

## Levi, Andrew (COMM)

**From:** Jackie Parr <simmons.jax@gmail.com>  
**Sent:** Monday, July 10, 2017 9:06 AM  
**To:** MN\_COMM\_Pipeline Comments  
**Subject:** Stop Line 3

To whom it may concern:

This pipeline does NOTHING for the people of Minnesota, in fact it is harmful. It will also negatively affect Minnesota by bringing CRIME, there are acknowledgments that pipeline construction is known to bring criminal activities to the area. And finally, the impact the pipeline will have for the climate, which is could be catastrophic.

- People of Minnesota
  - Chapter 9, "Tribal Resources," states that ANY of the possible routes for Line 3 **"would have a long-term detrimental effect on tribal members and tribal resources"** that cannot be accurately categorized, quantified, or compared (9.6). It also acknowledges that "traditional resources are essential to the maintenance and realization of tribal lifeways, and their destruction or damage can have profound cultural consequences" (9.4.3). **This does not acknowledge the treaty responsibilities the state of Minnesota has to the tribal members.** 2334-1
  - Chapter 5, "Existing Conditions, Impacts, and Mitigation" states that Line 3 will create ZERO permanent jobs. Enbridge's application states that "existing operations staff would be able to operate the [pipeline] and that few additional employees would be hired to assist the staff" (5.3.4).
  - Also in Chapter 5, the DOC assumes "all workers would re-locate to the area" and ZERO construction jobs will go to Minnesotans. The pipeline would have "no measureable impact on local employment, per capita household income, median household income, or unemployment" (5.3.4).  
 The DEIS does not acknowledge that when the existing Line 3 shuts down, Enbridge will stop paying taxes to the MN counties along the mainline corridor. For many of these poor counties in the north, revenue from Enbridge's property tax makes up a significant portion of the county budget. There is also the issue that Enbridge is now in the process of appealing years of back taxes, burdening two of the poorest counties in Minnesota with over \$10 million due.
- Acknowledged Crime
  - The DEIS acknowledges that "The addition of a temporary, cash-rich workforce **increases the likelihood that sex trafficking or sexual abuse will occur,**" and that these challenges hit Native communities the hardest. But the DEIS dismisses this problem quickly, saying that "Enbridge can prepare and implement an education plan or awareness campaign around this issue" (11.4.1). What experience does Enbridge have planning and implementing an anti-sex trafficking program? 2334-2
- Construction & Prep (analyzing spills and other environmental impacts)
  - The DEIS contains **no spill analysis for tributaries of the St. Louis River or Nemadji River**, where spills could decimate **Lake Superior** and the harbors of the Twin Ports. 2334-3
  - For calculations of impact, the lifespan of the new Line 3 is estimated at *30 years*. But Lines 1-4 are 55-65 years old! And hasn't the technology improved?  
 There is no analysis on Enbridge's leak detection system, or their inability to respond quickly to major emergencies.  
 The DEIS estimates the annual probability of different kinds of spills on the proposed route in MN:
    - Pinhole leak = 27%
    - Catastrophic = 1.1%
    - Small Spill = 107%, Medium = 7.6%, Large = 6.1%
    - So in 50 years, we can expect **14 pinhole leaks, 54 small spills, 4 medium, 3 large, and 1 catastrophic!**
  - Cathodic protection, which applies electric current to the pipeline in order to protect it from corrosion caused by nearby utility lines, **will not be installed for up to 1 year after pipeline**

**construction** (2.3.2.3). Lack of cathodic protection is what caused many pinhole leaks in the Keystone pipeline, almost immediately after construction. The proposed route for Line 3 follows a utility corridor for much of its length - this is a recipe for disaster. Even the US Army Corps's rubber-stamp approval of the Dakota Access pipeline required the cathodic protection system to be installed within 6 months!

- Maintenance
  - There is also no discussion of **exposed pipe, how fast it will corrode, or how much currently buried pipe will become exposed once it is emptied**. “When a pipe is empty, the weight of the liquid load that once contributed to buoyancy control is lost. As a result, the pipe could become buoyant and begin rising toward the surface at watercourse crossings, in wetlands, and in locations where soil density is low and the water table is high” (8.3.1). | 2334-4
  - The DEIS states that it will be very risky to remove and clean up the existing Line 3 because the pipelines are very close together. “The distance between pipelines within this corridor varies, but they are generally 10 to 15 feet apart” (8.3.1). This is not consistent with our extensive observations and physical measurements on the land. Also, don't they dig up pieces of pipe for maintenance purposes all the time? **Why is it suddenly risky?**
- End of Life Pipeline Items (Abandonment)
  - The DEIS simply states that “Enbridge has indicated that it would develop a contaminated sites management plan to identify, manage, and mitigate historically contaminated soils and waters” found during the abandonment or removal of the existing Line 3 (8.3.1.1.1). **We want to see that plan.** | 2334-5  
The risks of pipeline abandonment are not adequately assessed. For example, there is no discussion of landowner property values and the effect that an abandoned pipe could have on them, especially if there is indeed “**legacy contamination**” on people's land.
- Climate Change
  - The DEIS acknowledges that Line 3 would contribute to climate change. It analyses 3 different types of emissions - direct, indirect, and lifecycle. Direct emissions are those that the pipeline infrastructure itself emits, and these are very small. Indirect emissions are those created by the power plants that provide electricity for the pipeline's pumping stations, and these are significant. Lifecycle emissions are those caused by the refinement and eventual use of the oil, and these are massive. Line 3's direct and indirect emissions alone would be 453,000 tons of CO2 per year. Over a 50-year lifespan, that would cost society an estimated \$1.1 billion. (Executive Summary p.18).
  - The lifecycle emissions of Line 3 would be 193 million tons of CO2 each year. Over a 50-year lifespan, that would cost society an estimated \$478 billion (5.2.7.3)

Please stop Line 3. It does nothing good for the people, state, and climate. Thank you for your time.

Jackie Parr

**Levi, Andrew (COMM)**

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**From:** Brian PaStarr <bpastarr@gmail.com>  
**Sent:** Thursday, July 06, 2017 4:04 PM  
**To:** MN\_COMM\_Pipeline Comments  
**Subject:** Line 3 Pipeline: Document # CN-14-916 and PPL-15-137

Dear State of Mn.

My name is Brian PaStarr and I submitted a comment before, but know that Monday July 10 is the deadline and I wanted to put forth a 2nd comment as this is so important to me. As a parent, retired teacher, former church deacon, it matters to me as to what kind of a world we leave for our children. Before I wrote about the effects of climate change caused by the pipeline as well as the decreased need for oil as we move forward. Today I want to focus only on the economic impacts of the pipeline. Economically, the pipeline is not good for the state of Mn.

Chapter 5 of the EIS states that line 3 will create no permanent jobs. The application that Enbridge uses notes that "existing operations staff would be able to operate the pipeline and that few additional employees would be hired to assist the staff." (5.3.4)

Chapter 5 also notes "all workers would re-locate to the area: and that no construction jobs would go to Minnesotans. In addition, the pipeline would "have no measureable impact on local employment, per capita household income, median household income, or unemployment.: (5.3.4)

There is no mention in the EIS that when the existing Line 3 shuts down, that Enbridge will stop paying taxes to the Mn. counties along the mainline corridor. For many of these poor counties, revenue from this property tax helps keep the county budget in working order.

In addition, the pipeline goes through pristine areas of the state that depend on tourism for its income. There has never been a pipeline built that does not leak. The EIS estimates that the annual probability of leaks is as follows: A. Pinhole leak 27% or every 3.7 years. B. Small Spill 107% or every 11 months. C. Medium spill 7.6% D. Large spill 6.1% E. Catastrophic spill 1.1% or every 87 years. This is a lot of oil spilled in the ground and streams and affects tourism, farming, and the overall health of any region the pipeline passes through.

Thus the pipeline does not generate jobs for Minnesotans and costs us money lost to tourism and farming that the pipeline passes through. This is not a situation that benefits the state of MN.

Thank you. Sincerely,  
 Brian PaStarr

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JUL 13 2017

**MAILROOM**

David Patterson  
13763 Shirley Drive  
Burnsville, MN 55337  
7/9/2017

Jamie Macalister  
Environmental Review Manager  
MN Dept. of Commerce  
85 7th Place East, Suite 280  
St. Paul, MN 55101-2198

Re: Public Comment: Line 3 Project (CN-14-916 and PPL-15-137)

Dear Jamie Macalister:

It recently came to my attention that Enbridge submitted applications to the Minnesota Public Utilities Commission to construct a new 340-mile pipeline to replace the existing Line 3. It is important to note that this pipeline is substantially the same as the 2013 Sandpiper Pipeline Project which was deferred due to environmental concerns. Given the time constraints of the review period, a detailed review of all 5,000 pages is impossible. However, a review of a few key topics shows significant holes in Cardno's analysis. Their EIS amounts to mostly filler material (Cardno's close ties to Enbridge raise additional questions about the impartiality and integrity of this EIS process).

The two main topics that this letter will address are the economic benefits and the generation of alternatives. A discussion of each follows.

### **Economic benefit**

#### ***5.3.4.3 Impact Assessment***

"Construction and operation of the Applicant's preferred route and most of the CN Alternatives (except for aspects of the existing Line 3 pipeline alternative since that pipeline is in place and operating) would increase employment, income, and tax revenue. Direct impacts on employment would be driven by the large number of construction personnel. Although it is expected that the workers would not live in the counties where construction would occur, they may temporarily re-locate to these counties during construction or spend money locally which could result in temporary county-level income changes in supporting industries. Tax revenues would increase due to the increase in labor income (i.e., taxable income), sales tax on the purchase of goods locally, and property taxes. Construction would also have a temporary indirect influence on economic conditions due to employment and income for service industries supporting construction activities (e.g., the hotel industry, fueling services, and the food service industry)."

Additional detailed information on economic benefit can be found in section 6.5.4.3.1 but generally mirrors the information provided in section 5.3.4.3 (excerpted above).

Jamie Macalister  
Environmental Review Manager

7/9/2017

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- The EIS indicates that no permanent jobs will be created by the project along the pipeline route and all of the skilled labor required would need to be imported. Any employment gains would only be expected to last 8 months.
- Enbridge has a history of fighting property tax assessments from local counties as detailed in *The Star Tribune*'s March 26, 2017 article "Enbridge tax challenge could cost northern Minn. counties millions".

#### 5.3.2.3.1 Applicant's Preferred Route (from Neche to Superior)

- The EIS indicates that there are minimal construction impacts and almost no long-term impacts to recreation and tourism due to pipeline construction and operation. This analysis is based almost exclusively on an analysis of state lands and designated areas (scenic byways and rivers). It does not look at the economic impact to tourism in the area as a region or deal with the impact to tourism and recreation due to a spill. To be clear a spill is inevitable - the Executive Summary notes that the existing Line 3 has had 15 failures (spills) of over 50 barrels each since 1990. The proximity of the proposed Line 3 to valuable water resources would make any spill catastrophic to the local tourism industry. Figure ES-4 of the Executive Summary shows the severity of the average pipeline release – 225 barrels!

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## Alternatives Analysis

### 4.2 DESCRIPTION OF ALTERNATIVES – CERTIFICATE OF NEED

- The alternatives analysis does not evaluate in-situ rehabilitation of the pipeline. Many pipelining and pipe in pipe options are currently available and would result in considerably reduced environmental impacts compared to any of the presented alternatives. Given that fossil fuel usage has dropped over the last 10 years in Minnesota, Enbridge should be planning for reduced transmission demand so any reduction in pipeline diameter due to lining or carrier pipe installation may actually be desirable, especially since the existing Line 3 pipeline has been running at one half capacity for some time now (390,000 barrels/day vs. 760,000 barrels/day). Furthermore, the mix of fuels consumed in the United States has drastically changed over the last decade with the United States becoming a large producer (and consumer) of natural gas. This pipeline is intended to carry heavy crude which will likely to see reductions in demand as evidenced in the July 9, 2017 *Star Tribune* article entitled "Minn. mulls new infrastructure for expected electric-car surge". The article notes that along with the number new electric car offerings, Volvo plans to produce electric and hybrid vehicles starting in 2019. Given these changes, the EIS fails to adequately make the case that additional long term heavy crude capacity is even required for the region.
- A significant portion of the new proposed Line 3 route parallels high voltage lines. The EIS presents this as an environmental advantage. However, steel pipelines are highly susceptible to voltage induced corrosion which often result in pinhole leaks. The proposed Line 3 follows the high voltage corridor through the heart of Minnesota's lake country – making a spill in this area a certainty. In section "2.3.2.3 Cathodic Protection

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Systems” states that Cathodic protection must be in place within one year of pipeline installation. With the induced voltage from the powerlines even the smallest scratch in the pipeline’s exterior coating could lead to accelerated corrosion. Given these conditions the only question remaining is when the spill will occur and how much will leak. However, if it’s an ‘average’ spill, Figure ES-4 indicates that it will be well over 200 barrels

2844-2  
Cont'd

Based on a review of the Economic Benefits and the Alternatives Analysis, it is clear that the existing EIS is inadequate and fails to demonstrate that this project is in the State’s Interest – as required by the Certificate of Need.

Sincerely,

David Patterson,

1                   MR. ANDY PEARSON: Thank you very  
2 much. My name is Andy Pearson. A-N-D-Y.  
3 P-E-A-R-S-O-N. And I'll make a few comments  
4 tonight.

5                   First of all, let's just agree on the  
6 face of it that the Line 3 replacement project is  
7 absurd. Can we just agree on that; that this is  
8 completely nuts that we're even considering at this  
9 time, this time of climate chaos, right, just  
10 building in our world, right, we're considering  
11 building a pipeline -- a three-foot-wide pipeline to  
12 carry the dirtiest oil in the world when we don't  
13 even need that oil here anymore? Can we agree that  
14 that's absurd?

15                  I'm asking for a few considerations.  
16 I'm asking that the Environmental Impact Statement,  
17 a document that's supposed to consider rules, both  
18 in statute and rules as a matter of policy, I am  
19 asking that it be updated to reflect the recent  
20 decision by Minnesota Governor Mark Dayton to commit  
21 Minnesota to following through on the Paris Climate  
22 Agreement, following the absolute lack of leadership  
23 displayed at the federal level in withdrawing us  
24 from that international agreement.

25                  Now, let's be real here. This

1 project, as analyzed in the current draft  
2 Environmental Impact Statement, carries a social  
3 cost of carbon of \$287 billion. And that is billion  
4 with a B. That is a staggering amount. That's the  
5 number that includes the environmental cost of the  
6 oil that the pipe would transport, as well as the  
7 number, which I know was read earlier, 673 million.  
8 Just to be clear, that's only the impact of the  
9 infrastructure of the pipe itself. It doesn't even  
10 include the oil inside.

11 \$287 billion is the number in the DEIS  
12 that includes the oil, and that is not even a  
13 comprehensive number; that is only over a 30-year  
14 time span. And we know that there's pipe in the  
15 ground right now that's been pumping for over  
16 60 years. If we double that number, that would be a  
17 closer approximation. And let's know there are  
18 people here in the room today that are barely even  
19 going to be middle-aged 30 years from now. That  
20 number needs to be extended. We need to have  
21 calculations that go out to, at a minimum, 60 years  
22 social cost estimates.

23 And please revise the climate section,  
24 taking into account its compatibility with Governor  
25 Dayton's decision to stay with Paris. It is crystal



1 clear that the only viable option, if he is serious  
2 about sticking to the Paris agreement, is to not  
3 build this new pipeline at all, to be very clear  
4 about that.

5 Second thing I want to mention is the  
6 alternatives analysis. You know, one way to make a  
7 bad project look like the only way forward is to  
8 remove all the other alternatives one by one or make  
9 them look bad. And that is what was done in this  
10 document. It was done just in a way that surprised  
11 even me. And I didn't know what I'd find, but I am  
12 surprised.

13 We have a proposal from the Department  
14 of Commerce's document that Enbridge might actually  
15 choose to build a rail-loading terminal in Canada  
16 just on the other side of the U.S. border after, you  
17 know, a thousand miles of pipe; and then they would  
18 put the oil onto trains, ship it across Minnesota to  
19 another rail-loading terminal to go down the rest of  
20 the way to the Gulf where this oil is headed. I  
21 mean, is that done anywhere in the world? This is  
22 one of my questions: Is there a rail bridge between  
23 two pipeline terminals anywhere in the world? These  
24 alternatives are supposed to be reasonable and  
25 prudent. Right? There is -- there is no way that

1           that can possibly be met. That's why I have no idea  
2           why it's in the document.

3                       There are viable potential rail  
4           alternatives which could at least be studied that  
5           would involve the rail being loaded up in Canada and  
6           shipped to refineries. That's the way Canadian oil  
7           moves by rail when it moves by rail, which is rare.  
8           This absolutely must be changed.

9                       The same goes for the truck  
10          alternative. By the way, 4,000 truck trips per day  
11          in the DEIS, a pipeline on trucks? Again, this is  
12          not the case anywhere in the world. You are reading  
13          a work of fiction here. This isn't even based on  
14          remote fact, this alternatives analysis.

15                      And then we have what Levy brought up,  
16          where two of the route alternatives goes through  
17          Leech Lake, when Leech Lake has made it absolutely  
18          clear that that is not a possibility. Again, that  
19          is not reasonable and prudent.

20                      The alternatives section is a work of  
21          fiction, and it's got to be treated like that. And  
22          we can't make decisions based on a work of fiction.  
23          We need to make them based on a work of fact.

24                      Last point. Where is the oil going,  
25          once it gets to Superior, Wisconsin? Now, Enbridge

1 has pipelines that cross down Wisconsin. It's my  
2 understanding that Enbridge plans to use those  
3 pipelines. It's also my understanding that the  
4 current flow rates on the pipelines going into  
5 Superior and out of Superior do not allow for the  
6 extra capacity which the Line 3 expansion would  
7 bring.

8 Now, in Wisconsin, Enbridge has gone  
9 back and forth about whether or not they plan to  
10 build a brand-new pipeline across that state to  
11 carry extra oil coming from Minnesota. That line  
12 has been at some points referred to as Line 66 or  
13 the Line 61 twin. That is not referenced in the  
14 draft Environmental Impact Statement, as far as I  
15 can see; and it must be, because if that line is  
16 part of what could potentially move this oil, if it  
17 is necessary to move the volume transported by the  
18 Line 3 project, then it is a connected project, and  
19 it must be included within the scope of this EIS for  
20 the study. The fact that that was not included and  
21 there's no discussion of it, that Enbridge's numbers  
22 on potential flow rates are omitted from the  
23 document, are censored from the document that we  
24 don't even know where this oil is going once it  
25 leaves the state, we cannot make a decision based on

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1           that.

2                       So I don't think what I'm asking is  
3           too much here. I don't think it's crazy. I don't  
4           think it's totally unreasonable. I think what I'm  
5           asking for is basic facts. You know, we have some  
6           of those in the document already, and that's good,  
7           and I appreciate where the facts have been followed  
8           and where they've been drawn out; but there's a heck  
9           of a lot of places where they haven't been and they  
10          need to be.

11                      Thank you so much.

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MR. ANDY PEARSON: Thank you. My

name

is Andy Pearson. A-N-D-Y. P-E-A-R-S-O-N. And I want to make a couple of specific points about the DEIS, which in a lot of ways is a very good document. It has a lot of information that we maybe didn't have before.

One of the pieces that was the most shocking to me to see was that the climate change social impact of the project is projected to be, over 30 years, up to \$287 billion, which is an awfully staggering number. However, pipelines have been currently operating that are -- have been in the ground for over 60 years; and I think that that number needs to be extended in terms of studying the long-term impacts, to cover the full length of how long some of these pipelines have been operating. So I wanted to make that point.

