Dilbit Really is Different and Even Without Keystone XL, it’s Criss-Crossing the US

It’s carried in pipelines operated by Enbridge, Kinder Morgan, TransCanada and ExxonMobil - to name a few

The National Academies of Sciences, Engineering, and Medicine (NAS) recently recommended substantial changes in the rules under which pipeline spill response plans are reviewed and approved, as well as improvements in the type of information made available about various types of crude oil being transported in pipelines. These recommendations were included in the Academies’ second report on the risks of transportation of diluted bitumen by pipeline. Diluted bitumen is one name for the product created when bitumen extracted from the Canadian tar sands is mixed with enough lower viscosity diluent to allow it to be pumped through pipelines.

When the federal pipeline program was reauthorized in 2012, Congress included in the bill a directive to the Pipeline and Hazardous Materials Safety Administration (PHMSA) to undertake a study of whether there were increased risks of failure in pipelines carrying dilbit. Although risks are normally considered to be of two parts (probability and consequences), the first NAS study commissioned by PHMSA examined only the question of whether the probability of a failure was higher for a pipeline carrying dilbit. Congress in 2014 further directed PHMSA to “investigate whether the spill properties of diluted bitumen differ sufficiently from those of other liquid petroleum products to warrant modifications of spill response plans, spill preparedness, or clean-up regulations.” The new report is available here (http://www.nap.edu/catalog/21834/spills-of-diluted-bitumen-from-pipelines-a-comparative-study-of). It is long and detailed and thorough. Spoiler alert: Dilbit does indeed behave differently, and in ways that make cleanup harder and less successful. As a result, the report recommends

![Tar sands being scooped and loaded.](Photo: Aaron Huey)

1) Diluted bitumen is also sometimes referred to as dilbit, tar sands oil, oil sands oil, or is identified by the geographic area of its source, e.g. Cold Lake Blend. The NAS recommends the use of the geographic blend names by all agencies.

Don’t think that just because the presidential permit application for TransCanada’s Keystone XL has been rejected that there isn’t and won’t be diluted bitumen being transported by pipeline across the U.S. The map below shows Canadian and US pipelines that currently carry or are proposed to carry dilbit. (There is at least one shown that is not currently carrying dilbit, e.g Line 5 through the Straits of Mackinac)

![Main Pipeline and Proposed Pipeline Routes Leading Out of the Alberta Tar Sands](Source: Oil Change International)

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Mission of the Trust

The Pipeline Safety Trust promotes pipeline safety through education and advocacy, increased access to information, and partnerships with residents, safety advocates, government, and industry, resulting in safer communities and a healthier environment.

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Keystone XL and Pipeline Permitting

One of the most memorable headlines from pipeline news in 2015 was the rejection of the presidential permit for Keystone XL. President Obama downplayed the decision’s importance, saying the pipeline had acquired an “overinflated role in our political discourse,” and was neither a “silver bullet” for the economy or a “climate disaster.” He also stressed the importance of US leadership on climate change, saying there’s a need to “keep some fossil fuels in the ground rather than burn them.”

TransCanada has since begun legal action, filing a lawsuit in Federal Court claiming the decision rejecting Keystone XL exceeded presidential powers under the US Constitution, and filing a Notice of Intent to initiate a claim under Chapter 11 of the North American Free Trade Agreement (NAFTA) on the basis that the denial was arbitrary and unjustified.

What, as pipeline safety advocates, can we take from this whole process? Keystone XL was very unusual in that - as a hazardous liquid pipeline - it had to go through any operational permit process at all. Most hazardous liquid pipelines do not. Pipeline operators may need to get crossing permits in order to build in a certain location (across wetlands, roads, or rivers). And they may need to undertake environmental assessments or impact statements for certain segments of the line (through a particular state, national park, or other specific regional area that triggers the environmental review requirement). But there is no categorical requirement for an operating permit and environmental review for a hazardous liquid pipeline, except if it crosses an international border.

About a year and half prior to its rejection, the final supplemental Environmental Impact Statement for Keystone XL was released, containing (in Appendix Z) a list of special conditions recommended by PHMSA as part of a long list of mitigation measures recommended by many agencies. This issue of permits and permit conditions for the safe operations of pipelines is one in which we are keenly interested, and we hope the discussion continues into 2016 and beyond.

