin – A full assessment of the negative effects of industrial development must be reviewed for past, present and proposed activity before any new projects move forward.
3. Demand the State to require an Environmental Impact Statement (EIS) for the Sandpiper Line – As part of the National Environmental Protection Act (NEPA) the U.S. requires an EIS for development with significant affects to the "quality of the human environment."

What You Can Do

Our land and water are being threatened. The terrain is large and our hearts and courage are in this struggle. We need your help. Please join us in this fight that will surely be the most difficult fight of our time and for our Mother Earth.

What agencies decide if the projects are permitted?

- MN Public Utilities Commission (Need/Route Permits)
- MN Department of Natural Resources (Water & Habitat)
- Army Corps of Engineers (Wetland Permits)
- Secretary of State (Presidential Permit)
- Other agencies: A federal Administrative Law Judge, The MN Pollution Control Agency, The State Historic Preservation Office

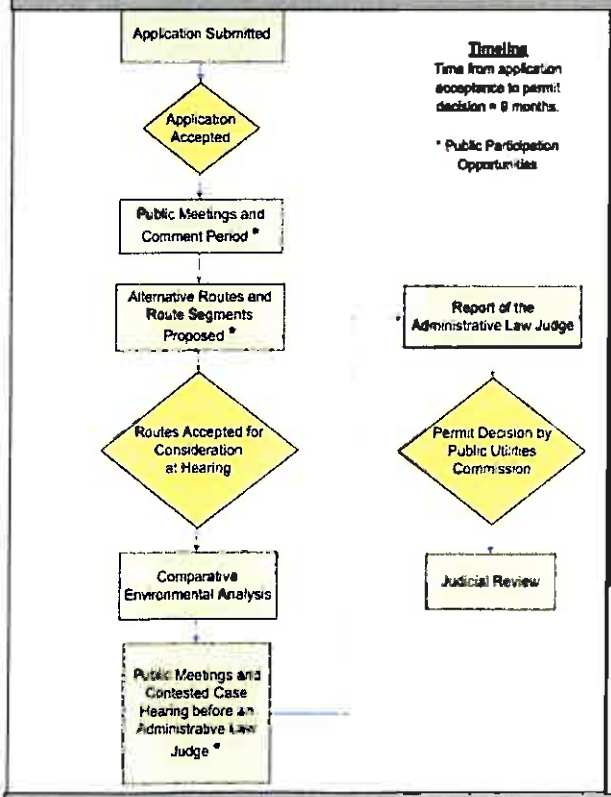
"Enbridge has not proven itself to be a safe part of our environment. Our lakes and wild rice beds will be here forever, but if there's an oil spill, they will be destroyed, and Enbridge will not be here. They are a 50 year old Canadian corporation and we are a people who have lived here for 10,000 years."
-Michael Dahl, a White Earth Tribal member

How the Public Starts Taking Action

Know the Issues – Do the research. Educate yourself and others. Knowledge is power, share it!

Letter Writing– Take the opportunity to testify and comment during the public review periods.

Join the Movement – Stand in solidarity with First Nations People worldwide and support the campaign to protect our land and Honor the Earth.



How is the PUC involved in decision making?

1. Their process creates the primary avenue for citizen participation

2. The Commission must grant each line a Certificate of Need

3. The Sandpiper will need an additional Route Permit new pipeline development, potentially through relatively untouched wilderness.

** The PUC couldn't resolve all questions regarding the need for the proposed pipelines. The cases are now separate Contested Case Hearings, both with public comment periods and public meetings in Minnesota counties directly affected by the projects.

Pipeline Routing Full Permitting Process

Don't wait for science to catch up to traditional knowledge.

Say "NO" to new pipelines

Say "YES" to Treaty Rights

Visit Our Websites for articles, videos and resources:

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HONOREARTH.ORG

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

THIS ENVELOPE INCLUDES:

and electronic copy

1. A printed copy of a position paper by Ronald Vegemast, P.E. dated February 8, 2014 regarding the preferred route for the Sandpiper Pipeline. This paper was previously submitted as comments related to the public hearing process on the above referenced project as an attachment to an Email sent to Mr. Larry Hartman on February 21, 2014.

and electronic copy

2. A printed copy of an amendment to that position paper dated February 26, 2014. The amendment is a detailed description of a suggested alternate route for the Sandpiper Pipeline between the Red River of the North and Superior Wisconsin.


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