1 I also want to say specifically the  
2 analysis of the alternatives, the truck and the rail  
3 alternatives, assumes that out of Clearbrook,  
4 Minnesota there is going to be takeaway capacity  
5 dropping south to the Minnesota refineries on  
6 Minnesota pipeline -- the Koch Brothers operate the  
7 pipeline network that serves Twin Cities  
8 refineries -- equivalent to the full takeaway  
9 capacity of those pipelines. And I don't believe  
10 that that's an accurate assumption, and I want to  
11 push back against it. And I would encourage the DOC  
12 to analyze that more fully, because there are  
13 several pipelines that are capable of delivering  
14 that oil right now.

15 Among other pipelines that Enbridge  
16 has, there's 1, 2, 4, and the Alberta Clipper Line  
17 67. And, in particular, Line 4 and 67 are capable  
18 of carrying the type of heavy crude, the diluted  
19 bitumen, that the Minnesota pipelines, the Koch  
20 refineries, take and take away. And this is  
21 relevant because the alternatives that have been  
22 proposed in the document all assume that any  
23 potential project needs to supply the full capacity  
24 of those pipelines going down to the Twin Cities.

25 I haven't seen information that

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1 suggests that Line 3 is currently doing that or that  
2 it would need to do that in any building scenario,  
3 even if the pipeline is to be constructed in a  
4 different location or in the present location.

5 So I would encourage the final version  
6 of the DEIS to examine what the takeaway needs are  
7 and how else it could be supplied out of Clearbrook  
8 for the Twin Cities area refineries and not make an  
9 automatic assumption that Line 3 has to provide all  
10 of that. I believe it does not.

11 The other thing is I want to read a  
12 small section of the DEIS about the minimum lifespan  
13 of a pipeline. It says, The Applicant anticipates  
14 that the physical life of the pipeline, i.e., the  
15 number of years the pipeline will be capable of  
16 transporting crude oil, would be indefinite, given  
17 appropriate construction, maintenance, and integrity  
18 systems.

19 Now, I know that pipelines can last a  
20 long time, and we have pipelines in Minnesota that  
21 have lasted a long time. But I don't think it's an  
22 exaggeration to say that nothing is indefinite,  
23 nothing is infinite, nothing is going to keep being  
24 able to be repaired forever. And I would encourage  
25 and expect that a final version of this document

1 would dig into that a little bit more. What does  
2 indefinite actually mean here? What's the maximum  
3 lifespan we can assume from a project? When are we  
4 going to have to start looking at the eventual  
5 cleanup and potential removal cost of this project,  
6 and what generation is that going to fall on?  
7 Because it's going to fall on somebody. It's going  
8 to fall on somebody. And in the document it does  
9 list the projected pipeline removal cost, if  
10 Enbridge was to do it, at \$1.28 billion. So I don't  
11 think it's unfair to ask what generation this cost  
12 will be falling on. We need to know what indefinite  
13 means.

14 There's too many uncertainties in the  
15 document where Enbridge is allowed to get away with  
16 terms like indefinite, when, in fact, there are  
17 numbers, there is data, there is historical  
18 precedent in Minnesota and elsewhere for how long  
19 these things can last, and we can make better  
20 decisions if we have the specifics.

21 Thank you.

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23 MR. ANDY PEARSON: Hello, thank

24 you.

25 My name is Andy Pearson, A-N-D-Y,

1 P-E-A-R-S-O-N. Some of you may know me as the  
2 person who offered you a sticker when you  
3 walked in about opposing the pipeline project.

4 I have been to all 22 of these  
5 meetings, and I think it's important to say  
6 that those of us who are opposing this project,  
7 even those of us who may have been on the road  
8 for a while, are coming from a lot of different  
9 places as well.

10 And we were not -- we're not all,  
11 you know, just here to say no pipeline and  
12 that's what we've been doing all our lives.

13 My own example, I have worked for  
14 a union, and I have worked for the Minnesota  
15 Chamber of Commerce. Those might be things you  
16 didn't expect about somebody standing up here  
17 with a sticker. So I wanted to say that first.

18 Now, let's talk about the Draft  
19 Environmental Impact Statement. This is a  
20 document that was made with a lot of good  
21 intentions. I really do believe that. This is  
22 also a document that has some deep flaws that  
23 need to be addressed, some of which are real  
24 tricky to find; others of which maybe aren't  
25 that tricky.

1                   So I'm going to do a little  
2           exercise here. I'm going to ask anybody who's  
3           willing to open up the book that you got when  
4           you walked in to page 16, and I'm going to  
5           refer back to a piece of paper I have over  
6           here. It's a big piece of paper; hopefully you  
7           all can see it.

8                   Now, that's a graph that's on  
9           page 16. That's the relative spills of  
10          pipeline versus other modes of transportation.  
11          It's simply been made wrong, and the proof is  
12          in the little blue line for spill size, average  
13          spill size for pipeline spills. Thank you --  
14          my lovely assistant will hold the sign here.

15                   For pipeline spills, what the  
16          Department of Commerce did, they wrote a line  
17          right below that, that that number should be  
18          462. That's the number.

19                   But they measured it using the  
20          scale on the left, not the scale on the right,  
21          for purposes of making this graph. So this  
22          line is half as tall as it should be.

23                   I think any of you with at least  
24          a couple of years of any type of education will  
25          see that. Anybody who graduated high school

1       should be able to see that right away. As soon  
2       as you look at the document, you'll see they  
3       made it wrong.

4               I believe there are many places  
5       in this document where that level of care was  
6       applied. That is what I trust, and I hope,  
7       that we will be seeing revised and improved in  
8       the next version of the Environmental Impact  
9       Statement.

10              The line should be twice as tall,  
11       exactly twice as tall. Look at it there. This  
12       is the better way to visualize the information.  
13       You can see how much pipeline spill compared to  
14       rail and truck. I want better visuals, better  
15       information.

16              I'm almost out of time, and I'm  
17       not a particularly spiritual individual. Not  
18       as much anyway as many others in this room.  
19       But I want to close by saying that by God, if  
20       there ever was a time when future generations  
21       were screaming at us to do the right thing, it  
22       is now.

23                       Thank you.

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MR. ANDY PEARSON: Thank you --  
hello. My name is Andy Pearson, A-N-D-Y,  
P-E-A-R-S-O-N.

Thanks for the chance to comment.  
So I have two points today that I want to make.  
One is the technical and one is a little less  
so.

To start with the technical one,  
one of the things that I really appreciate  
about the Draft Environmental Impact Statement  
is the climate modeling section where it does  
calculate out the social cost of carbon as  
being \$50 something billion and \$287 billion,

1       depending on the displacement of oil in the  
2       pipeline, as in how much oil this pipeline  
3       offsets that's currently being transported now  
4       by other means.

5               I will say, and I've said this  
6       before, that the 30-year time horizon is short  
7       and that it needs to be at least 60 years,  
8       because there's strong precedent in Minnesota  
9       for Enbridge operating that line. So I believe  
10      the numbers are understated right now.

11             But the second point about that,  
12      is that in addition to changing the timeline, I  
13      would encourage the Department of Commerce to  
14      explore modeling with partial displacement,  
15      because I believe that that is what the  
16      Enbridge company is actually proposing here;  
17      unless I am confused.

18             It appears that Enbridge is  
19      proposing to stop the operation of the current  
20      Line 3 and to begin a new pipeline, which  
21      would, in theory, carry some amount of the oil  
22      that's currently going on Line 3; essentially  
23      what Line 3 is carrying now plus an additional  
24      370,000 barrels per day of primarily heavy  
25      crude.

2013-1

1                   And I didn't see that addressed  
2                   in the climate section. I saw only no  
3                   displacement or full displacement, when it  
4                   appears the company's been, in fact, proposing  
5                   from the beginning partial displacement.

6                   So I would encourage a partial  
7                   displacement model in the climate section and  
8                   for it to be modeled on a 60-year social cost  
9                   of carbon, again, given precedent in Minnesota.  
10                  So that's a technical comment.

11                  The less technical one is I had a  
12                  wonderful conversation earlier today with one  
13                  of the state employees here and we talked about  
14                  public process, because this is really cool  
15                  what we're doing here.

16                  It's really cool that the State  
17                  has said, "We will be open and we will listen  
18                  and we will make a commitment to have 22  
19                  meetings and to hear voices."

20                  I know that it's tough to sit up  
21                  there or stand up there and essentially hear  
22                  your work criticized, and I want to say that I  
23                  think all the speakers share a belief that good  
24                  process can lead to good outcomes and good  
25                  science. So that's where this is coming from.

1                   Now, the thing that came out of  
2                   this conversation this morning, I want to say  
3                   to everybody in the room, including all the  
4                   state employees, is I think maybe in some  
5                   people's minds it's a little bit of a lack of  
6                   understanding of the importance of this  
7                   particular decision.

8                   Because what I heard was that,  
9                   hey, it feels great. We're in kind of a new  
10                  moment here with a lot of groups coming out and  
11                  participating. We're seeing a lot of young  
12                  people at many of these meetings.

13                 We're seeing a lot of indigenous  
14                 people really committing their time to this  
15                 process. And what I heard this morning was  
16                 that that would probably continue and it's  
17                 really cool to see this kind of future we're  
18                 heading into where people feel they have a  
19                 voice in government this way.

20                 But what I want to say is that  
21                 that isn't automatic, and I am more sure of  
22                 this than I am sure of virtually anything.

23                 The outcome of the decision on  
24                 this project is what is going to determine the  
25                 way that the State interacts on environmental



1 issues with young people and indigenous people  
2 for the next 50 years.

3 If we go through this process  
4 with all this openness and positive discussion,  
5 good science and the project is built anyway,  
6 that will absolutely shut that off. That will  
7 shut that off.

8 You do not get to make that  
9 decision and then keep the collaboration going  
10 forward, because it will have been a slap in  
11 the face to the hundreds and hundreds of people  
12 who have come out, voiced their opinion, been  
13 heard or felt like they were heard in that way.

14 This is thus extending a hand in  
15 cooperation and goodwill times 22. You're in a  
16 lot of meetings. But it is not going to be  
17 there forever and it is especially not  
18 something that can be kept automatically,  
19 regardless of the decision made on this  
20 project.

21 It is dependent on an outcome  
22 that's based in the science and on a strong  
23 environmental impact statement being the end  
24 result here.

25 And I would encourage everybody

1           to just realize the gravity of the decision  
2           that's upon us and how it's going to impact the  
3           way that so many constituencies interact with  
4           the State of Minnesota for decades to come and  
5           how they feel. Thank you.

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**Levi, Andrew (COMM)**

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**From:** Lourdes Pérez, Musician & Writer <lourdesperezchannel@gmail.com>  
**Sent:** Monday, July 10, 2017 5:30 PM  
**To:** MN\_COMM\_Pipeline Comments  
**Subject:** Fwd: Shut down Line 3

**To:** Jamie MacAlister, [Pipeline.Comments@state.mn.us](mailto:Pipeline.Comments@state.mn.us)

**Please include this comment on the Line 3 DEIS in Dockets CN-14-916 and PPL-15-137.**

**I am from: San Antonio, Texas. I have relatives and friends in Minnesota whose health would be directly, adversely effected by the proposed Line 3.**

**I want the Department of Commerce to deny the permit for the proposed Line 3, shut down the old line, and remove it from the ground for the reasons listed below.**

**Sincerely,**

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## **TRIBAL IMPACTS**

- The United Nations international standard for projects that impact Indigenous Peoples is **Free, Prior and Informed consent**. Tribal consultancy after the project is already proposed and designed is not free, prior, and informed consent.
- Most of the issues specific to tribal people and tribal resources are **confined to a separate chapter** that attempts to provide “an American Indian perspective.” They are excluded from the main chapters that assess potential impacts. This allows the EIS to **avoid drawing conclusions** about the impacts on tribal people. (Chapter 9)
- Chapter 9, “Tribal Resources,” states that ANY of the possible routes for Line 3 “**would have a long-term detrimental effect on tribal members and tribal resources**” that cannot be accurately categorized, quantified, or compared (9.6). It also acknowledges that “traditional resources are essential to the maintenance and realization of tribal lifeways, and their destruction or damage can have profound cultural consequences” (9.4.3). **This does not acknowledge the treaty responsibilities the state of Minnesota has to the tribal members.**
- Chapter 11, “Environmental Justice,” acknowledges that pipeline impacts on tribal communities “**are part of a larger pattern of structural racism**” that tribal people face in Minnesota, which was well documented in a 2014 study by the MN Department of Health. It also concludes that “the impacts associated with the proposed Project and its alternatives would be an additional health stressor on tribal communities that already face overwhelming health disparities and inequities” (11.4.3).

2338-1

2338-2

2338-3

2338-4

- The DEIS concludes that “disproportionate and adverse impacts would occur to American Indian populations in the vicinity of the proposed Project” (11.5) **But it also states that this is NOT a reason to deny the project!**
- Chapter 6 states that Enbridge’s preferred route would impact **more wild rice lakes and areas rich in biodiversity** than any of the proposed alternative routes (Figure ES-10).
- Most of the analysis of archaeological resources in the path of the pipeline rely on **Enbridge’s surveys**. For some reason, only 3 of their 8 surveys are available, and the 5 missing are the most recent! In those, Enbridge found 63 sites, but claims that only 3 are eligible for protection under the National Register of Historic Places. (5.4.2.6.1). Honor the Earth has had the studies we have been able to see reviewed, and there are numerous flaws in their methodology.
- The DEIS acknowledges that “The addition of a temporary, cash-rich workforce **increases the likelihood that sex trafficking or sexual abuse will occur,**” and that these challenges hit Native communities the hardest. But the DEIS dismisses this problem quickly, saying that “Enbridge can prepare and implement an education plan or awareness campaign around this issue” (11.4.1). What experience does Enbridge have planning and implementing an anti-sex trafficking program?

2338-5

## BIG PICTURE PROBLEMS

- Many of the environmental impacts and "plans" for minimizing them are drawn directly from Enbridge’s permit application (“Enbridge would do this” and “Enbridge would do that”) without any evidence of compliance or genuine consideration that maybe, just maybe, Enbridge won’t follow all the rules. History shows that they continually violate permit conditions - we are working on compiling an enormous record of these violations. The DEIS should analyze the likelihood of compliance.
- **The Alternatives chosen for comparison to the pipeline proposal are absurd** -- for example, the only rail alternative assumes the construction of a new rail terminal at the US border, and thousands of new railcars to transport oil to Clearbrook and Superior. Enbridge would never do that. The only reasonable rail option would begin in Alberta. The truck alternatives are similarly unreasonable.
- **The “No Build” Alternative is not genuinely considered.** It is framed as “Continued Use of Existing Line 3” (Chapters 3 and 4), but nowhere is the “Shut Line 3 Down” option considered. There is no discussion of renewable energy, conservation, or the rapid development of electric car infrastructure. There is no assessment of the decline in oil demand. The entire study assumes that society needs X amount of oil, simply because Enbridge says they can sell it. That assumption ignores the massive fossil fuel subsidies and debts that make Enbridge’s profits possible, and avoids the moral question of what is good for people and the planet. We know we must stop burning fossil fuels yesterday.
- There is zero discussion of how all this extra oil will go once it leaves Superior, Wisconsin. With 370,000 bpd of additional capacity, Enbridge will need a new pipeline departing its terminal in Superior. We know that they plan to build Line 66 through Ojibwe territories in Wisconsin, but they continue to deny this. Why isn’t MN asking?
- The DEIS contains **no spill analysis for tributaries of the St. Louis River or Nemadji River**, where spills could decimate **Lake Superior** and the harbors of the Twin Ports.
- For calculations of impact, the lifespan of the new Line 3 is estimated at *30 years*. But Lines 1-4 are 55-65 years old! And hasn’t the technology improved? The lifespan should be at least 50 years, a shorter lifespan is a clear indication that Enbridge

themselves know that the fossil fuel era is coming to an end. In Honor the Earth's analysis, we have attempted to predict the impacts of this pipeline on the next 7 generations.

- This project is a further investment in a dying Tar Sands industry. Numerous international oil companies and financing institutions are divesting from the tar sands. Why should Minnesota invest in this industry? Why should our Nation be forced to deal with a bad idea in perpetuity.
- The DEIS assumes that the Koch pipelines to MN refineries get all their oil from Line 3, but the current Line 3 does not supply enough capacity for this (390,000 barrels per day), and we know that some of it comes from Line 81, which brings oil from the Bakken in North Dakota.

## SPILL RISK

- The 7 sites chosen for spill modeling are not representative of the locations and resources put at risk along the entire corridor. A more thorough analysis of different locations is needed - for example, what about Lake Superior?
- There is no analysis on Enbridge's leak detection system, or their inability to respond quickly to major emergencies.
- Enbridge's response plans are highly guarded, and Honor the Earth's attempts to receive and review these documents has been blocked. What we can infer is that Enbridge relies on local first responders for their emergencies. They attempt to use the money they donate to communities along their corridors as proof that they have an integrated emergency response program.

The DEIS estimates the annual probability of different kinds of spills on the proposed route in MN:

- Pinhole leak = 27%
- Catastrophic = 1.1%
- Small Spill = 107%, Medium = 7.6%, Large = 6.1%

So in 50 years, we can expect **14 pinhole leaks, 54 small spills, 4 medium, 3 large, and 1 catastrophic!**

## ABANDONMENT

- The risks of pipeline abandonment are not adequately assessed. For example, there is no discussion of landowner property values and the effect that an abandoned pipe could have on them, especially if there is indeed "**legacy contamination**" on people's land.
- Impacts on human and natural resources due to the abandoned Line 3 are anticipated to be minimal in the near term but could be significant in the longer term, absent effective monitoring, adaptive management, and the timely introduction of mitigation measures. There is not much information on what these mitigation and management plans are.
- If there is a dearth of surrounding soil, or if the cover for the pipeline is relatively shallow, the pipeline bears more of the load and, all things being equal, is more likely to fail. We know from experience that there are numerous areas where the pipes are exposed and near the surface.

- There is also no discussion of **exposed pipe, how fast it will corrode, or how much currently buried pipe will become exposed once it is emptied**. “When a pipe is empty, the weight of the liquid load that once contributed to buoyancy control is lost. As a result, the pipe could become buoyant and begin rising toward the surface at watercourse crossings, in wetlands, and in locations where soil density is low and the water table is high” (8.3.1).
- We know that the abandonment of the existing line 3 is bad. But there is also no mention of **the abandonment of the other 3 ancient pipelines in Enbridge’s existing mainline corridor (Lines 1, 2, and 4)**, which we expect Enbridge will very soon attempt to abandon. Nor is there any discussion of the **abandonment of the NEW Line 3** in the future.
- The DEIS states that it will be very risky to remove and clean up the existing Line 3 because the pipelines are very close together. “The distance between pipelines within this corridor varies, but they are generally 10 to 15 feet apart” (8.3.1). This is not consistent with our extensive observations and physical measurements on the land. Also, don’t they dig up pieces of pipe for maintenance purposes all the time? **Why is it suddenly risky?**
- The DEIS simply states that “Enbridge has indicated that it would develop a contaminated sites management plan to identify, manage, and mitigate historically contaminated soils and waters” found during the abandonment or removal of the existing Line 3 (8.3.1.1.1). **We want to see that plan.**

## CONSTRUCTION AND RESTORATION

- Chapter 2, “Project Description” states that Enbridge has requested a 750-foot route width (375 feet on each side of the Line 3 Replacement pipeline centerline). They claim only 50 of the 750 feet would remain a permanent right-of-way (2.1) All of this width should be included in an impact analysis because Enbridge’s environmental protection plan and record is abysmal.
- Their “restoration” plans for restoring the landscape around the corridor after installation is laughable. Enbridge’s process for restoring wetlands includes dumping the now compacted (and probably de-watered) soil back in the trench, sowing some oats and “letting nature take it’s course”. This is not how you re-establish a wetland. Studies have shown that even with proper restoration practices, it can take decades to get back to the biological functioning it was at prior to disturbance. When Enbridge stores the soil, they will also be driving equipment over it- which compacts it, they also plan to compact the soil after refilling the trenches. This is not good for the soil.
- Cathodic protection, which applies electric current to the pipeline in order to protect it from corrosion caused by nearby utility lines, **will not be installed for up to 1 year after pipeline construction** (2.3.2.3). Lack of cathodic protection is what caused many pinhole leaks in the Keystone pipeline, almost immediately after construction. The proposed route for Line 3 follows a utility corridor for much of its length - this is a recipe for disaster. Even the US Army Corps’s rubber-stamp approval of the Dakota Access pipeline required the cathodic protection system to be installed within 6 months!