PHMSA’s conditions included 59 Special Conditions, and also dozens of mitigation recommendations for improving TransCanada’s Emergency Response Plan, Facility/Oil Spill Response Plan, and Integrity Management Plan (and the risk analysis that is used in the development of those plans). Many of the Special Conditions were about things already required of any pipeline, but Keystone XL would have been held to a higher standard with

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substantial changes in spill response planning for pipelines carrying dilbit.

In response to media requests PHMSA prepared a list of initial tasks it intends to undertake in response to the report, and also indicated that the agency would continue its review of the detailed findings of the study and look for additional steps that it could take. Here is PHMSA’s list of initial tasks:

- develop and publish an Advisory Bulletin highlighting the findings of the study and suggest voluntary improvements that onshore oil pipeline operators should make to their oil spill response plans to address plan improvement recommendations.

- work with the National Response Team (NRT) and the Interagency Coordinating Committee on Oil Pollution Research (ICCOPR) to advance the recommendations included in the report.

- continue to work with the American Petroleum Institute’s Spill Advisory Committee, Spill Control Association of America, and other industry organizations to improve oil spill response planning and preparedness.

- host a public workshop in the spring of 2016 to solicit input from interested parties, government agencies and members of the public on how it can improve and enhance 49 CFR Part 194 and address the NAS recommendations.

Succeeding in changing the Part 194 regulations to incorporate these recommendations and changing the internal agency practices and culture around spill planning and plan reviews will be no easy feat. The National Transportation Safety Administration recommended in its 2011 report on the 2010 dilbit spill in Marshall, Michigan that the Secretary of Transportation conduct an audit of PHMSA’s spill response plan program. While that audit has begun, it has not yet been completed or released to the public. This NAS study identifies a number of major corrections that are needed specific to improving plans that relate to potential spills of dilbit. Let’s hope it doesn’t take another 4 years to enact these recommendations.

Here is a short version of some of the other recommendations for changes in the laws and regulations made in the report:

Oil Spill Response Planning:
- Require the plan to identify all types of crude carried by the pipeline by industry standard name, e.g. Cold Lake Blend, and to include Safety Data Sheets for each named crude. SDS sheets should include spill properties as well as personal safety information.
- Plans should identify all areas most sensitive to spills of dilbit, including water bodies at risk.
- Plans must detail operator response activities and response resources to mitigate a spill of dilbit.
- PHMSA must conduct reviews of both the completeness and the adequacy of spill response plans, rather than maintaining their current checklist approach to approving plans. Require PHMSA to consult with USEPA and USCG to obtain input on whether plans are adequate for spills of dilbit.
- Require operators to post on their websites and submit to PHMSA annual reports of the volumes of the various types of crude oil transmitted by segments of its pipelines.

Oil Spill Response
- Response agencies and the oil and pipeline industry should support development of effective techniques for detection, containment and recovery of submerged and sunken oils.
- Response agencies should all use the same nomenclature for crude oils.

USCG Oil Classification System
- The Coast Guard should revise its classification system to recognize dilbit as a potentially non-floating oil after evaporation of the diluent. The revisions should be incorporated into EPA and PHMSA planning regulations.

Improved Coordination
- PHMSA, and federal, state and local response agencies should better coordinate and share lessons to improve spill planning and response. These agencies should jointly conduct announced and unannounced exercises for spills of dilbit. [And in our opinion, all other liquids subject to spill planning rules!]

Research Priorities
- The report lists several broad areas that need substantial additional research: transport and fate of dilbit in the environment; ecological and human health risks of weathered dilbit; detection and quantification of submerged and sunken oil; techniques to intercept and recover submerged oil on the move; alternatives to dredging; collaboration with and access to spill sites for scientists outside the formal response framework.
Dear Holly -

It sounds like you’re asking not so much about the rules and who’s in charge, but about how it actually works on-the-ground. The November 2013 issue of the Safe Pipelines newsletter had a front-page article on jurisdictional authority for pipeline routing and siting – who has authority in what circumstances. Here I’ll try to address this question from a practical standpoint.