## ECONOMIC IMPACTS

- Chapter 5, “Existing Conditions, Impacts, and Mitigation” states that Line 3 will create ZERO permanent jobs. Enbridge’s application states that “existing operations staff would

be able to operate the [pipeline] and that few additional employees would be hired to assist the staff” (5.3.4).

- Also in Chapter 5, the DOC assumes “all workers would re-locate to the area” and ZERO construction jobs will go to Minnesotans. The pipeline would have “no measureable impact on local employment, per capita household income, median household income, or unemployment” (5.3.4).
- The DEIS does not acknowledge that when the existing Line 3 shuts down, Enbridge will stop paying taxes to the MN counties along the mainline corridor. For many of these poor counties in the north, revenue from Enbridge’s property tax makes up a significant portion of the county budget. There is also the issue that Enbridge is now in the process of appealing years of back taxes, burdening two of the poorest counties in Minnesota with over \$10 million due.

## CLIMATE CHANGE

- The DEIS acknowledges that Line 3 would contribute to climate change. It analyses 3 different types of emissions - direct, indirect, and lifecycle. Direct emissions are those that the pipeline infrastructure itself emits, and these are very small. Indirect emissions are those created by the power plants that provide electricity for the pipeline’s pumping stations, and these are significant. Lifecycle emissions are those caused by the refinement and eventual use of the oil, and these are massive. Line 3’s direct and indirect emissions alone would be 453,000 tons of CO2 per year. Over a 50-year lifespan, that would cost society an estimated \$1.1 billion. (Executive Summary p.18).
- The lifecycle emissions of Line 3 would be 193 million tons of CO2 each year. Over a 50-year lifespan, that would cost society an estimated \$478 billion (5.2.7.3)
- The DEIS does not discuss the unprecedented challenges of human casualty, displacement, conflict, natural disaster, biodiversity loss, etc, that climate change is causing, or the consensus from the scientific community that we must leave fossil fuels in the ground. It also fails to acknowledge that across the planet, Indigenous people are disproportionately impacted.

The DEIS affirms that the MN PUC can only grant the permit if "the consequences to society of granting are more favorable than the consequences of denying the certificate." Regardless of whether or not Enbridge can find customers, the DEIS shows that the negative impacts far outweigh the benefits. So our position remains:

## NO PERMIT. SHUT DOWN LINE 3.

Sincerely,

Lourdes Pérez

**Levi, Andrew (COMM)**

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**From:** Jerry Perkins <jerrypeggyp@hotmail.com>  
**Sent:** Monday, July 10, 2017 12:20 PM  
**To:** MN\_COMM\_Pipeline Comments  
**Subject:** Comments for docket numbers CN-14-916 and PPL-15-137  
**Attachments:** Comment on Line 3 DEIS.docx

To: Jamie MacAlister, Environmental Review Manager  
 Minnesota Department of Commerce

Re: Public comment for docket numbers CN-14-916 and PPL-15-137.

From: John R. Perkins and Gerald V. Perkins, Jr.

We are property owners in Hubbard County with a lake home located near the proposed Enbridge tar sands crude oil pipeline known as Line 3. We oppose the issuance of a Certificate of Need for Line 3. The Minnesota Public Utilities Commission (MPUC) should decline to issue a Certificate of Need based on the following factors:

1. There is no economic need for the pipeline because of the glut of oil currently being produced in shale oil fields in the United States that has driven oil prices down to levels not seen in years. Many experts say this glut is expected to be a permanent feature of the petroleum industry. More fuel-efficient cars and Zero Emission Vehicles (electric cars), increased production of renewable energy and fuels, and declining demand for liquid fuels all point to a declining need for more petroleum-based fuels.

Despite this widely-known and -recognized scenario of lower demand for crude oil, I didn't see an analysis in the Draft Environmental Impact Statement (DEIS) of the need for Line 3 that the MPUC could use to render its decision on the issuance of the Certificate of Need.

The final EIS should contain an analysis of the need, or lack thereof, for another crude oil pipeline. Any honest analysis based on the facts will conclude that Line 3 is not needed.

1. There is no mention in the DEIS about how the proposed Line 3 route preferred by Enbridge through the heart of Minnesota's lake country will impact the state's and local businesses' revenues from fishing, water recreation, camping, hiking, off-road vehicles, cross-country skiing and tourism in general. An economic risk-benefit analysis would give the MPUC an idea if Line 3 as proposed by Enbridge will provide enough economic benefits to offset the considerable risk it poses to the environment and how that will impact the number of visitors to the region.
2. Canadian tar sand oil is among the most flagrant examples of fossil fuels that contribute to Greenhouse Gas (GHG) emissions. Their production and movement should be discouraged, not promoted. Line 3 should be rejected for environmental reasons.
3. Minnesota is currently the fourth largest ethanol producer in the United States with 1.18 billion gallons of ethanol produced annually by 20 ethanol plants. The State of Minnesota has been one of the most active in terms of promoting and supporting its renewable fuels industry. Denying the certificate of need for Line 3 is another way the state can continue to support ethanol, which promotes rural economic development and jobs in small towns and rural areas of the state, boosts U.S. energy



independence, and cuts the emissions of GHG because of ethanol's much lower carbon footprint compared to petroleum-based gasoline.

2339-4  
Cont'd

4. Because of widespread opposition to the pipeline, eminent domain will undoubtedly be invoked to force landowners to permit access to their property for the construction of the pipeline. Granting eminent domain for a project intended to boost the profits of a foreign company is an illegitimate use of eminent domain, which is properly intended only for projects that serve the public good. The Line 3 project serves Enbridge's bottom line, not the public good, and should be rejected.

2339-5

If the MPUC decides that the pipeline is needed, it should require that the pipeline follow System Alternative (SA)-04, as described by the DEIS. The DEIS analysis of alternative routes for the pipeline shows clearly that the best alternative is SA-04 because it avoids the pristine lakes and rivers of the Mississippi Headwaters, Minnesota's precious wild rice beds, and its water-purifying wetlands.

2339-6

SA-04 would direct the Canadian tar sands oil to a refinery in Joliet, IL instead of sending it to Superior, WI as proposed for Line 3. Diverting the pipeline to deliver crude oil to Joliet means the crude oil refined there will, more likely, be used domestically by U.S. motorists rather than being exported if it is refined in Superior, WI, near the Great Lakes' shipping lanes.

2339-7

Because SA-04 is longer than the other proposed pipeline routes, it will provide more jobs and economic benefits.

2339-8

Furthermore, the DEIS clearly states that when a crude oil spill occurs, it spreads much less on land than it does in a water setting. For that reason alone, SA-04 should be the favored route.

2339-9

The final EIS can be improved from the draft EIS by using a more realistic analysis of the alternatives modes of transportation for crude oil, especially by rail. It was pointed out frequently during the public hearing in Bemidji, MN on June 22 that the rail option has not been adequately or fairly treated in the DEIS.

2339-10

For example, the bar chart on page 16 of the Executive Summary is in error when it shows the length of the blue bar for the pipeline's average size of accidental release of crude oil in barrels. If this chart was accurately rendered, it would clearly show that, although pipelines average fewer spills (because they carry far less crude oil), the average size of pipeline spills is far larger by a factor of 10 or more. For that reason, carrying crude oil by truck or rail through fragile ecosystems with a large amount of surface water is much safer than by pipeline.

2339-11

One final point also is worth noting: The DEIS states that Enbridge refused to release information pertinent to the analysis. By refusing to be transparent or forthcoming when important public decisions are being made, Enbridge has shown that it cannot be trusted as the custodian of the environmental well-being of northern Minnesota's lake country.

The MPUC should show Canadian-based Enbridge that refusing to comply with the public's right to know is not the way we conduct governmental affairs in the United States and it should reject the applicant's request to build a pipeline through the Minnesota Headwaters.

Furthermore, in the interest of transparency, we would like some answers to the following questions: Who wrote the DEIS? Have the writers worked with Enbridge before? Who chose the DEIS writers, Enbridge or the State of Minnesota?

Thank you for the opportunity to voice our opinions on an issue that will impact the Minnesota environment for decades to come.



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Minnesota Department of Commerce

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state can continue to support ethanol, which promotes rural economic development and jobs in small towns and rural areas of the state, boosts U.S. energy independence, and cuts the emissions of GHG because of ethanol's much lower carbon footprint compared to petroleum-based gasoline.

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Because SA-04 is longer than the other proposed pipeline routes, it will provide more jobs and economic benefits.

Furthermore, the DEIS clearly states that when a crude oil spill occurs, it spreads much less on land than it does in a water setting. For that reason alone, SA-04 should be the favored route.

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Thank you for the opportunity to voice our opinions on an issue that will impact the Minnesota environment for decades to come.

Please provide your contact information. This information and your comments will be publicly available.

Name: Robert Peterson

Street Address: 59057 Great River Road

City: Palisade MN State: MN Zip Code: 56469

Phone or Email: (218) 845-0065

Please share your comments on the Line 3 Project Draft EIS. What could be improved in the EIS? What is missing?

Estimate of reduction in property values for people adjacent to above-ground pipeline infrastructure, as well as disruption due to protests and related issues.

I am on RSA 21

0732-1

**Levi, Andrew (COMM)**

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**From:** Mary Carroll Peterson <marycarrollpeterson@gmail.com>  
**Sent:** Sunday, July 09, 2017 3:43 PM  
**To:** MN\_COMM\_Pipeline Comments  
**Subject:** Subject: Public Comment: Line 3 Project (CN-14-916 and PPL-15-137)

Dear Environmental Review Manager:

I understand that an engineering firm called Cardno, with ties to Enbridge, was instrumental in preparing part of the draft Environmental Impact Statement for Line 3. In light of this fact, in the final EIS I would like to see an independent analysis of the information they provided. Minnesota requires verified facts for such a large project.

Also, there is nothing in the DEIS for Line 3 about the general economic picture for Minnesota if this project is approved as Enbridge prefers. Minnesota lakes are the source of revenue for fishing, water recreation, fisheries, and tourism in general. Where is the analysis of how a pipeline through some of the best lakes country in Minnesota will affect the fishing, tourism, and recreation industries (and others) in Minnesota? How would the towns along the route be affected (positively or negatively)? Does this pipeline provide enough benefits for Minnesota to balance the risk? I don't see anything about this in the DEIS. There must be an economical analysis for the EIS to be complete.

Please protect our environment.

Thank you.

Mary Peterson  
 23386 County 7  
 Park Rapids, MN 56470

218 732-0822



# Comment Form

## Line 3 Project Draft EIS Public Meeting

Please provide your contact information. This information and your comments will be publicly available.

Name: Joni Phillips  
 Street Address: 51379 190th Place  
 City: McGugor State: MN Zip Code: 55760  
 Phone or Email: djphillips@g.com

Please share your comments on the Line 3 Project Draft EIS. What could be improved in the EIS? What is missing?

The EIS does not cover the social impact of this pipeline. This community is already under enough stress economically. The building process alone will remove any income coming in from recreational purposes let alone the de-valuation of property (or no valuation) or tax assessments for cleanup. The social impact to the people/businesses of the area for the new proposed Line 3.

Where is the environmental impact statement of what happens when there is a spill/leak, this DEIS reads like a economic impact statement for Enbridge.

2 of 2

If including additional pages please number them and tell us how many you are providing: 2 pages



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Name: Joni Phillips  
 Street Address: 51379 190th Place  
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 Phone or Email: djphillips@g.com

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0735-1

- ① I am very concerned about any spills / Leaks from Line 3 into The Big Sandy Watershed. After reviewing spills across the country, it appears clear that there is irreparable damage done and this is unacceptable for our watershed / small community that is pristine at this point.  
 The EIS spill analysis p13-14 of ch 10 only shows the probability of annual spills. Need spills <sup>needed</sup> over a lifetime. And the lifetime of a pipeline is longer than stated more like 60 yrs vs 30 yrs. How concerning for MN and for our water if / when there are leaks / spills. The public needs to be able to review all scenarios for spills (table 10.3-1 p36 ch12)
- ② Take out existing Line 3 by completely removing it and replace the new Line 3 in exactly the same place, not in a new place where there is pristine waters.  
 This option does not appear to be noted as an option in the DEIS and needs to be — it would solve multiple problems. The existing line is a problem or will be a tremendous problem that the state of Minnesota should not have to be responsible for. Enbridge should be responsible.
- ③ If not existing Line 3 as the route, run the new Line down the western part of the state away from water where it can be monitored.  
 If including additional pages please number them and tell us how many you are providing: 2 pages  
and make sure Enbridge removes existing Line 3. 1 of 2

**Levi, Andrew (COMM)**

---

**From:** Joni Phillips <djphillips1@icloud.com>  
**Sent:** Friday, June 30, 2017 1:47 AM  
**To:** MN\_COMM\_Pipeline Comments  
**Cc:** Joni Phillips  
**Subject:** Public Comment: Line 3 Project CN-14-916 and PPL-15-137  
**Attachments:** Draft EIS response 6292017.pages

**Follow Up Flag:** Follow up  
**Flag Status:** Flagged

**Docket Numbers CN-14-916 and PPL-15-137**

June 29, 2017

Jamie MacAlister, Environmental Review Manager  
Minnesota Department of Commerce  
85 7th Place East, Suite 280  
St Paul, MN 55101-2198

Re: Public Comment: Line 3 Project CN-14-916 and PPL-15-137

Dear Mr MacAlister,

Having expressed displeasure over the Sandpiper docket in writing and in person over these past few years, I find it extremely frustrating to re-live this again with Line 3. This is Enbridge re-packaging the Sandpiper Pipeline Project and a southern corridor. All of us in Minnesota should be thinking of longer term goals in renewable and clean energy, particularly where the alternatives impact our pristine waterways and forest.

After reviewing the EIS, I respectfully request that the CN be denied or if necessary, create a new option to rebuild the existing Line 3 given it already exists within a pipeline corridor. Thereby not allowing Enbridge the opportunity to build another pipeline corridor in our state. The rationale provided in the Executive Summary as to why the old pipeline should not be completely removed (“Although removing the pipeline is potentially desirable, abandonment is easier and far less risky”...) and the new pipe installed in the same trench, does not stand up to the risks a brand new pipeline in an otherwise pristine route would have to endure. Enbridge cannot be allowed to access new MN land routes just because they don’t want to clean up their existing mess. The proposed route crosses the Sandy River (which flows directly into Big Sandy Lake) and crosses the width of the Big Sandy Lake Watershed (BSLW) in Aitkin County. I am opposed to a pipeline being built through Aitkin county and the BSLW where any leak/spill would cause irreparable damage to 6500+ acres of currently pristine waterways. There is no calculation or replacement cost you can put on this.

Additionally, I find it difficult to believe that we are entrusting Enbridge to this new project given their poor record of spills as well as their community/project relations to-date. Enbridge pipelines average 1.8 spills/week — in fact, just last week there was a spill in Grand Rapids on Line 3. The diluent they use to move the bitumen in these pipes is carcinogenic and flows in the direction of the water. Even after 270 miles, it is still at toxic levels and Enbridge’s proposed Line 3 would run just a few miles from the inlet into Big Sandy. Even a pinhole leak will release 28 barrels per day into the surrounding water — and because most of Aitkin County is wetland, there is a great deal of water for diluent to travel. In the case of this most recent Grand Rapids spill - Enbridge was digging down 9 feet to put a sleeve on a pipe that had “bent” as the work supervisor put it (during the so called integrity dig). This kind of small spill wouldn’t have been reported in the news. When this kind of problem occurs in town, they will go to the trouble to repair it, but when anomalies happen in the boggy BSLW, its doubtful they’ll go the trouble to get out there to repair it. Therefore, I ask that they

don't get to put a pipeline there. Please explain the process of locating a leak and recovery in BSLW in the EIS.

Financially speaking the only "benefits" Line 3 provides are temporary jobs and tax dollars that our counties may be at risk of ever seeing (see current court case referenced in article; "Enbridge tax challenge could cost northern minnesota counties millions, Star Tribune March 2017) and I would argue are not worth the economic losses our area will sustain. The losses will be to our property values when the construction starts and then when a spill/leak happens - because they will happen. At the public meeting held June 12 at the East Lake Community Center, David, a pipe-fitter stated "there is no way I can guarantee there won't be a leak". Please note this paragraph in the EIS.

Regarding the leaking/spills, no smart PIG can totally detect issues as described in the EIS and also in articles on the internet (see Bent article by Trudy Bell on Pipelines Safety and Security, Winter 2015). Coupled with the fact that this data is delivered post-leak and not preventative. Humans have to read the data and act on it - which Enbridge has demonstrated an inability to do with previous pipeline spills such as the 2010 Marshall, MI spill into the Kalamazoo River fouling 40 miles of that river. Planes flying overhead and inspections every 2 and 5 years are not enough to monitor. Humans on the ground have to monitor pipelines on a continuous basis. Unfortunately, it is extremely difficult to monitor a pipe that is under water or in a bog/wetland. 22% of all spills/leaks are found by citizens. I feel extremely uncomfortable that no monitoring will be able to go on by boots-on-the-ground over these very sensitive areas most at risk. This information should be noted in chapter 10 in the EIS.

The EIS population data does not appear to have included second homeowners and therefore is much lower than actual for the proposed Line 3. See "Profile of Second Homeowners in Central and West Central Minnesota" by Pesch and Busier, University of Minnesota, Oct 2014.

ES-19 "flooding, while mentioned,.. **could** damage project facilities...and **could** also effect how spilled oil **might** interact with the environment. ...or flooding **could** cause spilled oil to be transported further downstream. I would change the wording to read "will" instead of each of the bolded (or at the least "will/could" & "will/might). And, why in the EIS is there no mention of Big Sandy Lake Watershed in Aitkin County (BSLW)? BSLW in Aitkin County is 260,000 acres (406 square miles) in size with 49 lakes. Over the last several years, the good people of this area have worked hard to bring Big Sandy Lake and surrounding to be rated as a Star Level Status lake. Any leaks/spills **will** impact part or all of this watershed and be irreparable. Please note this in the EIS.

ES-21 Nowhere that I can find in the EIS are the future plans of Enbridge stated. It seems very clear that once a new pipeline is built creating this new corridor more pipelines can and will be built much more readily. If this is what Enbridge is intending, this must be noted in the EIS.

2.7.1.13 where is "pipe debris and rinse water" going to be disposed of? or ie where is the appropriate waste facility? Is it at each pump station and therefore I'm concerned that its in wetland areas. Where does the test water come from? This is not clear in the EIS.

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1061-7  
Cont'd

10.3.1.3.4 Catastrophic spills - this section talks about how catastrophic spills can occur as a result of a complete break in the pipeline due to flooding and other activities. Flooding is a very real condition of life in Aitkin county and this county /preferred route has not been noted throughout the EIS as a HCA - High Consequence Area. The definitions and data in the EIS for HCA's need to be adjusted for this. In 2012 there was a record flood throughout the spring and summer. It is not uncommon for flooding to occur each spring throughout the Big Sandy Lake Watershed (BSLW) that is directly in this proposed Line 3 pipeline route. Additionally, the BSLW includes the Mississippi River so any flooding and spills into the watershed could and most likely would impact the Mississippi River having up and downstream impacts. This information **MUST** be provided in the EIS and throughout all the data analysis given this flooding activity has become more prevalent in recent years.

1061-8

10 This entire section on Accidental Crude Oil Releases appears to be highly biased for the proposed - preferred route. There is a considerable amount of repetitive data that unfortunately is not complete in terms of missing HCA for Aitkin County as noted in the above paragraph.

1061-9

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1061-10

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Please feel free to contact me if you have any questions.

Kind Regards,

Joni L. Phillips  
51379 190th Place  
McGregor, MN 55760

djphillips@q.com



RECEIVED  
JUL 05 2017  
MAILROOM

**Docket Numbers CN-14-916 and PPL-15-137**

June 29, 2017

Jamie MacAlister, Environmental Review Manager  
Minnesota Department of Commerce  
85 7th Place East, Suite 280  
St Paul, MN 55101-2198

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2776-1  
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2776-3

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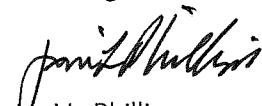
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Please feel free to contact me if you have any questions.

Kind Regards,



Joni L. Phillips  
51379 190th Place  
McGregor, MN 55760

djphillips@q.com

J. Phillips  
7180 Subert Lane  
Corcoran MN 55346

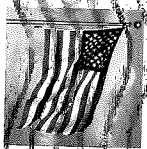
Jamie MacAlister  
Environmental Review Manager  
Minnesota Dept. of Commerce  
85 7th Place East, Suite 280  
St Paul, MN 55101-2198

MINNEAPOLIS MN 553  
03 JUL 2017 PM 4 L

USA FOREVER



USA FOREVER



55101-2198



Please provide your contact information. This information and your comments will be publicly available.

Name: Robert Pilot  
 Street Address: 2084 Jefferson Ave  
 City: St. Paul State: MN Zip Code: 55105  
 Phone or Email: Robert.Pilot@gmail.com

Please share your comments on the Line 3 Project Draft EIS. What could be improved in the EIS? What is missing?

This EIS does not speak on  
 The long term affect of  
 The environmental impacts nor  
 does it talk about the law on  
 green house gas emissions that has  
 never been met by the state of  
 Minnesota.

\* Page 10.41 Section Public Health reflects  
 only studies from the U.S. on health effects on  
 human beings.  
 Canada has more exposure to tar sands and  
 reflect a more comprehensive data to effects on  
 human populations while on human populations  
 while all of the oil stems from Canada. NO studies  
 from Canada are in this analysis which has  
 reflected in 2014 that cancer of the colon has  
 been linked to exposure to tar sand exposure.  
 the rate of cancer is 1 in 4, which is a genocidal  
 rate, the U.S. cannot take foreign transport of  
 hazardous materials and remove foreign hazardous material  
 effects.

If including additional pages please number them and tell us how many you are providing: \_\_\_\_\_ pages

1 MR. GREGORY JOHNSON: My name is  
2 Gregory Johnson, G-R-E-G-O-R-Y, J-O-H-N-S-O-N.  
3 I'm a board member of the Pine River Watershed  
4 Alliance, and, Barbara, I'm going to come and  
5 recruit you. That was good.

6 You said most of what I could  
7 say about the watershed, with the exception  
8 that a very large portion of the watershed  
9 where the pipeline is proposed to go is  
10 co-located with high powered transmission  
11 lines in highly conductive soils called  
12 wetlands.

13 And I issued or entered into  
14 evidence a report from Little Falls about the  
15 extremely high risk of cathodic protection  
16 failure in exactly these types of soils, and  
17 so I did not see any of that, other than a  
18 very quick reference by Enbridge that they  
19 would use cathodic protection, but nothing  
20 about the much higher risk of failure of  
21 cathodic protection.

22 These wetlands are some of the  
23 last native pristine wetlands in the state.  
24 And by bridging them and putting pipelines in,  
25 I didn't see anything about disruption of

0852-1

1 natural flow through those wetlands into the  
2 White Fish and Pine Ridge watershed.

3 I'm very concerned that this  
4 DEIS is just fancy paper over Enbridge's data.  
5 I don't think it's taken into account enough  
6 of the input from MPCA and DNR.

7 In addition, over here was --  
8 it's a corridor. Let's not talk about a  
9 pipeline. We know Enbridge has at least two  
10 other aging pipelines along Route 2, and  
11 Sandpiper could be revised.

12 So we could be looking in the  
13 future at three or four more pipelines going  
14 through the same corridor, and I think we need  
15 to address the entire system, rather than  
16 taking it piecemeal, one at a time, one state  
17 at a time.

18 The oil will eventually go to  
19 Patoka, so why not put it through SA-04, get  
20 it into lands that are away from our waters  
21 and through the very most pristine part of the  
22 state. Thank you.

23

24

25

**Levi, Andrew (COMM)**

---

**From:** Steve Roe <roetreat@crosslake.net>  
**Sent:** Saturday, July 08, 2017 11:40 AM  
**To:** MN\_COMM\_Pipeline Comments  
**Subject:** Emailing: Comments Line 3.Enbridge.pdf  
**Attachments:** Comments Line 3.Enbridge.pdf; Steve Roe.vcf

Attached please find my comments on the Enbridge Line 3 DEIS project.  
Please Acknowledge Receipt.

Sincerely,  
Steve Roe

-----Original Message-----

From: Steve Roe [mailto:roetreat@crosslake.net]  
Sent: Saturday, July 08, 2017 11:37 AM  
To: 'Pipeline.comments@stste.mn.us'  
Subject: Emailing: Comments Line 3.Enbridge.pdf

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Please Acknowledge Receipt.

Sincerely,  
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Note: To protect against computer viruses, e-mail programs may prevent sending or receiving certain types of file attachments. Check your e-mail security settings to determine how attachments are handled.

*Pine River Watershed Alliance*

P.O. Box 822  
Crosslake, MN 56442  
218-692-3331

roetreat@crosslake.net

To: JAMIE MacALISTER  
From: STEPHEN L. ROE  
Re: DEIS Enbridge line 3

Fax: 651-539-0109  
Date: 07.08.2017  
Pages: 15 not incl. cover

☐ Urgent

☒ For review

☐ Please comment

☐ Please reply

☐ Please recycle



11663 Whitefish Ave.  
Crosslake, Minnesota 56442

218-692-3331  
218-232-3554 cell  
[roetreat@crosslake.net](mailto:roetreat@crosslake.net)

# Stephen L. Roe

July 8, 2017

Jamie MacAlister, Environmental Review Manager  
85 7<sup>th</sup> Place East, Suite 500  
St. Paul, MN 55101-2198

VIA FAX: 651-539-0109

Re: Comments on Line 3 Pipeline Project  
Dockets CN-14-916 & PPL-15-137

Dear Ms. MacAlister;

The pipe for the subject project may meet industry standards. It does not, however, meet the federal specification provision requiring *"good judgement"*. In accordance with many professional expert treatises on the subject of hydraulic pipe design, the Enbridge design falls far short of a safe design. The number of failures experienced by the pipeline transport industry bears witness to the structural deficiencies of this pipe design. Historic failures and the fact that "small releases" are not included in their statistical risk analysis warp their results. The number of individuals affected by a spill into the Mississippi River is misstated as the Mississippi is the principal water source for many Americans. Special care should be taken throughout the Mississippi headwaters. Pipe design must be included and reviewed in this EIS.

Please obtain the signature of a qualified independent registered professional engineer for this pipe design.

Sincerely,

Stephen L. Roe  
Pine River Watershed Resident

Attachments: Pipeline Design Papers (2)  
Basic Design Calculation

1447-1

## CFR 192.105 Design Formula Hoop Stress Only

Pipe Wall Thickness	0.515 Inch	t
Pipe Outside Diameter	36 Inches	D
Yield Strength	70000 psig	S
Design Factor	0.8	
Longitudinal Joint Factor	1	
Temperature Derating	1	
Operating Pressure	1480	

## Additional Considerations

Longitudinal Stress  
 Material Strength Deviation  
 Fluid Hammer  
**Design Factor is not a Safety Factor**  
 Need for Safety Factor  
 Handling Stresses  
 Harmonics from Pump  
 Economics Dictate Cheapest Design

## Conventional Pipe Longitudinal Stress as taught

Area	1017.8784	
Force	1506460.032	
Pipe Circum Area	58.25	
Long Pipe Stress	25864 psi	
Pipe Hoop Stress	51755.6 psi	
Total operating stress	3347592645	
Total w/Circum and	57858 psi total	
Steel Yield Stress	70000	
Steel Design Stress	56000	
Safety Factor	44800	This should be the design stress they operate to
Water Hammer	127288	This is the maximum operating stress anticipated
<b>The safe operating pressure</b>	<b>521 psi</b>	
<b>Enbridge Operating Pressure</b>	<b>1480 psi</b>	

***Enbridge Operating pressure must be reduced for this pipe design***

## Allowances

Fluid hammer	2.2 Factor
Safety Factor	1.25
Design Factor	0.8

## Design of Pressure Pipes

The design methods for buried pressure pipe installations are somewhat similar to the design methods for gravity pipe installations which were discussed in Chap. 3. There are two major differences:

1. Design for internal pressure must be included.
2. Pressure pipes are normally buried with less soil cover so the soil loads are usually less.

Included in this chapter are specific design techniques for various pressure piping products. Methods for determining internal loads, external loads, and combined loads are given along with design bases.

### Pipe Wall Stresses and Strains

The stresses and resulting strains arise from various loadings. For buried pipes under pressure, these loadings are usually placed in two broad categories: internal pressure and external loads. The internal pressure is made up of the hydrostatic pressure and the surge pressure. The external loads are usually considered to be those caused by external soil pressure and/or surface (live) loads. Loads due to differential settlement, longitudinal bending, and shear loadings are also considered to be external loadings. Temperature-induced stresses may be considered to be caused by either internal or external effects.

### Hydrostatic pressure

Lamé's solution for stresses in a thick-walled circular cylinder is well known. For a circular cylinder loaded with internal pressure only, those stresses are as follows:

Tangential stress: 
$$\sigma_t = \frac{P_i a^2 (b^2/r^2 + 1)}{b^2 - a^2}$$

Radial stress: 
$$\sigma_r = \frac{P_i a^2 (b^2/r^2 - 1)}{b^2 - a^2}$$

where  $P_i$  = internal pressure

$a$  = inside radius

$b$  = outside radius

$r$  = radius to point in question

The maximum stress is the tangential stress  $\sigma_t$ , and it occurs at  $r = a$  (Fig. 4.1). Thus,

$$\sigma_{\max} = (\sigma_t)_{r=a} = \frac{P_i a^2 (b^2/a^2 + 1)}{b^2 - a^2}$$

or 
$$\sigma_{\max} = \frac{P_i (b^2 + a^2)}{b^2 - a^2} \quad (4.1)$$

For cylinders (pipe) where  $a \approx b$  and  $b - a = t$ ,

$$b^2 - a^2 = (b + a)(b - a) = \bar{D}t \quad (4.1a)$$

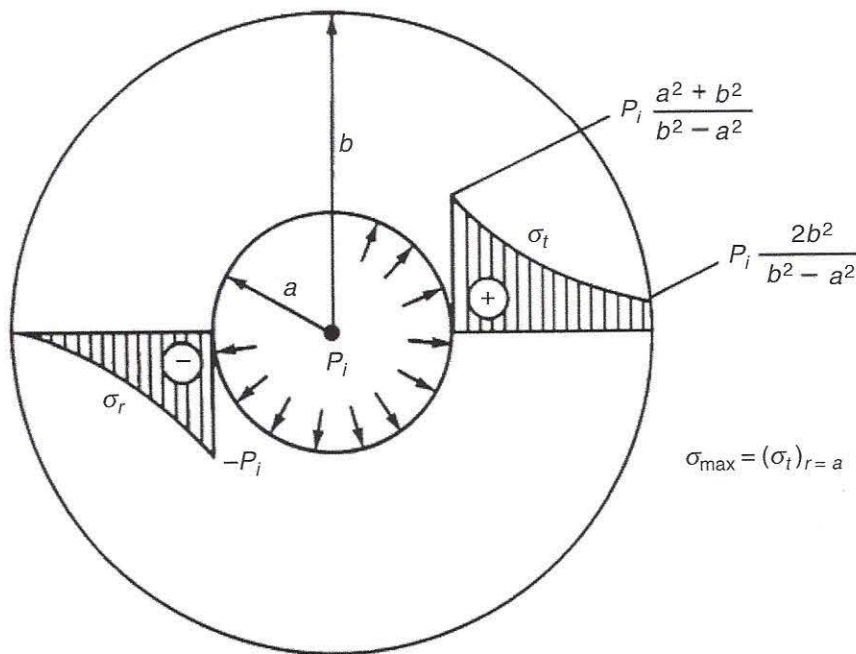


Figure 4.1 Thick-walled cylinder with internal pressure.



where  $\bar{D}$  = average diameter =  $b + a$  and  $t$  = thickness =  $b - a$ . Also,

$$(b + a)^2 = \bar{D}^2 = b^2 + a^2 + 2ab \quad (4.1b)$$

$$b^2 + a^2 = \bar{D}^2 - 2ab \approx \bar{D}^2 - 2\bar{r}^2 = \bar{D}^2 - \frac{\bar{D}^2}{2}$$

Thus Eq. (4.1) can be rewritten using Eqs. (4.1a) and (4.1b) as follows:

$$\sigma_{\max} = \frac{P_i (\bar{D}^2/2)}{\bar{D}t} = \frac{P_i \bar{D}}{2t} \quad (4.2)$$

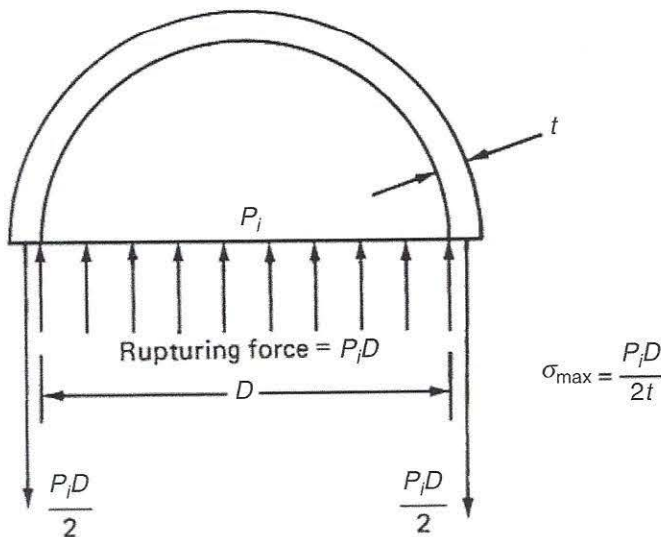
Equation (4.2) is recognized as the equation for stress in a thin-walled cylinder (Fig. 4.2). This equation is sometimes called the Barlow formula, but is just a reduction from Lamé's solution. This equation is the form most often recognized for calculating stresses due to internal pressure  $P_i$ .

If the outside diameter  $D_o$  is the reference dimension, Eq. (4.2) can be put into another form by introducing

$$\bar{D} = D_o - t$$

That is, the average diameter is equal to the outside diameter minus thickness. Equation (4.2) becomes

$$\sigma_{\max} = \frac{P_i (D_o - t)}{2t} \quad (4.3)$$



**Figure 4.2** Free-body diagram of half section of pipe with internal pressure.

Certain plastic pipe specifications refer to a dimension ratio (DR) or a standard dimension ratio (SDR), where

$$\text{DR} = \frac{D_o}{t} \quad \text{or} \quad \text{SDR} = \frac{D_o}{t}$$

Both DR and SDR are defined the same. However, SDR often refers to a preferred series of numbers that represents  $D_o/t$  for standard products. By introducing  $D_o/t = \text{SDR}$  into Eq. (4.3), it can be rewritten as follows:

$$\sigma_{\max} = \frac{P_i}{2} (\text{SDR} - 1) \quad (4.4)$$

The above equation may be expressed as

$$\frac{2\sigma_{\max}}{P_i} = \text{SDR} - 1 \quad (4.5)$$

Equation (4.5) is often referred to as the ISO (International Standards Organization) equation for stress due to internal pressure. However, this basic equation has been known to engineers for more than a century and was originally given by Lamé in "Leçons sur la theorie de l'élasticité," Paris 1852. Obviously, ISO is a relative newcomer and should not be given credit for Lamé's work.

To calculate these tangential stresses in the pipe wall produced by internal pressure, either Eq. (4.2) or Eq. (4.4) are often suggested by the manufacturer or by national standards. All forms are derived from Lamé's solution and will produce comparable results.

### Surge pressure

Pressure surges are often divided into two categories: transient surges and cyclic surges. Cyclic surging is a regularly occurring pressure fluctuation produced by action of such equipment as reciprocating pumps, undamped pressure control valves or interacting pressure regulating valves, oscillating demand, or other cyclic effects. Cyclic surges may cause fatigue damage and should be designed out of the system.

Transient surges are just that—transient in nature, occurring over a relatively short time and between one steady state and another. A transition surge may occur, and the system then returns to the same steady state as before the surge. Transient surges are usually not cyclic in nature although they may be repetitive. A transient surge is often referred to as *water hammer*.

Any action in a piping system that results in a change in velocity of the water in the system is a potential cause of a water hammer surge.

A partial listing of some typical causes of water hammer is given below.

1. Changes in valve settings (accidental or planned)
2. Starting or stopping of pumps
3. Unstable pump or turbine characteristics

The magnitude of water hammer pressures generated by a given change in velocity depends on (1) the geometry of the system, (2) the magnitude of the change in velocity, and (3) the speed of the water-hammer wave for the particular system.

These variables are expressed quantitatively as

$$\Delta H = \frac{a}{g} \Delta V \quad (4.6)$$

where  $\Delta H$  = surge pressure, feet of water

$a$  = velocity of the pressure wave, ft/s

$g$  = acceleration due to gravity (32.17 ft/s<sup>2</sup>)

$\Delta V$  = change in velocity of fluid, ft/s

The pressure rise, in pounds per square inch, may be determined by multiplying Eq. (4.6) by 0.43 lb/in<sup>2</sup> per feet of water as follows:

$$\Delta P = \frac{a}{g} \Delta V (0.43) \quad (4.7)$$

The wave speed is dependent upon

1. Pipe properties
  - a. Modulus of elasticity
  - b. Diameter
  - c. Thickness
2. Fluid properties
  - a. Modulus of elasticity
  - b. Density
  - c. Amount of air, and so forth

These quantities may be expressed as

$$a = \frac{12\sqrt{K/\rho}}{\sqrt{1 + (K/E) (D/t) C_1}} \quad (4.8)$$

where  $a$  = pressure wave velocity, ft/s

$K$  = bulk modulus of water, lb/in<sup>2</sup>

$\rho$  = density of water, slug/ft<sup>3</sup>



- $D$  = internal diameter of pipe, in  
 $t$  = wall thickness of pipe, in  
 $E$  = modulus of elasticity of pipe material, lb/in<sup>2</sup>  
 $C_1$  = constant dependent upon pipe constraints ( $C_1 = 1.0$  for pipe with expansion joints along its length)

For water at 60°F, Eq. (4.8) may be rewritten by substituting  $\rho = 1.938$  slug/ft<sup>3</sup> and  $K = 313,000$  lb/in<sup>2</sup>.

$$a = \frac{4822}{\sqrt{1 + (K/E)(D/t)C_1}} \quad (4.9)$$

Equations (4.6), (4.7), and (4.8) can be used to determine the magnitude of surge pressure that may be generated in any pipeline. The validity of the equations has been shown through numerous experiments.