Pipeline companies are in the driver’s seat when a new pipeline is proposed for development. And their primary goal is to have a smooth construction process at the least cost possible. They’re concerned with issues that may cause project delay and higher cost, like the variety of federal and state (and local, to some extent) permits and other permissions required, and environmental features like topography, water body presence, and soil types.

The process of route selection by a pipeline company may take many years. It begins with a review of corridor options for how to get the pipeline from Point A to Point B, evaluating potential broad concerns, and choosing a preferred corridor. With a corridor selected, a number of potential route options within that corridor are identified and evaluated. Each stage of the process gets more detailed, and assumptions give way to more definitive information.

While pipeline operators will be looking at local permitting requirements or other limitations very early in the process as they analyze corridor and route options, many local jurisdictions do not have the resources or foresight to adopt rules related to the issues around pipeline development. What, if any, permits are required or limitations imposed by the local jurisdiction for road crossing or use; utility use; use of solid waste sites; water use and disposal; or construction that impacts traffic? These types of permits could trigger opportunities for the local jurisdiction to set limits, request mitigation, or require insurance or bond payments. But many municipalities miss this opportunity by not having such requirements in place at the time a pipeline is proposed in their jurisdiction.

Pipeline companies rely on publicly or commercially available data to begin the review process. Their review is typically done sitting at a computer looking at maps and data, and supplemented with aerial survey information and perhaps data gleaned from other infrastructure projects. It is often not until later in the process when field surveys are needed to get more specific information on soil types and other site conditions, when pipeline companies begin to really engage with the local landowners and communities. By that time, many decisions have been made that may be very difficult to revisit.

The pipeline companies do a lot of work on a project long before local stakeholders get involved, and are therefore averse to revisiting any decisions as they will impact project timing and costs, and possibly even permits that are already in process. They have chosen a general corridor where the pipeline will go, and have often chosen a preferred route within that corridor. While they may have been pouring over information about wetlands, steep slopes, and hydric soils, they likely have not been incorporating local knowledge to get to the final stages in the process.
Information about local recreation, subsistence use, water resources, wildlife, tourism, cultural assets, historic sites, and community infrastructure is likely not something the pipeline company has incorporated into their decision-making. When companies engage with local communities and are met with resistance because of the pipeline construction impacts on these community values and assets, they may not take the resistance seriously, and are fearful of the impacts to the pipeline project.

The plan that a pipeline operator’s community or public relations specialist follows is likely to focus on publicity, identifying project proponents, and researching the history of opposition to infrastructure projects in the community. Many pipeline companies have a belief that distribution of information about the project will quell any negativity or bad publicity, especially if distributed early on. And they may blame the existence of any naysayers on a lack of adequate publicity. They often fail to realize it is not the publicity that is to blame, but the process they have undertaken that has not taken local knowledge into consideration, and seems not to be at all open to incorporating it.

Efforts to obtain input from local officials and other community groups come too late or are not given enough resources and attention to glean the kind of local knowledge that could be valuable to a pipeline project if incorporated early on.

I wish I could tell you about some great success stories, but I haven't heard of many. If you or any of our other readers have, please let me know so I can oink about them in a future issue. I have seen some cool examples of community projects having to do with locating energy development infrastructure, and maybe someday these types of efforts will be done for pipeline siting too. I’ve listed a few you may want to check out below:

Equal Ground’s video on the Master Leasing Plans approach to energy development on public lands:

Nunatsiavut Government Community Mapping in Nain, Labrador:

Chama Peak Land Alliance in Colorado and New Mexico; community-based mapping workshops for more responsible energy development on private lands:
Where are they now?

As we enter a new year, we thought we’d go back and take a look at some of the high profile incidents from the past 5 years that have some aspect of the enforcement proceedings still incomplete or appear to have incomplete reporting somewhere along the way.