Figure 4.3 is a plot of the pressure rise in pounds per square inch as a function of velocity change for various values of wave speed. Tables 4.1 and 4.2 give the calculated wave speed according to Eq. (4.8) for ductile iron and PVC pipe, respectively. In general, wave speeds vary from 3000 to 5000 ft/s for ductile iron and from 1200 to 1500 for PVC pipes.

**Example Problem 4.1** Determine the magnitude of a water hammer pressure wave induced in a 12-in class 52 ductile iron pipe and in a class 235 DR 18 PVC pipe if the change in velocity is 2 ft/s.

**solution** From Tables 4.1 and 4.2 and Fig. 4.3:

Pipe	Wave speed, ft/s
Class 52 DI	4038
Class 235 PVC	1311

The resulting pressure surges are

Pipe	Surge pressure, lb/in <sup>2</sup>
Class 52 DI	105
Class 235 PVC	35

Some appropriate rules of thumb for determining maximum pressure surges are listed below in pounds per square inch of surge per 1 ft/s change in velocity.

Pipe	Surge pressure rise, lb/in <sup>2</sup> , per 1 ft/s velocity change
Steel pipe	45
DI (AWWA C150)	50
PVC (AWWA C900)	20
PVC (pressure-rated)	16



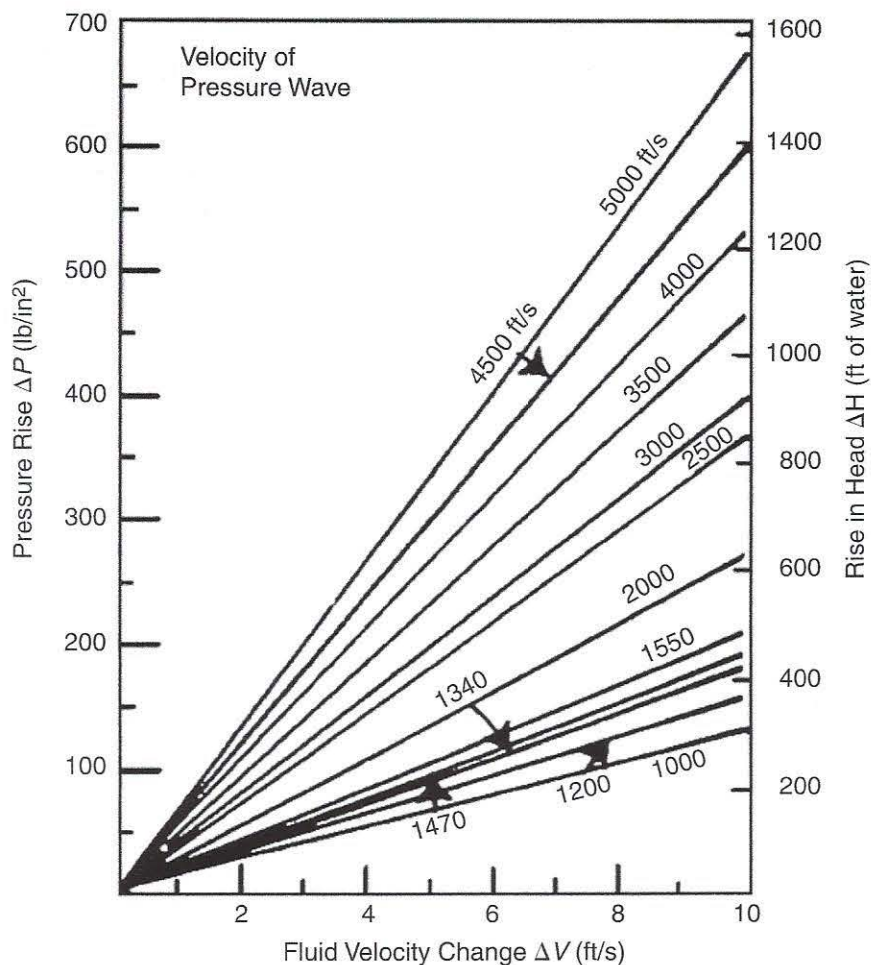


Figure 4.3 Water hammer surge calculation.

TABLE 4.1 Water Hammer Wave Speed for Ductile Iron Pipe, ft/s

Size	Class						
	50	51	52	53	54	55	56
4	—	4409	4452	4488	4518	4544	4567
6	4206	4265	5315	4358	4394	4426	4454
8	4085	4148	4202	4248	4289	4324	4356
10	3996	4059	4114	4162	4205	4242	4276
12	3919	3982	4038	4087	4130	4169	4205
14	3859	3921	3976	4024	4069	4108	4144
16	3783	3846	3902	3952	3998	4039	4076
18	3716	3779	3853	3887	3933	4038	4014
20	3655	3718	3776	3827	3874	3917	3957
24	3550	3614	3671	3723	3771	3815	3855
30	3387	3472	3547	3615	3676	3731	3782
36	3311	3409	3495	3571	3638	3700	3755
42	3255	3362	3456	3539	3612	3678	3737
48	3207	3323	3424	3512	3590	3659	3721
54	3201	3320	3423	3512	3591	3599	3724

TABLE 4.2 Water Hammer Wave Speed for PVC Pipe, ft/s

Size	(AWWA C900) DR			Pressure-rated PVC SDR			
	25	18	14	21	26	32.5	41
4	1106	1311	1496	1210	1084	967	859
6	1106	1311	1496	1210	1084	967	859
8	1106	1311	1496	1210	1084	967	859
10	1106	1311	1496	1210	1084	967	859
12	1106	1311	1496	1210	1084	967	859

Since velocity changes are the cause of water hammer surge, proper control of valving may eliminate or minimize water hammer. If fluid approaching a closing valve is able to sense the valve closing and adjust its flow path accordingly, then the maximum surge pressure as calculated from Eq. (4.6) may be avoided. To accomplish this, the flow must not be shut off any faster than it would take a pressure wave to be initiated at the beginning of valve closing and returning again to the valve. This is called the *critical time* and is defined as the longest elapsed time before final flow stoppage that will still permit this maximum pressure to occur. This is expressed mathematically as

$$T_{cr} = \frac{2L}{a}$$

where  $T_{cr}$  = critical time

$L$  = distance within the pipeline that the pressure wave moves before it is reflected back by a boundary condition, ft

$a$  = velocity of pressure wave for the particular pipeline, ft/s

Thus, the critical time for a line leading from a reservoir to a valve 3000 ft away for which the wave velocity is 1500 ft/s is

$$T_{cr} = \frac{2(3000) \text{ ft}}{1500 \text{ ft/s}} = 4 \text{ s}$$

Unfortunately, most valve designs (including gate, cone, globe, and butterfly valves) do not cut off flow proportionate to the valve-stem travel (see Fig. 4.4). This figure illustrates how the valve stem, in turning the last portion of its travel, cuts off the majority of the flow. It is extremely important, therefore, to base timing of valve closing on the *effective closing time* of the particular valve in question. This effective time may be taken as about one-half of the actual valve closing time.



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## Induced Stresses in Pipe- Hoop, Longitudinal and Radial Stresses

3 Comments

### Topics covered

Introduction  
Circumferential or Hoop Stresses  
Longitudinal Stresses  
Radial Stress

### Introduction to Induced Stresses:

When the ends of the pipe ends are closed and pipe is subjected to an internal pressure 'P' there are various stresses that develop in the pipe. Each element of pipe are subjected to the below mentioned stresses which act in the direction as shown in the fig.1.

Circumferential (hoop) stress  $\sigma_H$   
Longitudinal Stress  $\sigma_L$   
Radial Stress  $\sigma_R$

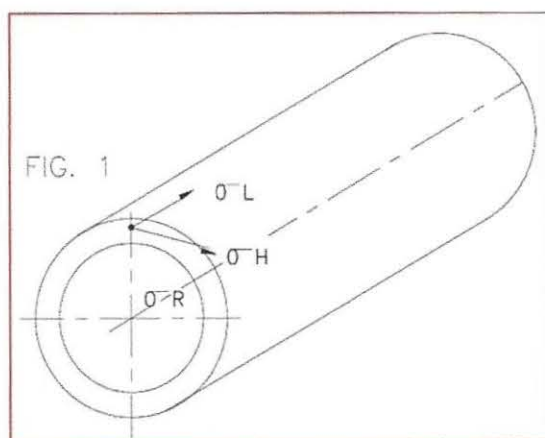


Fig 1: Different stresses induced in pipe

### CIRCUMFERENTIAL OR HOOP STRESS: $\sigma_H$

The effect of this may split the pipe into two halves as shown in fig.2. The failure of the pipe in two halves in fact is possible across any plane, which contains diameter and axis of the pipe. Elements resisting this type of failure would be subjected to stress and

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direction of this stress is along the circumference. Hence the above stress is called Circumferential or Hoop Stress.

If –

$D$  = Diameter of the pipe

$L$  = Length of the pipe

$t$  = thickness of the pipe.

Then

Bursting force, $F_B$	=	Pressure * Area
	=	$P * D * L$
Resisting force, $F_R$	=	Resisting metal area * Stress, $\sigma_H$
Equating $F_B$ & $F_R$		
$P * D * L$	=	$2t * L * \sigma_H$
$\therefore t$	=	$(P * D) / 2 * \sigma_H$
or $\sigma_H$	=	$(P * D) / (2 * t)$ _____ (1)

This equation is used for calculating the thickness of pipe so as to withstand pressure 'P' where  $\sigma_H$  is allowable circumferential stress.

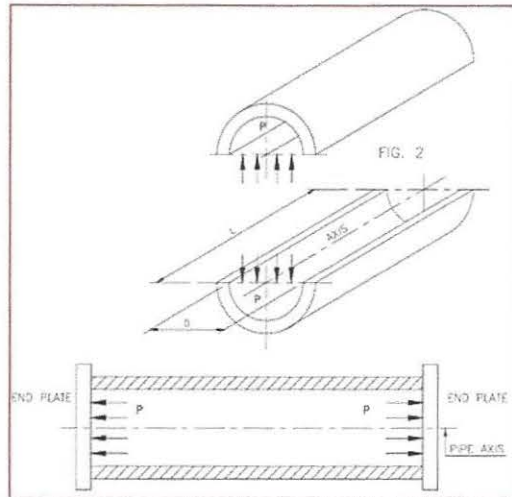


Fig 2: Circumferential or Hoop stress

#### LONGITUDINAL STRESS: $\sigma_L$

Considering that the pipe ends are closed and pipe is subjected to an internal pressure 'P' the pipe may fail as shown in Fig.3. Elements resisting this type of failure would be subjected to stress and direction of this stress is parallel to the longitudinal direction of the pipe. Hence this stress is called longitudinal stress.

Then

Bursting force, $F_B$	=	Pressure * Area
	=	$P * (\pi D * L) / 4$
Resisting force, $F_R$	=	Resisting metal area * Stress, $\sigma_L$
	=	$\pi D t * \sigma_L$ (when $t$ is significantly small as compared to $D$ )
Equating $F_B$ & $F_R$		
$P * (\pi D * L) / 4$	=	$\pi D t * \sigma_L$
$\therefore t$	=	$(P D) / 4 * \sigma_L$
or $\sigma_L$	=	$(P D) / (4 * t)$ _____ (2)

NOTES:

- 1) On comparing equations 1 & 2, it is clear that when a pipe having diameter 'D' and thickness 't' is subjected to an internal pressure 'P', the induced circumferential stress is double the induced longitudinal stress.
- 2) Normally, the pipe is considered as a thin wall cylinder i.e.  $t < D/6$
- 3) Usually D is substituted by  $D_o$  (outside diameter) in order to have higher safety margin.

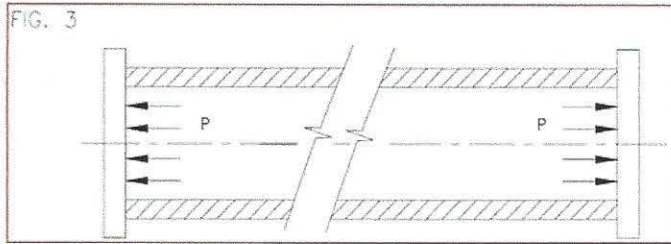


Fig 3: Longitudinal stress

**RADIAL STRESS:  $\sigma_R$** 

Radial stress is a stress in directions coplanar with but perpendicular to the symmetry axis.

The radial stress for a thick-walled pipe is equal and opposite to the gauge pressure on the inside surface, and zero on the outside surface.

The radial stress is always compressive.

Each element of the pipe is subjected to radial stress which acts in radial direction as shown in Fig.4 and calculated as

$$\sigma_R = P$$

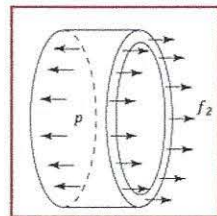


Fig 4: Radial stress

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**3 COMMENTS**

*rupak*

May 27, 2016 at 5:04 am

wonderful explanation!

[Reply](#)*Ganesh S Kharote*

October 11, 2016 at 5:23 am

its so useful insight as it bridges theoritical and practical aspect

[Reply](#)*Haofeng*

March 6, 2017 at 2:52 am

Thanks for the explanation! Helpful!

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## CFR 192.105 Design Formula Hoop Stress Only

Pipe Wall Thickness	0.515 Inch	t
Pipe Outside Diameter	36 Inches	D
Yield Strength	70000 psig	S
Design Factor	0.8	
Longitudinal Joint Factor	1	
Temperature Derating	1	
Operating Pressure	1480	

## Additional Considerations

Longitudinal Stress  
 Material Strength Deviation  
 Fluid Hammer  
**Design Factor is not a Safety Factor**  
 Need for Safety Factor  
 Handling Stresses  
 Harmonics from Pump  
 Economics Dictate Cheapest Design

## Conventional Pipe Longitudinal Stress as taught

Area	1017.8784	
Force	1506460.032	
Pipe Circum Area	58.25	
Long Pipe Stress	25864 psi	
Pipe Hoop Stress	51755.6 psi	
Total operating stress	3347592645	
Total w/Circum and	57858 psi total	
Steel Yield Stress	70000	
Steel Design Stress	56000	
Safety Factor	44800	This should be the design stress they operate to
Water Hammer	127288	This is the maximum operating stress anticipated
<b>The safe operating pressure</b>	521 psi	
<b>Enbridge Operating Pressure</b>	1480 psi	

***Enbridge Operating pressure must be reduced for this pipe design***

## Allowances

Fluid hammer	2.2 Factor
Safety Factor	1.25
Design Factor	0.8

**Levi, Andrew (COMM)**

---

**From:** Devyn Powell <devyn@powershift.org>  
**Sent:** Monday, July 10, 2017 3:56 PM  
**To:** MN\_COMM\_Pipeline Comments  
**Subject:** 1,411 public comments - Line 3 Pipeline (Dockets CN-14-916 and PPL-15-137)  
**Attachments:** Line 3 comments - DOCKET CN-14-916 AND PPL-15-137.xlsx

**Follow Up Flag:** Follow up  
**Flag Status:** Flagged

To whom it may concern - I would like to submit 1,411 public comments on the Line 3 pipeline (Dockets CN-14-916 and PPL-15-137), originally collected by the Power Shift Network (a 501(c)3 nonprofit organization) via [this page](#). Please let me know if you have any questions.

Best,  
Devyn

---  
 Devyn Powell // Digital Organizer  
[The Power Shift Network](#)  
 503.333.0169 (c)  
[@devynfromoregon](#)



**NOTE ON THE ATTACHED PUBLIC COMMENTS ON THE LINE 3 PIPELINE (DOCKETS CN-14-916 and PPL-15-137):** The following 1,411 comments were collected by the Power Shift Network, a nonprofit 501(c)3 organization, on this page: <https://actionnetwork.org/petitions/add-your-voice-to-stop-the-line-3-tar-sands-pipeline/> All commenters would like to submit the below statement, in addition to further personal comments indicated below. For any questions, contact Devyn Powell at [devyn@powershift.org](mailto:devyn@powershift.org).

COMMENT TEXT:

The Line 3 Draft Environmental Impact Statement is a step in the right direction for assessing oil pipeline projects in Minnesota, but contains multiple glaring errors and deficiencies. Keeping in mind the young people of Minnesota - and those across the country, and the globe - we respectfully submit the following critiques:

I. The inclusion of a comprehensive social cost of carbon is absolutely essential, but even the staggering prediction of up to \$287 billion (Chapter 5, page 433) only utilizes a 30 year scope. Page 6 of the Project Summary in Chapter 2, states “The Applicant anticipates that the physical life of the Line 3 Replacement pipeline (i.e., the number of years that the pipeline would be capable of transporting crude oil) would be indefinite given appropriate construction, maintenance, and integrity systems. The economic life of the Project (i.e., the number of years that continued operation of the pipeline would be feasible) is anticipated to be no less than 30 years,” (emphasis added). It is illogical and irresponsible to use a timeframe that Enbridge and the DEIS itself admit to be the bare minimum potential lifetime and impact of the Project. The current Line 3 is more than 60 years old, and Enbridge claims to have improved their technology and building practices, making a 30 year scope is drastically inadequate. Furthermore, the climate impacts being examined will continue well beyond the operating life of the physical pipeline, and should be analyzed with that scientific reality in mind. A minimum 60 year timeline for the direct pipeline impacts and 100 year timeline for the indirect climate impacts should be the absolute minimum acceptable scope.

II. Chapter 5, page 435, states that “Construction along the Applicant’s preferred route could require the removal of trees from up to 1,682 acres of forested land in the construction work area. Of this, 702 acres would remain permanently without trees, while the forest would be allowed to regrow on the other 981 acres....Consequently, the amount of carbon that potentially would be released back into the atmosphere during construction tree removal of 1,682 acres is estimated at approximately 205,500 tons of CO2e. Regrowth of the forest on the 981 acres outside of the pipeline right-of-way eventually would more than halve this loss in the long run after forest regrowth, bringing net CO2 emissions from forest clearance down to a level of about 85,658 tons.” The “Methods for Calculating Forest Ecosystem and Harvested Carbon with Standard Estimates for Forest Types of the United States” paper by Smith et. al. from which the carbon release numbers are derived uses data from trees ranging in age from zero years to 125 years of age. Full sequestration of the 119,842 tons of CO2e associated with the 981 acres of reforestation can therefore not be expected to be fully complete until the year 2143, assuming the deforestation occurs in 2018. Given the prevailing scientific conclusion that greenhouse gas emissions need to be significantly curbed over the next 5-10 years to avoid initiating catastrophic feedback loops, it is unrealistic and scientifically unsound to equate sequestration taking place over 125 years with mitigation of the CO2e release in the year 2018. The associated climate impacts will have taken place long before the sequestration is complete, and delayed absorption of CO2 will not remediate the significant alterations to the earth’s climate (and the planet’s ability to support its current ecosystems) brought about as a result of exacerbated feedback loops. Therefore, these calculations and the assumed net CO2 emissions from forest clearance should be revised.

III. The Executive Summary states on page 19 that the “primary impacts of climate change on the Project include severe weather, freeze-thaw cycles, and flooding, all of which could damage project facilities.” Climate impacts are projected to worsen over the course of the next 80 years, increasing the likelihood that these damages to the Project occur during the lifetimes of Minnesota’s current youngest generation. The increased likelihood of a spill or decrease in the Project’s structural integrity due to climate impacts should be included in the projected likelihood of accidental product release events, and identified as such, on a timeline of a minimum of 60 years (a benchmark consistent with the lifetime of the current Line 3).

IV. There is no serious consideration of a no-build option. The Executive Summary specifically states on page 17 that “all GHG emissions contribute to cumulative climate change, so all of the alternatives would play a role in global climate change,” (emphasis added). This clearly ignores any no-build alternative. The Environmental Impact Statement is not meant to analyze the necessity of the Project, but instead to prepare all relevant data so that the need (or lack thereof) can be adequately examined during the Certificate of Need process. Therefore, the DEIS is incomplete without a serious examination of a scenario in which the current Line 3 is decommissioned and not replaced. This option has been advocated for by thousands of Minnesotan citizens, is realistic with projected economic modeling around reducing oil dependency and increasing electrification and alternative energy, and clearly deserves serious consideration and study. It is also the most consistent with Minnesota’s commitment to upholding the Paris Agreement, and leading on climate action.

V. The overall workmanship of the draft Environmental Impact Statement is flawed and indicative of only a cursory level of dedication to the analysis. The serious and long-lasting impacts this Project will have on Minnesota’s youngest generation deserve a more thorough and respectful review than this document conveys. First, nine of the citation links in Chapters 9, 10, 11, and 12 are broken or inaccessible without site login information. This makes the source material for the DEIS both questionable in authenticity, and inaccessible for public review. Second, the listed alternatives in Chapter 4 involving rail and truck transportation are inconsistent with standard methods in the industry, and wholly infeasible and illogical. Beyond the overall absurdity of these proposals, page 13 of Chapter 4 uses the same volume of product that would transported by pipeline in the calculations for transportation by rail, without discussing the removal of diluent that would only be needed to increase the viscosity of the oil in a pipeline, not a rail car. This could significantly change the volume of product to be moved in a rail scenario, so these numbers should be revisited. Finally, Tribal Resources and Environmental Justice chapters (Ch. 9 and Ch. 11, respectively) lack depth, do not sufficiently cross-reference one another, and are offensively incomplete in their analysis of structural societal impacts such as the increase in sex trafficking associated with similar projects (page 10, Chapter 11).

VI. This draft Environmental Impact Statement is inadequate without serious consideration given to the eventual retirement and removal of the Line 3 Replacement. There is no sunset clause or removal plan referenced in this document whatsoever. As previously cited, page 6 of the Project Summary in Chapter 2, states “The Applicant anticipates that the physical life of the Line 3 Replacement pipeline (i.e., the number of years that the pipeline would be capable of transporting crude oil) would be indefinite given appropriate construction, maintenance, and integrity systems.” An indefinite life expectancy is shorthand for a lack of research and attention given to obvious fact that the pipeline will eventually become inoperable, obsolete, or prohibitively damaged, and need to be retired. Especially given the level of concern being raised about the current Line 3 and the lack of planning that led to it being cited close enough to other lines to make its removal difficult, forethought about clean-up measures is clearly needed from the beginning of a project.

In conclusion, we appreciate the requirement of an Environmental Impact Statement for crude oil pipeline projects in the State of Minnesota, and believe that this DEIS should set a more diligent precedent for these kinds of analyses. The current DEIS is inadequate because it disregards its own parameters for a realistic scope, contains miscalculations in regards to carbon sequestration from land reforested after construction, does not account for the increased risk of accidental product release as a result of climate-change-induced stress on the Project, neglects to fully analyze all reasonable alternatives by ignoring a no-build scenario, displays poor workmanship and multiple simple data errors, and omits any consideration of the eventual retirement of the Line 3 Replacement. Only a comprehensive DEIS that addresses these concerns will be adequately complete and support an informed decision on the future of Minnesota’s infrastructure and natural resources.

First Name	Last Name	Additional personal comments
Devyn	Powell	
Genevieve	Guzman	
Louisa	Matthias	
David	Easton	The young are the wise ones in this matter...good for you!
Lindsay	Meiman	
Robert	Janusko	
RUSS	RIPP	
Kalliope	M.	
Marian	Cruz	NO, to Tar Sands!
James	Forero	
michael	zuckerman	
Joanna	Welch	
Edward	Freeman	
Robert	Sanders	
Rose	Wood	
Bruce	McGraw	
Cleo	Dioletis	

Jared	Howe	
Susan	Hathaway	
Sandra	Currie	No more infrastructure for fossil fuels. No more tar sands extraction.
Jim	Sandoe	
Christopher	Weiss-Lehman	
Hannah	Dahm	
Paul	DiMarco	
Jack	Garcia	
Susan	Shaak	
Dr. Prisca	Gloor	
Herbie	Shelton	
Eban	Goodstein	
Jacqueline	Jobin	
Alison	Walker	
Lorne	Stockman	
michele	smolen	
Laura	Ticciati	
Kate	Kenner	These pipelines are like an epidemic spreading, destroying , and killing this and all should come to an end.
S	C	
David	Loy	
Natalie	Wallace	
Hannah	Nowakowski	
Nancy	Chismar	
Katie	Shultz Walker	
Shirley	Gunn	
Carmelita	Means	
Caryn	Wagner-McPherson	
Ruth	Richter	
Neil	Quarles	
Tracey	O'Kelly	Take care of our future! Stop the tar sands now!
Kathy	Koch	
Mark	Clearwater	
Dave	Long	
Erin	McCabe	
Philip	Wight	
Joseph	Grant	
A Lynn	Raiser	
Sandra	Woodall	Tar sands oil is some of the most damaging of petroleum products in terms of extraction and impurity. Native peoples in Canada are trying to block further tar sands exploitation.
Karla	Frandsen	
Tim	Barrington	
Andrew	Goldman	
Jacqueline	Leavy	I'm honored to follow the lead of our young people in speaking up to protect our environment. This country needs to start LISTENING to the voices of these young leaders, and shift our policies to protect their future.
Grace	Burson	
Anthony	Albert	
Andrea	Frank	
Robert	Jacobson	
Valerie	Hensley	
Irwin	Hoenig	
Ramiro	Herrera	
Terry	Bergeron	
RICHARD	JACKSON	...RENEWABLES are the future!...
Andrew	Jackson	
terence	cuneo	
Colleen	Spindler-Ranta	
Pamylle	Greinke	
barbara	watts	
Molly	Kinney	
Juliana	Schwartz	
Scott	Gibson	
Max	Kaehn	
Charles	Behrens	
Joanne	Dixon	
Todd	Larsen	
Hans	van Huijkelom	
A.L.	Steiner	
Dennis	Smith	
Kathleen	Kaiser	
Jaci	Christenson	We have a moral responsibility to seriously consider the impacts of Line 3 on the next generation!
Jan	Hall	
Tristan and Aimee	Merino	
Glen	Anderson	Protect our future from climate disruption and corporate abuse!!!!!!!!!!!!
Kenneth	Lapointe	
Edward	Spevak	
Larry	Lapuyade	
Kellie	Smith	
Carol	Kari	I say NO TO tar sands.
John	Crotty	
James	Keenan	
KD	Kidder	This is critical to saving future generations !!!!
Lori	Cameron	
Liam	McIlroy	
Jane	Berrigan	
Laura	Yokochi	
Carol	Culnan	These are the people who will be most effected by the pipeline- they should be listened to. No-build should be the choice.
Michaela	Wehner	



Keith	Koelling	We owe it to our grandchildren to do the BEST we can to protect the earth.
ethel anne	keeble	
Donnalynn Polito	Polito	
Michael	Halloran	
Nora	Kramer	
Sharon	Findling	
Christianna Nelson	Nelson	
Randall	Webb	
vicki	hughes	
Julia	Rapczynski	
Tina	Wilson	Please consider long term health consequences as equally if not more important than short term profit for a corporation.
Michele	Temple	
Emily	Gold	
Lisa	Mazzola	
Laura	W	
Gertrude	Glazer	
Edna	Mullen	
Jacob	Herbers	
Tru	Dunham	
Celeste	Howard	
Jessie	Thornton	Americans lives are being sacrificed for corporate greed. Stop now.
Karen	Erickson	
Anne	Flanz	
Lydia	Avila	
Steve	Overton	
Gabriel	Brossy de Dios	
Rita Olson	Olson	
Helene Carol	Meeks	
Lo	Daniels	
Glenn	Gawinowicz	
Tamara	Matz	Thanks to these courageous young people!
Anne	Craig	
Abigail	Gindele	
Susan	Kollar	
Pamela	Evans	
Dawn	Cheek	
Joshua	Seff	
Susan	Feiner	
Lisa	DeVille	
Allen	Leinwand	I live with oil and gas. Industry will lie to the people and communities for greed. Industry will convince also that they have the safest way.
Ed	Schulz	
Bryn	Truscott	
ANGELA	COLONNA	
Ananya	Singh	
Ruth	Darden	
Susan	VanMeter	
Laura	Landolt	
Brian	Keck	
William	Sharfman	
Maddie	Renaud	NO TAR SANDS PIPELINES in the USA PERIOD!!!
Dee	Randolph	
Ryan Bradley	Bradley	
M	A	
Laurie	Puca	
Joan	Lawson	
Vanessa	Roanhorse	
jean	slocum	
Sally	Hinshaw	
Roseanne	Hovey	
Sandi	Covell	Transporting dirty Tar Sands Oil is not only a grave environmental risk with the likelihood of spills, but it may contaminate the water and the health of those living near it. Why make a 40 year commitment to fossil fuel extraction and transport when we have so many clean energy options that will not contribute to climate change?
Carolyn	Summers	
Rachel	Willett	
Mark	Spohr	
Jack	O.	
Mary	Lester	
Eric	Sandler	
g	m	
Gail	Landy	
Joan	Miller	
Marilyn	Glasgow	Me ya Law Rachel Mandelbaum Janet Boyd Stephen Bergen Y. Armando Nieto Evelyn Hamilton James Soares Lillian McLoughlin Paul Berland Christine Pritchard
Terri	Gilbert	
J.A.	Perry	
Robert	Seltzer	
Meya	Law	
Rachel	Mandelbaum	
Janet	Boyd	
Stephen	Bergen	
Y. Armando	Nieto	
Evelyn	Hamilton	
James	Soares	
Lillian	McLoughlin	
Paul	Berland	
Christine	Pritchard	

		To our Youth--
		Your voice must be heard and listened to. Your action respected and bring positive results. I am with you all the way! Thank you for your commitment and voices!
Jane Sharon Jack mark	Church Anton McCarthy mendoza	Jane Church
		There is no serious consideration of a no-build option. The Executive Summary specifically states on page 17 that"all GHG emissions contribute to cumulative climate change, so all of the alternatives would play a role in global climate change,"(emphasis added). This clearly ignores any no-build alternative. The Environmental Impact Statement is not meant to analyze the necessity of the Project, but instead to prepare all relevant data so that the need (or lack thereof) can be adequately examined during the Certificate of Need process. Therefore, the DEIS is incomplete without a serious examination of a scenario in which the current Line 3 is decommissioned and not replaced. As one who will be affected by oil coming through Line 3, I can say
Lynn Danielle Eric Elisabeth Melissa Maureen cooper Patricia Richard Christopher Theresa Sidney Walker	Shoemaker Casper Ashley Wertheim Schultz_Ahearn Tobin ashe Koso Baker Marrs Zatirka Walker	emphatically that such oil will be a public health hazard and a serious environmental danger. Please respect my health, the health of all those near this line and the wisdom and ways of Native Americans. Thank you.
		Please give these young people a voice in the process. If you believe in democracy, how can you let fear govern your decision-making process? This is about the future and those that will live with the decisions made today. Stand with our youth. This is their future and they deserve to have a say in the environment that they will have to live in.
Dani Kim Maayan Julia DeNiro Mildred Richard Ray Lori Andrea Marg JUSTINE Richard Patrick Gene Mercy Carlotta	Brusius Gosh Cohen DeNiro Templeton Shook Bellamy Sherry Beeman Cawley TILLEY Han Maloney Massion Myers Hayes	Young people matter. Future generations matter. It should not be all about short term profits for a few.
		Dear Minnesota Department of Commerce:  Climate change threatens us all and especially threatens my generation and generations to come. Do a full and honest evaluation of the environmental and health risks that this pipeline poses and say no to tar sands.  Thank you in advance.  Sincerely,  Arielle Mazzuca
Arielle J Roy	Mazzuca Beverly Hunt	Age:21  Time to work "...for the people", NOT the Corporations!
eggers k. Dean Diana Claudine Thomas Kara Jon Caroline Seamus Pamela Robert Jackie Anita Julia James Colin Ingrid Hon Dan Elizabeth Wayne David Lynne	k. Borgeson Emerich Armand Meacham Duffy Bazinet Cruys MacCallum Nordhof Landolt Miller Garrison Morgan Mulcare Hill Alpha Soulo Lara Paulson Mayer Osterhoudt St. John	Thank you for doing the RIGHT thing!!!

Marjorie	Nafziger	
Denise	Johnston	
Marcy	Allen	
stephen	fleitas	
Bill	Link	
Gail	Conners	
Larry	Kraft	
Alison	Guzman	
Janet	Smarr	
Sean	Mooney	
Aurora	Levins Morales	These young people have every right to have a voice in decisions that will shape their world. Make room at the table!  In addition to the environmental impacts of the proposed pipeline, the resulting addition to oil production is not sustainable economically, as tar sands end up producing about as much energy that it takes to process them, resulting in no energy return on the investment. This is as much a step backwards from realizing a world of abundant, low-impact energy accessible by everyone.
Carl	Diethelm	
anthony	montapert	
Victoria	Olson	
Barbara	Murray	Oil is on it's way OUT!
j.	eggerts	Time to utilize the renewable energy systems, and save the planet (and its' people)!!!
Joyce	Pusel	
William	Fisk	
Mary	DeCarlo	
Javier	Rivera	
Wendy	Raschke	
Diane	Glick	
Susan	Moren	They are our future. We need to have them at the table to help make sustainable solutions!
Tracy	Brown	
Mark	Smith	
Rich	Yurman	no more fossil fuels and environmental devastation
Annie	Davidson	
Adri	Norris	
MR. & MRS. BRUCE	REVESZ	
Tom	Csuhta	
Zoe	Zandbergen	
Javier	Rivera	
David	Walker	
Jacob	Sable	
Jelica	Roland	
Janet	Walls	
Maggie	Mandzuk	
Ryan	Baka	
Jenny	Cottle	
Keth	Luke	
Joshua	Wallman	
James	Shaver	
Bruce	Van Tassell	
Jack	Greene	
Karen	Berger	
Susan	Peirce	
fay	forman	
Ilene	Cento	
Staci	Evans	
Katarina	Alajbegovic	
Y	P	
Terri	Tylo	
Mark	Laity-Snyder	
Harry	Hochheiser	
Fredrick	Seil	
viola	freeman	
Thomas	Patterson	
Bernice	Kelman	
sylvia	r	
Phil	Hanson	
Phil	Hanson	
Dionicio	Barrales	
meg	kettell	
Thomas	Olbert	
Laura	Dailey	
Jennifer	Kunze	
Martha	Booz	
Ricki	Newman	
Parween	Irani	
eileen	cantrell	
J	Angell	
Dolores	Andersen	
Billile Kanter	Kanter	
Anne	Dale	It's time to shift to alternative energy!!
Erica	Johanson	
Virginia	Mendez	
Lois	Norrgard	
Kelley	Scanlon	
Jean	Dowell	Solidly behind these young people!
Jessica	Peraza	
Germaine Gogel		
Ken	Box	







Rebecca Thomas Stan Frances Darren kate Espoir Lisa	Steelman Beck Sattinger Goff Mitton eller DelMain Danz	This is our chance to begin saving all of humanity -- not only the next generation!
Ellen	Hadley	Additionally, the proposed route violates the Treaty of 1855, which guarantees hunting, fishing, and gathering rights to the Ojibwe people. Treaties are the supreme law of the land and we must fulfill the pledge our ancestors made to our Indigenous neighbors. Let the young environmentalists have their say in regards to this abomination of a pipeline! It will affect them more in the long run than older Citizens. Remember this; We ALL have to breathe the SAME AIR!
Robert Joseph	Neal Wenzel	Stop all oil and tar pipelines! They damage the land and water. What kind of earth do you plan to leave your children and grandchildren? Any state that does this is destroying something that cannot be replaced!
Linda	Johns	
Laura Schuyler Evan Nicole Marie Eileen Meredith Lenore Steve Kristina James William Margaret Rebecca Ellen Melissa Sue Richard Judy Kimberly	Oochoo Kempton Feldberg-Bannatyne Gambino Curtis Carlton Kates Reeves Campbell von Hoffmann Tatum, Jr. Bishop Merrill Waterhouse Sanders Hastings Schneidler Mills Welles Snyder	It's simply time now, to end all pipelines! The shift to clean environment is now. No more negative destruct on lands and waterways. Megwetch. Nikanikewitinopinehsi.  Please put your profit motive on the back burner. No one, including you, profits when the earth's crust is damaged.  More than anyone else, these young people deserve a voice in their own future.
Elma Kate Darren Nancy	Tassi Field Skotnes Bauer	
		The is another tragedy caused by the fossil fuel industries vast money control of all news and a majority of politicians and police forces and is in no way a representation of the people's desires who are overwhelmingly in favor of transitioning to a green energy but are blocked !  America could have been totally free of fossil fuels in the late 60s or at least by the mid seventies using thorium ( U-232) liquid salt electric generators instead of the dangerous nukes we are using today!  America simply doesn't need any new pipelines and should be killing several old lines ! America's statistics show we have 85 years worth of natural gas in storage or deliverable through existing pipelines What for? Why build more?  Every one should use the net to get the truth about this scam of gigantic proportions waged on America by the wealthiest industry in the world who can buy news and "FACTS" that never were anything but bull shit! Just like the tobacco industry did and nobody seemingly can stop them until Americans get out in the streets and demand real green energy solutions and dump the industries that are built around them like autos big energy requiring houses etc!
Monte & Elora Lopamudra Devin	McKenzie Mohanty McMhon	
Kerry C. Liisa Kelsey Pauline Gerry Anjali Trevor Jason Sharron Jesse DK Simon Victoria Sean Jacob Julia Emily Corrigan Maria Ariana Amber Kay Alice Walter Elizabeth Steve Zoya Lynn	Kelso Wale Pence Thomas-Brown Snyder Helferty Strandness Rodney Laplante MD Gore Bolen Gunner Stratton Estelle Herbers Rice Duma Nadon-Nichols Hadden Hunter Houghstow Brainerd Labay Evans Garibaldi Rusk Marincheva Johnson	Pipelines are very harmful to our environment, from their construction to their inevitable leaks. Building more pipelines just prolongs our dependence on fossil fuels at a time when it is essential to address the climate crisis by moving away from the use of fossil fuels and toward clean, renewable energy sources.  !!