2010 Enbridge Line 6B: In July 2010, Enbridge’s Line 6B ruptured and spilled close to a million gallons of diluted bitumen into Talmadge Creek and the Kalamazoo River. The enforcement action against Enbridge for violation of the pipeline safety laws was completed in 2012, and PHMSA’s final order imposed a penalty of approximately $3.7 million dollars against the operator. In May 2015 Enbridge reached a settlement with the state of Michigan for the cleanup and restoration requirements under state law, and reached a $4 million dollar settlement with the US Fish and Wildlife Service, among other resources agencies, for natural resource damage claims from the spill. That Settlement explicitly stated that it did not affect the operator’s liability under the Oil Pollution Act for violations of that statute and the Clean Water Act. Depending on how the penalty could be proven and calculated, it could be in the neighborhood of $100 million dollars. No CWA complaint has been filed by the federal government, in spite of more than 5 years having passed since the spill. In July, Enbridge and the U.S Environmental Protection Agency agreed to postpone the deadline for the filing of a complaint for those penalties for six months, an agreement that indicates that active negotiations are ongoing. That would put the new deadline in late January of 2016, if not postponed once again.

2010 PG&E explosion: In September of 2010, PG&E’s gas transmission line running through San Bruno, California ruptured and exploded, killing 8, injuring dozens and destroying a neighborhood. The California PUC, which has safety jurisdiction over the intrastate pipeline, imposed a civil penalty of 1.6 billion dollars for pipeline safety violations, including some funds spent on upgrades to the system since the explosion. The U.S. Attorney for California also brought criminal charges against PG&E, although the complaints did not name any individual PG&E leaders or employees. Those charges are scheduled for trial in March of 2016, with potential penalties of hundreds of millions of dollars.

2011 ExxonMobil Yellowstone River spill: In July of 2011, the ExxonMobil Silvertip pipeline was scoured out of the bed of the Yellowstone River by floodwaters and ruptured, spilling approximately 1500 barrels of oil into the river near Laurel, Montana. PHMSA’s enforcement action concluded in a civil penalty of just over $1 million dollars for violations of pipeline safety laws and regulations, after PHMSA in June of 2015 denied the operator’s request for reconsideration of the original final order. The operator also reached an administrative order on consent with the Montana DEQ for cleanup and remediation. That agreement resulted in a payment of $300,000 to the Montana general fund and $1.3 million to be spent on supplemental environmental projects in the Yellowstone. That agreement did not resolve either the Natural Resource Damage Assessment or the violations of the Clean Water Act. In spite of our attempts to find out the status of the resolution of those remaining issues, we have had no response from the Regional Office of the EPA.

2013 ExxonMobil Pegasus: On March 29, 2013, the ExxonMobil Pegasus pipeline split along a longitudinal seam welded using a low frequency - electric resistance weld (LF-ERW), a type of weld known for a higher incidence of seam failures than others. The rupture spilled approximately 5000 barrels of heavy crude oil in a residential area of Mayflower, Arkansas. Both the state of Arkansas and the EPA have settled with the operator for natural resource damages, remediation and Clean Water Act penalties. PHMSA’s enforcement case is not yet completed. A final order was issued by the agency in October of 2015, but the operator has petitioned for reconsideration of the order and $2.6 million dollar penalty.

2015 Bridger pipeline: Less than four years after the ExxonMobil Silvertip spilled into the Yellowstone River, having been exhumed from its shallow trench by action of the river, another pipeline crossing the Yellowstone was similarly scoured out by action of the river’s water and ice, ruptured and spilled crude oil that pooled and traveled under the river ice near Glendive, Montana, fouling the town’s drinking water and exposing continuing shortcomings of spill preparedness. Despite significant news coverage of the difficulties and labor-intensive efforts made to recover oil from a spill into water under ice, and the reported loss of all but 50 of the 729 barrels spilled, the report for the Bridger spill (as of December 31, 2015) reflects no property damages. As soon as possible after a release, but no later than 30 days later, they must file their initial incident report to PHMSA. At some point, Bridger notified PHMSA of the number of barrels spilled, but the PHMSA data still reflects no costs for the spill or its clean up. The regulations require that within 30 days of obtaining any new or corrected information, an operator must file a correction with PHMSA.
more prescriptive specifications (e.g. for steel pipe quality, seam quality, leak detection, etc.). A number of these conditions and mitigation measures particularly caught our attention:

- **Required pre-in-service hydostatic testing** for the entire pipeline at 100% of the specified minimum yield strength for a duration of 8 hours (current rules require hydro-testing with less pressure for less time);
- **Required maintenance of specific depth-of-cover** over the pipeline, with periodic inspection and a timeline for replacement of cover if needed (current rules only require the depth-of-cover to be achieved at construction, but not to be maintained over time);
- **Required valve control**, including protection from shutdown causing pressure surges, maximum spacing distance of 20 miles, and specifying that valves must be remotely controlled and actuated (current rules only require operators to take a variety of specific things into consideration when making decisions about valves);
- **Required cathodic protection** to be in place more quickly upon pipeline operation, with a variety of corrosion-detecting surveys conducted more frequently, and survey findings integrated with in-line inspection results (current code is less stringent);
- **Required maintenance of records** to verify compliance for the life of the pipeline (current code does not require this, and operators have incentives in certain circumstances to rely on their own engineering assessments of pipelines rather than actual design specification information);
- **Required independent third-party construction monitor** to inspect and monitor the pipeline during construction;
- **Required consistency with ongoing industry best management practices** and technology when it comes to **integrity management** and **leak detection**;
- **Required spill response plans** to incorporate new data about the properties and behavior of **diluted bitumen**, to release Material Safety Data Sheets in the event of a spill, and to plan for long term sampling/monitoring after an oil spill to monitor impacts; and
- **Required rigorous risk assessment**, specifying a broader array of things to include with greater specificity about each of those things (e.g., specified spill assumption for planning to be based on geometric mean of volume spilled over a 10-year period – 33 barrels in the case of KXL).

What if these types of conditions could be considered for any pipeline? What if there were a public process that allowed for discussion of conditions, depending on the environmental concerns as articulated in an environmental impact statement? The Keystone XL conditions were both about its initial construction and its ongoing operations.

Sara Gosman – a Trust board member and law professor at the University of Arkansas – led a ‘Food for Thought’ session at the Trust’s 2015 conference entitled “Should Pipelines Have Permits to Operate that are Reviewed Periodically?” She discussed potential positives and negatives to the idea of a pipeline operational permit. Sara pointed out that permits can have high transactional costs to both the agency administering them and the firms going through the process, that those costs can be a barrier to smaller firms, and that there is potential for agency abuse of power. She also pointed out that permits can be a tool to tailor regulation to the risks of the activity, and allow the public to help shape the conversation about risk.

As discussed elsewhere in this newsletter, we think there is plenty of room for improvement with how the pipeline operators, regulators, and the public interact with one another, and room for improvement with getting the public involved much earlier in the discussions about specific new pipelines. An overall permit process could help move those improvement goals forward.

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**Federal Pipeline Safety Rules & Other Opportunities to Comment**

The proposed rule on the Safety of Hazardous Liquid Pipelines generated about 70 comments that were submitted in January prior to the deadline. About 20 of these were from companies or industry associations, and about 50 were from a combination of citizens, affected community groups, nonprofit public interest organizations, and Tribal, local, and state government agencies. Thank you to all of you who took the time to comment!

Please periodically watch our webpage set up to let you know about current opportunities to be involved in Rulemaking or other official proceedings: [http://pstrust.org/finding-info-and-getting-involved/participation-opportunities/](http://pstrust.org/finding-info-and-getting-involved/participation-opportunities/).
Perhaps when you were listening to a panel during last year’s Pipeline Safety Trust conference, you were struck with a brilliant idea for a topic we haven’t covered but really should, the name of a knowledgeable speaker who would be of interest to a very diverse crowd, or you want to explain why we should have more or fewer speakers from a particular viewpoint.

NOW IS YOUR CHANCE TO TELL US!

If you want to volunteer to be a speaker, or nominate someone to be a speaker, let us know. If you have an idea for a topic we should cover, let us know. Flesh out your idea as much or as little as you wish with thoughts on why we should cover the topic, who might be able to knowledgeably discuss it, etc.

Send your ideas to rebecca@pstrust.org.

We’re happy to accept suggestions, with one exception: we are not interested in giving time to a product vendor/inventor/cheerleader to describe the wonders of their product(s), however nifty and paradigm-altering they may be.

Save the Date for 2016 Conference: October 20 and 21, 2016

What’s that? The PST Conference is in October next year? Yes! We’ve changed our dates for next year and moved to October, and we will once again return to the elegant accommodations of the Hotel Monteleone in the French Quarter of New Orleans.

So save these dates: October 20-21, 2016! Registration and Reservation information will be available this spring. See you in New Orleans!