Kristen	Riedinger	
Wink Davis	Davis	As a farmer I feel the effects of the climate crisis every day and I am reminded that climate change knows no boundaries. That is why I, a Colorado farmer, feel the responsibility to speak out against this climate-destroying pipeline proposal: it will affect me deeply. I join those demanding a more robust and scientifically in-depth EIS on the Line 3 pipeline.
bernhard	gruber	
James	Cleghorn	
Janna Olson	Olson	
Samuel	Lees	
Cecil	Bothwell	Leave the tar sands in the ground. Put all available resources into solar, wind and other renewable technologies.
Ron	Saff	
Dorothy	Mitchell	
Marsha	Love	
Maarten	Bosland	
FRANK M YOUNG III	M YOUNG III	
Alexis	Bay	
chad	hayes	
Lynn	Rosen	
John	Badila	
Aditya	Nochur	
Jamie	cunningham	
Florence	Dacey	
Jonathan	Clapp	
suzanne	williams	
Bill	Russell	
Steve	Troyanovich	
Pamela Donehower	Donehower	
Frank	Cassianna	"
Robin	Humes	
B. Thomas	Diener	
emile	d'almeid	
Chris	Young	
tom	feldman	
Olivier	Stas	
Aaron	Silberman	
Jeffrey	Rattner	
Mollie	Roever	This is a climate catastrophe. You don't have the right to destroy other people's air, water, land for your own greed.
Buckie	Jones	
Jane	Fasullo	
amy	russell	
R.	Romaker	
Harriet	Grose	
Karen	Stimson	
John Fredrickson	Fredricksson	
Linda	Tift	You must do a complete review of any pipeline being built.
Corrine	Mohnasky	
Donna	Carr	
Stephanie	Shepherd	
emily		
Lauren	Bohannan	
Julia	Cranmer	
Jean	Ross	
Janice	Hallman	
Joe	Rawlings	
Gerrit	Crouse	
		Our environmental laws are designed to allow polluters to pollute at a slightly lower level than they would if there were no regulations at all. THAT IS NOT GOOD ENOUGH! We need to recognize that pushing the edge on what is "allowable" is pushing us OVER the edge.
		Now is the time to Stand Strong and say, "No further." We cannot afford the fossil fuel industry to continue if we are going to survive on this planet. Other renewable and less-polluting energies & technologies exist that are far better for humans and the planet. It is NOT ok to permit continued fossil fuel investment and development when so much is at stake. It's time to say NO to the Fossil Fuel Industry's insatiable thirst for profit at the expense of humanity. There short-sighted greed is killing us, literally. As there are no guarantees in life, neither should there be a guarantee for an industry to continue when the damage is causes so catastrophic and all the negative externalities are borne by everyone BUT the Fossil Fuel Industry.
Sheila	Knoploh-Odole	
alicia	todd	
richard silvestri	Silvestri	
Kate	Heller	
Sheilagh	Bergeron	
Sandra	Bolton	
Kim	Cowgar	
William	Weaver	
Aaron	Wagner	
Pablo	Bobe	
Janet	Robinson	Please, do a real review. Don't just give it to them. You own it to your citizens to do the right thing.
Gary	Thaler	
Eric	Bare	
Rondi	Saslow	
John	Turner	
Tim	Drum	
Brenna	O'Brien	
Maggie	Sallah	
Jean	Perez	
Miriam kurland	kurland	
Lily	Kosmicki	
Deborah	Exum	stop this hazardous line 3 tar sands pipeline. do the right thing for our environment.
elaine	risch	
Abby	Fox	
Ralph E.	Miner	

2322		
Christine Glen Jonathan Gordon Kelley	Watts Wolf Evelegh Abrams Scanlon	
Mary Kay Brian Lisa	Benson Fink Garvey	#OilMoneyOut #PeoplePowerIn #WaterIsLife
Eleanor Brennan Thomas Michael Paula Sallie Judy Anna Nancy Charles Gary Darlene Lovell Martha Elizabeth James Linda linda Jon Wesley Abigail Stephen Silvia Pamela O'Neill Erin Anne Lorenz Mary kimber Erika Lindsay Donlon Madeleine Emily Sarah Patricia Patricia Marilyn c. Michael Linda	Skibo Madden McGlinchey Pan Wanzer Thalhimer Creason Lynch Merrick Wirth Reese Lovell Scott Hickman Stone Siefert reens Olsen Hemmings Rome Keener Cachaco Ludwig Louchard Hesla Fuller Steinininger smith hawkey Styslinger Crouch McGovern Sosin-Rocha Rushton Johnson Popple Vazquez mills martinez Fulwiler Nicholes	<p>We together as brothers and sisters who care about our future and the future of others must stand up and prevent disastrous happenings from occurring to destroy the air we breathe, the water we drink, the food we eat, and our health from being destroyed along with the beauty and stability of our environment. We must stop this pipeline!</p> <p>The exploitation of tar sands is a disaster for the environment. Please think green and ban the Line 3 pipeline!</p> <p>It is time to protect the environment! OUR Environment.</p> <p>No more fossil fuels! Water is life! Protect the wetlands. climate justice for people all over and those who come after us -- the tar sands exploitation is a mistake!</p> <p>WE ARE AGAINST THIS HORRIFIC POLLUTION. WE WANT RENEWABLES!</p> <p>Bar the Tar -- sands, that is! Please move forward to renewable energy sources. Is no one in power paying attention to the harm fossil fuels is doing to our land? Or is it they just don't care because they are getting rich?</p> <p>Stop the expansion of fossil fuels now, before it is too late to protect our clean waters and the earth. I have two young children. I know that by the time they are adults, they are going to ask me what I did, back in 2017. If I worked to allow them a chance at a livable planet, or if I sat back and watched us give in to greed and the status quo. Your kids will ask you, too. I hope you stand up for the future. However, you MUST do MUCH more. We MUST keep ALL climate-changing fossil fuels IN THE GROUND!</p> <p>The young people will lead us into the future. Fossil fuel infrastructure needs to be shut down, and fossil fuels kept in the ground, starting now if we are to save our planet from climate disaster. 1: American (North-Latin-); 2: RBS (Russia British Scandinavia); 3: EUROPE AFRICA; 4: AIOP (Arab India Pacific Ocean).WAR: WAR-WAR-WAR! Tag: Tag-Tag-Tag!</p> <p>Minnesota is a leader in the fight against Anthropogenic Climate Change. It has been a leader in green technology. Please do the right thing and stop this pipeline now, before the unthinkable happens. Do you really want to take a chance at a broken pipeline? A very good chance? We must do all we can to put a stop to any and all</p> <p>Pipelines that may be going under ground because it could harm everyone so please don't put in the Pipeline</p>
Rebecca  Carolyn Art Michael Joost Al eusebio manuel Thomas	Knox  Norr Hanson Kavanaugh Janse Starr vestias Ellis	
James Paul tess Andria bob	Cleghorn Cassidy Kindig Childs nace	
Kathleen	Collins	
Teresa Kirsten Lovett Matthias Jim B Christine Jenya David paul Lucius lanie and jack Shirley jeanette GASCON Bubba	Richardson Lovett Grembler Perry Hendryx Polozova Pearson lajeunesse Sorrentino flaherty Crenshaw capotorto DANIELLE Younse	

Rebecca	Moss	
Thomas	Cannady	
Jana	Howe	
Matt	Stern	
Brenna	Taylor	
Helen	Ghiradella	
Thomas	Pietryla	
LARRY	WALSKE	It's the 21st century,adjust your attitude and business model.Go with the future and quit sucking the big oily pipe. As a young Minnesotan, my future is at stake. I have asthma triggered by air pollution and hot weather, and I'm concerned that it will only get worse as Minnesota's climate warms. Minnesota should be leading our country in rejecting the status quo: our state doesn't need another pipeline! Let's reject this one and help move our state to a fossil free future, one that ensures a save and livable state for my generation and those coming after.
Rebecca	Krasky	
Bette	Koetz	
Bette	Koetz	
theresa	del rosario	
Roger	Orgill	
Ryan	Wishart	
Rebecca	Holder	
Regina	Flores	
Kim	Schultz	Protect Minnesota's beautiful environment and stop this pipeline!
Robert	Sandgrund	
William	Nusbaum	
Natalie	Hanson	owever, you MUST do MUCH more. We MUST keep ALL climate-changing fossil fuels IN THE GROUND!
Trisha	Piercey	
Albert	Garcia	
Dana	Stokes	
elke	mauer holler	
Belinda	Miles	
Jake	Goodman	
John	Jeglum	Tar Sands is expensive, and super polluting. Line 3 simply adds to the emissions of the world.
Catherine	Hart	
David	Fallow	
Deborah	Richards	
Susan	Johnson	
Grace	Feldmann	
Kim	Kokett	
James	Paschky	Fossil. Fuels. Are. Dead. Save the planet, go renewable
Joseph	Burgwinkle	
Karyn	Taylor-Moore	
Mike	Bauer	
Jill	Estep	
Audrey	Byrne	
Emily	Richardson	
Joy	Chodan	
Lauren	Dryburgh	
Erica	Mooney	
Michelle	Temple	
Ethan	Viets-VanLear	Chicago Stands with You, Ase and Power to Yall These projects are on the wrong side of history. America has always led the world into the future, not protected the past, particularly when that protection hastens climate and environmental destruction.
Susan	VanDerzee	
Susan	Duncan	
Terry	Sovil	Minnesota is my home. Tar sands do not belong. Leave it in the ground.
Ray	Lou	
Holly	Greene	Water is Life
carrie	clabaugh	
James	Giles	
Patricia	Hartzog	In addition to all of this, the oil is not for us, it is for China!
Kimberly	Carlson	
Suzan	Shinazy	
Carol	Gross	
kathleen	koblensky	no more of this ....it can not be undone it is bad math and very bad science.....poison to the water....is poison to us
Laura	Timmis	
Edward	Gould	
Parita	Shah	
Kim	Dorsey	
Shane	Worth	
Debra	Prebor	
Claire	Mathews-Lingen	I am a young student, this is my future, Minnesota is my home and this pipeline will damage my home and the home of beings Accross all of MN and the throughout the Mississippi River watershed. This is our chance as a state to set a president, the country is watching.
Jean-Louis	Rocheteau	
Karla	Kavanaugh	
Stephanie	Allen	Please, WE must invest in the future - clean and viable.
Michael	Gelineau	
Jane	Tavener	
D.	Singer	
Christine	Frank	
		Tar sands oil production and transport perpetuate toxic, last-century thinking, practices, and all-too-familiar negative outcomes. The Commerce Dept. should be integrating their processes and planning with jobs creation and sustainable infrastructure strategies. Invest in better energy strategies now, rather than propping up these high-risk, dead-end, greenhouse-gas-intense endeavors. Protect air and water resources. The people of Minnesota, you yourselves, and concerned US citizens, demand and deserve no less than thorough analyses of all potential adverse impacts and benefits for all foreseeable alternatives. Thank you for your time and attention in this crucial matter.
Brenda	Bailey-White	
Shawn	Sargent	
Megan	Fink	
Eva	Cosgrove	
Iwona	Krzeminska	
Pamela	Haun	
Katie	Archbold Andrs	
Benita	Mahanta	



Ben Y Rick Colin	Abrams York Easton Pryor	
Mark Renaissance Jessica Laurie James Janet Vladimir Abramov Ellie Victoria Deborah	Sherburne Moynihan Padilla Dougherty Monroe forman Abramov Morse Groshong Letofsky	Dirty oil, polluted air, polluted and ill children and elderly, ....all for what....to make more money. Support clean wind, solar, hydro, tidal energy sources and conservation.  It is the youth who need to protect this land from the folly of the legislating bodies. Thank God we have them to try to keep America great.  Some see, are alive  Others are short-sighted  And blinded by gold
R P Michael Christine Laura Liz Daniel Dorothy pat Mike Victoria Ronald	Moye Parsons Berger Simon Bernstein Mois Holi berger Metelmann Hickman Buckanaga	#NoMoreFossilFuels
Susan Tricia Ric Maureen David	Allen Herron Melton McCarthy Carey-Kearney	#SaveTheEarth  Go destroy another planet. This one inhabits life.  I see no reason to continue with Tar sands. It is going to be obsolete soon as Renewable are the Future. We must save our planet for future generations and we just can't do it with Oil.
Mary Albert Carolin Carolin Erin Jacques Alexi Dee Rabbi Dr Adele Manos Caron Jeff Gang Dr. Susan	McDermott Geuzaine Schellhorn Schellhorn D'Ambrosio Jougla Newhouse Noblett Plotkin Taliadouros Cadle Gang Zipp	Go Solar and Wind. There are plenty of jobs and our air and water will be clean. It is OUR RIGHT to have a CLEAN sustainable Energy system for All.  much love 🌱🌿 The State of Minnesota should make space to listen to its citizens, not just the lobbyists of a large oil company.  It is insane to trade our future (clean groundwater and arable land) for the fossil fuels of the past. No more pipelines, no more fracking, no more tar sands!
Jamie Diane Ashley Olivia Danielle Ashley Maddie	Henn Voripaieff Cobb Bueno Tran Cobb Renaud	It's time for our country to move forward with 100% renewable energy for all instead of building new fossil fuel infrastructure that endangers our climate and communities. Minnesota has a long history of environmental leadership. Your lakes, streams and forests are not only a great natural and economic resource, they're a sign of our promise to protect the planet for future generations. Be brave and stand up against this dangerous tar sands pipeline. These young leaders are showing the way. The state should follow their lead. Congratulations!  Olivia Bueno  I stand in solidairty with the Minnesota 13!
Tracy Mary-Lou Jessica Brooke Zach Debra robert Phoebe CHERYL Richard Klaus	White Pardue Locicero Girty Rowe spottswood Anderson GROSS Martini Proemm	Love & respect for our water, land, air, communities, and our collective home, mother earth, is stronger than the ignorance/arrogance/greed behind these projects. So respect existence or expect resistance!  As a professor of renewable energies and efficiency and a former energy company owner, I know the above petition makes sense.
Mollie Amy Hope forest Karen Shannon	Thompson Cusick Meyn gregory Vasily Marshall	In November 2007, I was one of nearly 6,000 young people to attend the first youth climate summit in American history. I represented my rural WI narrative of crop failure, urban sprawl, great lakes water quality and wind potential. I absorbed many other climate justice narratives from people across all 50 states. Ten years later, these voices are louder, the impacts of fossil fuel dependence are scarier, and environmental injustices are greater, disproportionately impacting communities of color, the global majority. It's time to move the needle on this narrative and I am relying on my Representatives to stand up and shout. There's a new path forward and it begins where the pipeline ends.

natalia	stimac	
Kristen	Rubino	
Jessica	Glendinning	
Peter	von Au	
Bill	Link	
Erica Marken		I stand with the Minnesota youth in saying no to Line 3 tar sands pipeline. Keep it in the ground! Already everything is melting. This is not normal. Do we really want this to be our legacy to future generations? We want a rich biodiverse future for all!
Katie	Sakol	AAABSOLUTELY SUPPORT THEIR BRAVERY IN STANDING UP AGAINST BIG POWER/OIL !!
Ulrike	von Moltke	
Laura	Tiaga	
Sophia	McNicholas	
Erik	Schnabel	
Alan	Barthel	
Maggie	Davidson	
		These brave young people are representing the FUTURE for ALL of us! Their air, water, ...the soil they stand on...ALL is endangered. Stop all extractive undertakings; follow the principles of the Iroquois Nations-in environmental decisions, choose based on the effect unto the 7th generation. Validate these Minnesota 18; their courage, resolution, responsibility to and respect for the environment informs my actions and point your way to acting for our world now and for tomorrow. Please Do The Right Thing. Stop this pursuit of short-term profit; Stop the Line 3 tar sands pipeline!
Ruth	Feldman	
Robert	Van Wagoner	and thank you for reading and for acting responsibly.
bernardo	alayza mujica	
Lucy	Segatti	After decades of peddling misinformation and denial about human-caused climate change, the oil and gas industry should find other ways to make their billions, and just leave the tar sands in the ground.
Deborah	Meckler	KEEP IT IN THE GROUND! We all know what causes climate change and how to fix it. And it's not with more oil pipelines.
r dean	James	
Patricia	Dunn	
Leila	Cahillane	
angelina	preza	WE oppose the Line 3 tar sands pipeline!
Marcella	Hammond	
Catherine Haigney	Haigney	
Diane	Green	Well done; admirable group of young people
Todd	Davis	
Susan	Waltner	
Henry	Lowendorf	
Joy	Kennedy	It's their future. Listen to them.
Marcia	Bernstein	
nancy	polito	This pipeline will transport dirty oil and as all pipelines is subject to leaks which will poison the environment. it will also add to destruction of our climate. It should be stopped.
Marya	Bradley	I stand with those who are calling for a stop to the Line 3 Pipeline and all the tar sand extraction. The continuation of fossil fuel use and production is wreckless and irresponsible and is precipitating the destruction of our planet and all the species which live on it including ourselves. Stop the pipeline and the tar sands.
Taylor	Edelhart	
Lorrie	Ogren	
Linda	Wasserman	
Ellen	Dryer	
Warren	Keller	
Valeri	Fornagiel	
Angela	Whang	
Peggy	Moore	
bernardo	alayza mujica	
thomas	phillips	The writings on the wall. These will be failed investments. Investors beware.
Dawn	Peacock	
Claude	Robert	
Patricia	libbey	
Rachel	Lidov	



Federal and state governments in the United States INCLUDING MINNESOTA have a serious responsibility to enact and enforce timely, not tardy, laws and policies that protect the health and well-being of their residents and the ecosystems upon which they depend.

The consequences of global warming and resulting climate change increasingly threaten not only the daily functioning of communities and societies, but also the very viability of human and earthly life on our planet. For evidence of climate change, visit [climate.nasa.gov/evidence](http://climate.nasa.gov/evidence).

It is also the responsibility of those working in government to more boldly legislate, govern and officiate based upon the fact that Americans â€” like all human beings â€” have international human rights that were formally adopted by the United States, with 48 other countries, in the historic and fundamental United Nationsâ€™ Universal Declaration of Human Rights on Dec. 10, 1948. The U.S.â€™s own longest-serving First Lady, Eleanor Roosevelt, chaired that crucial declarationâ€™s drafting committee, and Article 3 specifically states that, "Everyone has the right to life, liberty and security of person."

In 1977, the U.S. also signed the U.N.â€™s International Covenant on Civil and Political Rights that Congress finally ratified in 1992. In Article 6.1 of that human rights, multilateral treaty, it also re-confirms that, "Every human being has the inherent right to life. This right shall be protected by law. No one shall be arbitrarily deprived of his life."

Unfortunately, all U.S. residentsâ€™ rights to life, now and in the future, are indeed at risk from the rising levels of carbon dioxide and methane in our atmosphere and oceans, which are causing increasing temperatures, and climate change effects of all types including extreme weather. These long-predicted damaging effects and new, unforeseen developments require our American legislatorsâ€™ and elected officialsâ€™ strongest attention and boldest actions to address them properly.

Growing risks to our climate and all humanity are why 193 countries in the UN General Assembly, including the United States, also adopted the important Sustainable Development Goals by 2030 on Sept. 25, 2015. These 17 interrelated goals are designed to "end poverty, protect the planet and ensure prosperity for all as part of a new sustainable development agenda." For more information, see [sustainabledevelopment.un.org/sdgs](http://sustainabledevelopment.un.org/sdgs).

In fact, as recently as March 17, the UN Human Rights Councilâ€™s 34th Session ending March 24 published its Jan. 17 assessment report titled Report of the Special Rapporteur on the issue of human rights obligations relating to the enjoyment of a safe, clean, healthy and sustainable environment. Written by UN Special Rapporteur John Knox, a human rights expert and professor of international law at North Carolinaâ€™s Wake Forest University, the report re-confirmed in Article II.A.7 that:

Janette	Dean
Andrea	Presson
Kelley	Scanlon
Etienne	LeBlanc
arthur	johnston
Connie & lynn	Baer
Gil Niederlitz	Niederlitz
Martha	Lynch
Alicia	Chiaravalli
Susan	Warren
Marcia	Coling
Susanna	Lewis
Jose	De arteaga
Sharon	Powell

Keep up the great work !!!! Save the planet for another generation!

Leave it in the ground! All fossil fuels, period. There can be no well people on a sick planet. Honor Mother Earth, for the generations to come.

Tom	Connor
Sue	Janssen
Cynthia	Justice
S.	Rudzik
Heather	White
Colleen	O'Brien
Larry	Goldberg
Danielle	Zemmel
Karen	Renaud
Jackie	Dow
Alicia	Wittink
Susan	Schmale
Nancy	Dickerson
John	DeYoung
Lynn	Smith
Justine	King
Kelly	Lyon

Also, a competent DEIS should contain discussion and analysis of cumulative impacts, with a time spread across past, present and foreseeable future. Furthermore, a robust analysis of environmental justice issues must be reviewed.

Brave and smart, educated with the facts, youth of Minnesota! Listen to them!

Its time to stand up to dirty oil and start protecting the land and waters from pollution.

Anita	Reyes
Elizabeth	Douglas
Edward	Schreiber
Barton	Schoenfeld
Karen	Baker
Daniel	Heyduk
Jessica	Webb
Jamie	Winters
Yee Yean	Lim
Linda	McDougal
peter	roda
Steve	Kent
Richard	Tucker
Laurel	Davis
Bill	Marotz
Nancy	Fifer

Energy Transfer Partners hold no regard to past pipeline ruptures that have had irrereversible damage to life and property. Energy Transfer Partners are at the moment fighting a fine associated with disturbing Native artifacts and burials. They have proven over and over that they are not concerned about the public'sleeps' safety. Energy Transfer Partners only concern as a business is to profit. I am asking you to stop a future catastrophic rupture that will happen.Thank you, Anita Reyes

Piping tar sands oil is dirty business. May environmental sanity prevail over greed of gain to stop the flow.

too disgusted to make a civil comment now!!! I support all efforts to stop the insanity of,fracking, pipelines, and drilling!!!

2322		
Catherine k	Harrison bensusen	Thank goodness for the young people who know oil and gas will not be part of their futures.
Laura M Leah Christie Abby Art Leila Sherry David Darcy Frances Sisarie Ed Bennett Adam Armchair Perry Carl T.J. Amanda Penny	Stone Cain Noble Fenton Hanson Cahillane Weise LaVerne Augello Hoffman Sherry Bennett Powers Activist Maddox Stilwell Gaither Hollenbeck Blubaugh	This analysis by 13 young Minnesotans is unmatched in its comprehensive evaluation and recommendations. STOP the pipeline approval and look at the facts presented.
Christina	Crusius	We MUST keep ALL climate-changing fossil fuels IN THE GROUND!  I am a young person in my 20s and I care about the quality of the world my peers and descendants will live in for years to come. Please consider the long-term impacts on our future!
Shireen Lane Robert Claudia Sarah Douglas PATRICIA Sherie Sherie Paul Deborah Jane Maya Melissa Donna Joan Katie Natalie MHope Ronald Ellen Kent Sarah Andrew	I Parsons Gosnay Dick Campero Rosengard Smith MCHUGH Mitchell Mitchell Hurley Kushner Shippy Redd Osler Parrish Diekman Hanson Fish Hart Gutfleisch Clark Peters Goldman	NO TAR SANDS PIPELINE ON NATIVE AMERICAN LAND!!!!  I sign this petition not as a youth but as a 76-year old retired energy consultant who fully supports the points made by these forward-looking youth leaders.
		Stop with everything your doing to destroy our planet earth.
		These young people are speaking from their hearts and consciousnesses to protect the planet.
		We MUST keep ALL climate-changing fossil fuels IN THE GROUND!
Emily	Freilich	This pipeline is unacceptable for the people of Minnesota, including politicians of Minnesota, as well as the future of the livable planet. Listen to your citizens, these young people, and listen to the future. Pipelines do not create real jobs and do not hold up to cost benefit analysis in the appropriate time scales. Stop the Line 3 Pipeline.  For those of us who can no longer  be on the front line it is most  encouraging to see these young
Nancy Gaia Pryce MHope Sharon Lisa	Mikelsons Mistriel Hadley Fish Widigan Evasiuk	people picking up the torch! Many thanks to them and may all of us 'elders' support and cherish them!  We MUST preserve our lands for the future generations!
Andy Gwendolyn Henry Patricia Lora brig Sarah	Plotkin Albert Ickes Harris Lucero larson Parr	This pipeline will mostly help the wealthy oil companies at the expense of the environment and people on the land. If this money were spent on safer alternative energy sources, such as wind and water power, we would all be better off. Andy Plotkin  Our young people deserve a seat at the table since THEY are having to deal with the future that WE are creating!
Frank Adam Jesse Kate	Lahorgue Parker-Lavine Meisenhelter Sherman	Wake up! These are the people to listen to, not the aging, greedy and corrupt old billionaires who own and run the fossil fuel corporations that are ruining our beautiful world!  Since us old-timers don't have the will to protect our land, at least empower the folks who have the will to take some control.
Ruth Anthony sidney sally Mary Benjamin Fran Cameron Alicia	Garrison Gatti berman yagol Liepold Tamarin Varney Rao Van Couvering	They are the ones who have to live through all the changes that will occur.



Beth	Jones, expat Iowan	I don't care how much money & power the Fools for Fossil Fuels have. They are dead wrong and ruining our planet for everyone, including their own descendants. The vast majority of citizens understand that and demand CLEAN ENERGY. We bless these young people for their foresight and efforts. The fossil fuel dinosaurs are doomed and rightly so.
Lee	Smithey	Thank you for receiving these detailed comments. I would like to re-emphasize the points about the odd omission of the no build option and the costs of decommissioning the line if it is built. These indicate a rather striking lack of diligence, which does not inspire confidence in this process. As it stands now, this impact study does not stand up to scrutiny and should be fully peer reviewed. I am sure you share my concern about the impact of climate change on our children and I appeal to you to take action and ensure that the full costs of this project, within the parameters of irreversible climate change, be fully and rigorously documented. Thank you.
Aaron	Lehmer	
Theresa	Kehres	
Vicki	Geehan	
Jan	Modjeski	
wayne	Lewis	
Barbara	Silverstein	
Grant	Silverstein	
Marnie	Greene	
Andrew	Orlikoff	
Elizabeth	Dixon	
		This young people's analysis is beyond reproach. They r heroes.
Bette	porter	Minnesota should be proud of them, listen to them & act in their favor on their proposals.
Daazhraii	Princesslucaj	
Savannah	English	
Hannah	Rosner	
Hannah	Rosner	
Savannah	English	
Susan	Labandibar	
Tristan	Glowa	
Mark	martinez	
Robert	Kincses	
		Good for these young people! Oil is going to run out eventually, so why don't we start phasing it out now and save our planet,
judy	rosenblatt	the only one we have??
Joshua	Barclay	
Ronald	Hart	
Zara	Muren	
NICOLE	ZASLOFF	
Jim	Warren	
		I believe it the time is now, not tomorrow, to use more renewable, responsible energy. We need to protect our natural habitat in order to sustain a balance in nature. Please stand with us so you can tell your grandchildren that you stood up to protect the planet.
		Gratefully,
Sarah	Poe	Sarah Poe Nice petition wording.
Alan	Hoeffler	Please stop any and all 'dirty' oil pipelines such as the tar sands pipeline Line 3.
Barry	Benjamin	
Nancy	Galloway	
Joan	Parrish	
James	Adams	
GARY	HOGAN	
Jude	Smithet	
lori	dombek	
		Congratulations to the 3 young heroes who are standing up against the tar sands oil pipeline! THEY ARE REPRESENTING WHAT THE PEOPLE WANT ----- NOT WHAT THE BIG CORPORATE GREED MONGERS WANT.
		Keep that oil in the ground! We don't want it. We don't need it. We are trying to save this Earth****###****
Valerie	Borfitz	NO TO TAR SANDS. NO TO THE LINE THREE PIPELINE. STOP NOW!!
Shirley	Lewis	
Jennifer	Dotson	
John	Coleman	
Kjrsten	Holt	
Roxa	Meyer	
Alison	Altman	
Tegan	Kehoe	
Nick	Knighton	
Karen	Krause	
Jessica	Wallach	Oil contamination of groundwaters will be the catalyst to raise clean water prices worldwide. Just watch
Kim	Alarie	
Rebecca	Hartley	
Jean	Publi	
		too many pipelines destroying all of america. they all leak. rich white men making big money and the rest of us get the destruction and pollution
Valerie	Borfitz	"Right to LIFE, liberty and the pursuit of happiness." It is unconstitutional to poison us. Pipelines jeopardize our right to clean water and land, a necessity for LIFE.
Ed & Linda	Mc Dade	
Cindy	Powell	
Li	Mo	
katie	fagan	
H.K.	Peters, Jr.	
Veronica	Smith	
		May the fighting spirits stay strong and our prayers are with you!
		Keep that dirty oil in the ground. The young people are the future, listen to them.

		I live in northern Alberta, Canada, in an area that extracts fossil fuels. I am very much against constructing any new pipelines as this completely contradicts the reduction in carbon emissions that we are all working toward. We need to be installing alternative energies on home and businesses as a means to employ people, not constructing pipelines to move the polluting and energy intensive tar sands to market. Do not allow further pipeline construction. Thank you from Canada!
Wanda carol Keith Xaver Molly Ronald Jane Beatrice Alejandra	Laurin dicks Rick II Kandler Anderson Yeomans Yett Denham Fernandez	Hooray for courageous children, and may our governments be as courageous and honest in the face of money vs. life.
Nora	Eisenberg	A thorough environmental study will show the negative impact to the Line 3 Pipeline on the environment. It is a public health and safety imperative to tar sands traveling in our earth. Probably in the ancient history of lead therewas a chapter similar to TAR SANDS -- IT is time to say NO to oil & really begin to move up to the FUTURE in our need for oil -- NO to line 3 PIPELINE!!!!!!
Carmen Sanchez Laura	Sadek Annan	
Marisa	Braun	Please stop the line 3 pipeline. We need clean water in our communities for our families and young people for years to come. Line 3 is a major threat against clean water.
Alice Stanley Cheryl Terry	Darby McDonald, Jr,. Ritenbaugh Dyck	These young ppl should be studying and enjoying their youth. Not forced to fight for clean water, air, and their very future. That's your job! All adults who have failed them miserably. We don't want or need filthy tar sands. That is only benefiting a relative handful of wealthy investors and not in the best interest of Americans. Especially children and youth! Please reevaluate this project and if not these kids think of your own, and your grandchildren. We want and desperately need clean energy now!
		We will all be driving electric cars in the future so the need for pipelines will not be needed.
		We need to be moving toward renewable energy as fast as possible. Creating a target the world's dirtiest form of petroleum is the opposite of progress. Even Canada, where tar sands are produced, is having a hard time legitimizing the pipelines needed to market this dirty mess called tar sands.
Dwain Brady Nan Natalie A. Martha Ruth Ginny Patricia Erma Panagioti Jon Irene	Wilder Bradshaw Lin Carter McClintock Nicol Boyle Campbell Lewis Tsolkas Barrows Lutz	Please included ALL the environmental consequences of sending tar sands to market. It is a part of your responsibility too, not just the direct environmental consequences of laying a steel pipeline.
Lori Irene	Olinger Lutz	Also, any new pipeline should be required to include money for complete removal in the future so that individual land owners and the State of Minnesota don't have to pay for it in the future.
Sonya Kirsten Scott J	Lippold Wilson Finnell Talbot	YOUNG PEOPLE ARE THE FUTURE, AND RIGHTFULLY THEIR VOICES /CONCERNS FOR THE LAND- AIR- WATER WITHOUT WHICH WE ALL CANNOT SURVIVE SHOULD /MUST BE HEARD.
Melinda Andrew Emily	Barnes Katsetos Murad	Please address the omissions and incomplete analyses of the Draft Environmental Impact Statement. Underestimating environmental impacts in order to promote short-term profits and gains poses serious risks.
Paul Barb Liam PETER	Ford Leahy Ruff SIGMANN	"I promise to dream, I promise to rise, I promise to fight" for climate justice No to the Tar Sands! The future of the Youth Climate Intervenors is directly in the path of the pipeline, the future of all youth around the globe is directly in the path of the pipeline. Should any other group, other than Enbridge, in the community hold the future to ransom it would be a criminal act. Enbridge's pipeline is a crime against the future of humanity and its rights to fair and proper access to clean water, clean air and an environment that sustains life. I wish the Youth Climate Intervenors group all the best with the decision making process and hope that common sense and a better future for all will prevail.
		Tar sands are one of the dirtiest fossil fuels, we need to invest in wind and solar. That's it! While we continue to follow in the direction of the billionaires in the fossil fuel industry. We suffer, they don't pay for their external costs while the rest of us cover the costs of drought, sea level rise and mega-storms. According to the journal Science, the public burden could exceed 5.6% of GDP. Stop the pipeline and you stop the slow down the tar sands. Thank you,
diane James	burke Pilewski	Diane Burke
Elizabeth S. Phyllis	Putnam Allen	The oil obtained from thee tar sands comes at a terrible price. The land is left almost unusable and the wildlife have no homes. this creates a vacuum for invasive species and the loss of beautiful landscapes.
Debra John David Elizabeth Jay Pat Marsha Claudia Paul Grace Theo	Diegoli Peterkin Sanders Brobst Rozner Baker Lerenberg Leung Rink Treffinger HÄ¼rlmann	There is a history of many pipelines in the US leaking. People, other animals and the rest of the national world deserve to be protected from the consequences. Ensure that a proper and thorough Environmental Impact Statement process, as outline above, is followed.
		Thank you.
		No Tar Sands !

Susan	Brown	They absolutely need to be required to clean up old pipeline before being permitted to build a new one. I spoke to an aide to the late Congressman Jim Oberstar who said Oberstar thought that they were a very dishonest company.
Janet	Carter	
David	Burdige	
Richard	Heinlein	
Ellen	Malven	
Kimberly	Schwanke	
Julie	Smithey	
rafael	ravelo sr	I support stopping the line 3 pipeline!
		STOP GAMBLING ON POISONING "OUR WATER"!!!!
Beverly	Hollingsworth	Clean Renewable Energy only, PERIOD!
David Wieland	Wieland	
Cassie	Metz	No more coal; no more oil- keep our carbon in the soil!
Margaret	D'Amico	
sandy	morse	Keep it in the ground!
Ilse	Lopes	
Mauricio	Jimenez	
Ana Katharina	Drechsler	
Benjamin	Werner	
Elise	Mysels	
Ben	Seigel	
Mary	McKenna	
Sarah	Brangdorfer	
Joanna	Klonsky	
Nevin	Grossnickle	Tar sands oil is very thick and must be pumped under high pressure. That almost assures that an oil spill will occur in the future if Line 3 is approved. There is no good way of cleaning up all this think tar sands oil, so Line 3 must not be approved.
Greg	Spevak	
Rhiannon	Maher	No pipe lines those young people we will be here longer and will see the disastorous effects. Please have the foresight to cancel this pipeline. We are trying to protect her future.
Juliana	Schwartz	It's time we start investing in a sustainable future for our families. Fossil fuels are a one-way ticket to an uninhabitable planet, please stop this pipeline for all of us! Tar sands are among the dirtiest fuels on the planet and their extraction ruins vast swathes of land. Fund renewables not fossil fuels. We must listen to our youth, they need to be heard and respected. They are the future!
Kathleen	Odonnell	
Jayni	Chase	
Jennifer Rowland	Rowland	Clean water, air and food, NOT dirty oil. Tar sands should stay in the ground. We do not need more oil pipelines, we need fewer to none.
Erin	Cozart	
Barbara	Bailey	
Adam	Rottman	

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MR. KEVIN PRANIS: Kevin Pranis.

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K-E-V-I-N. P-R-A-N-I-S.

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So I'm also with the laborers union representing the skilled construction workers. We're proud to work in a range of industries, including pipeline, but also, as Steve mentioned, renewables.

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A couple of points. One, I want to thank the Department of Commerce for the tremendous amount of work that went into the Draft Environmental Impact Statement. I wouldn't say it's perfect, but it is the most comprehensive study that's ever been done, to my knowledge, on any pipeline in Minnesota and gives us a great basis for moving forward with a decision.

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I'd also say that preventing spills has to be a top priority. It's a top priority for us, just as it is, I think, for everyone in this room. That's actually why we support this project, because simply by replacing an outdated line that

1 was built with outdated technologies that are no  
2 longer in use and shouldn't be, we can reduce the  
3 risk of spills by nearly 40 percent. Because,  
4 folks, we're not talking about whether to have a  
5 pipeline; we're talking about the difference between  
6 building a safer, newer pipeline and the existing  
7 pipeline.

8 The decision to not go forward with a  
9 replacement won't mean there's no pipeline. All it  
10 will mean is that we're still using the existing  
11 line. And we can't keep Band-Aiding that forever,  
12 although I think our members do a good job. We get  
13 lots of work out of it, but it's not a long-term  
14 solution.

15 I would also say that the climate  
16 change is also essential. That's why we're involved  
17 in building wind and solar, natural gas, replacement  
18 of coal, reducing carbon emissions. All those are  
19 great things to do. Those are climate investments.  
20 Stopping a pipeline is not a climate investment. It  
21 makes virtually zero impact on climate, because the  
22 truth is the oil moves by other means. If you're  
23 going to invest in electric cars, that's a different  
24 story. But that's not what we're talking about  
25 here. We're talking about whether the oil moves



1 safely through a newer pipeline, whether it moves  
2 through the old pipeline, or whether it moves  
3 through rail, which is much more unsafe.

4 In terms of the Environmental Impact  
5 Statement, while it's overall excellent and it's  
6 5,000 pages, you know, incredibly comprehensive,  
7 there's one big glaring hole on construction job  
8 impacts. An assumption was made, sort of for  
9 purposes of the report, that there will be zero  
10 local jobs. It's acknowledged that's not based on  
11 anything, and that's completely inaccurate. As all  
12 of us know, in fact, our agreement that will cover  
13 this contract require that half of the workforce be  
14 local workforce. And we've seen that on project  
15 after project. So we're talking hundreds and  
16 thousands of jobs for local people, not only  
17 existing members, but also new career opportunities  
18 for people for whom this would be a first chance to  
19 get into a family-supporting career that can last  
20 the rest of their lives.

21 Also, I think it's important to look  
22 at the public safety of the rail alternatives.  
23 There is no discussion of the actual public safety  
24 risks of rail not only from derailments and  
25 explosion, but also at at-grade crossings. In fact,

2042-1

2042-2

1 the Keystone report that the U.S. State Department  
2 did showed that you're talking about additional  
3 deaths and injuries as a result of moving those  
4 volumes by rail instead.

5 Last, I think that it's important to  
6 look -- to look at the -- Line SA04 we think is a  
7 waste of time, because ultimately all of this  
8 feedstock fuels Minnesota's refineries. The gas  
9 only moves --

10 FACILITATOR: Thank you.

11 MR. KEVIN PRANIS: -- to get here.

12 That all comes from this pipeline.

13 FACILITATOR: Thank you.

14 MR. KEVIN PRANIS: We have to find a  
15 safer alternative.

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