

THE NATIONAL ACADEMIES™  
*Advisers to the Nation on Science, Engineering, and Medicine*

## Effects of Diluted Bitumen on the Environment: A Comparative Study

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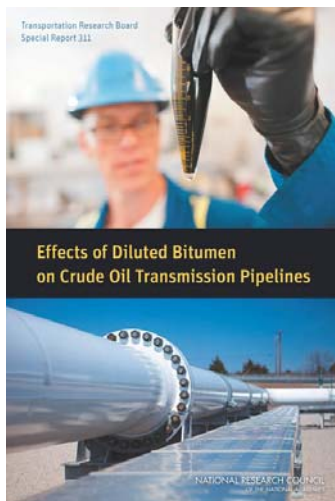


### Previous Study: Effects of Diluted Bitumen on Crude Oil Transmission Pipelines

PHMSA contracted with National Academies to convene an expert committee to:

- Analyze whether transportation of diluted bitumen by transmission pipeline has an increased likelihood of release compared with pipeline transportation of other crude oils.
- If an increased likelihood of release is found:
  - review the federal hazardous liquid pipeline safety regulations to determine whether they are sufficient to mitigate the increased likelihood of release.

## Summary of Results: Effects of Diluted Bitumen on Crude Oil Transmission Pipelines



- The committee did not find any causes of pipeline failure unique to the transportation of diluted bitumen.
- The committee did not find evidence of chemical or physical properties of diluted bitumen shipments that are outside the range of other crude oil shipments or any other aspect of diluted bitumen's transportation by pipeline that would make it more likely than other crude oils to cause releases.
  - Diluted bitumen shipments do not have unique or extreme properties that make them more likely than other crude oil shipments to cause internal corrosion or erosion.
  - Diluted bitumen shipments do not have properties that make them more likely than other crude oil shipments to cause damage to transmission pipelines from external corrosion and cracking or from mechanical forces.
  - Pipeline operating and maintenance practices are the same for shipments of diluted bitumen as for shipments of other crude oils.

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## Current Study: Effects of Diluted Bitumen on the Environment

- The previous study addressed the relative likelihood of a release occurring.
- This study will look at the consequences should a release happen.
- **Origin: Congressional Request to DOT**
  - DOT, in turn, requested that the NAS perform a consensus study and issue a report through a process similar to the 2013 likelihood analysis.

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### **PHMSA contracted with National Academies to convene an expert committee to:**

An *ad hoc* committee will analyze whether the properties of diluted bitumen differ sufficiently from those of other crude oils commonly transported in U.S. transmission pipelines to warrant modifications of the regulations governing spill response plans, spill preparedness, or clean up.

The committee will:

1. Review the available literature and data, including any available data from oil spill responses or clean up, to determine the current state of knowledge of the transport, fate, and effects of diluted bitumen once spilled into the environment (onshore and offshore);
2. Identify the relevant properties and characteristics that influence the transport, fate and effects of commonly transported crude oils, including diluted bitumen, in the environment;
3. Make a comparison of the relevant properties identified in item (2) between diluted bitumen and a representative set of crude oils that are commonly transported via pipeline;
4. Based on the comparison in item 3, analyze and make a determination as to whether the differences between the environmental properties of diluted bitumen and those of other crude oils warrant modifications to the regulations governing spill response plans, spill preparedness, or clean up.

If the committee finds that there is not sufficient information to make a comparison of the environmental properties between diluted bitumen and other crude oils, the committee may make recommendations as to the additional data that would be needed to make such a determination.

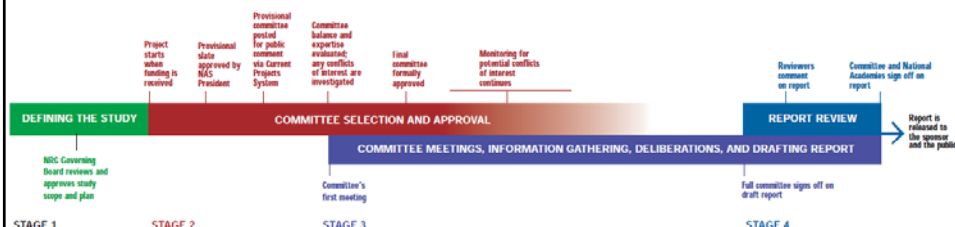
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## **National Academies Process**

- **Appoint experts in relevant technical areas:**
  - Pipeline operations and spill response in an event of a spill
  - pipeline spill and cleanup regulations
  - chemical engineering, chemistry, petroleum engineering, weathering effects, biodegradation of oil, and
  - fate and effects of diluted bitumen in the environment.
- **Balance of expertise, experience, and perspectives; no financial conflicts.**
- **Members from academia, government labs, consulting, retired pipeline industry.**
- **Industry experience critical to understanding pipeline operations and maintenance.**

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## Study Process



- Approximately 4 meetings, including a possible site-visit.
- All but the last meeting will likely sessions open to the public.
- Presentation will likely include:
  - U.S. and Canadian govt. regulators and researchers
  - Pipeline operators and oil producers
  - Technical experts in corrosion, oil composition, pipeline operations, and crude oil markets
  - Environmental interest groups
  - Private individuals
- Presentations will be made available at: <http://dels.nas.edu/dilbit>
- Report will be reviewed in draft form.

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## Your Help is Needed!

THE NATIONAL ACADEMIES  
Advisers in the Nation on Science, Engineering, and Medicine  
Board on Chemical Sciences and Technology

Washington, DC

Dear Colleagues,

The Board on Chemical Sciences and Technology is pleased to announce a new consensus project being sponsored by the US Department of Transportation, "Effects of Diluted Bitumen on the Environment: A Comparative Study" and to seek nominations for members of the study committee. Nominations are requested no later than Friday, August 29. We invite you to follow the progress of the study at our website, <http://dels.nas.edu/dilbit>. (Please feel free to forward to interested parties and our apologies for any duplicates you may receive, as we are sending this to multiple lists.)

### Chair to the Committee

Under the oversight of the National Research Council's Board on Chemical Sciences and Technology, an ad hoc committee will analyze whether the relevant properties of diluted bitumen differ sufficiently from those of other crude oils commonly transported in US transmission pipelines to warrant modifications of the regulations governing spill response plans, spill preparations, and/or cleanup. The committee will examine the state of knowledge of the transport, fate, and effects of diluted bitumen once spilled into the environment (onshore and offshore) and identify the pertinent properties and characteristics that influence the transport, fate and effects of diluted bitumen in the environment. The committee is expected to meet one time in calendar year 2014 and 3 times in calendar year 2015. The full statement of task is appended.

### Expertise Needed

A committee of approximately 14 experts from chemical and engineering disciplines will be appointed by the National Research Council (NRC), drawing members from the academic, industrial sectors, and national lab sectors. Expertise on the committee will include the following areas: Pipeline operations and spill response in an event of a spill, pipeline spill and cleanup regulations, chemical engineering, chemistry, petroleum engineering, weathering effects, specialist in biodegradation of oil, and fate and effects of diluted bitumen in the environment.

To make a nomination, send to the person's name, affiliation, contact information, area of expertise, and a brief statement on why the person is relevant to the study topic. Direct your ideas to [dilbit@nas.edu](mailto:dilbit@nas.edu). Please submit your nominations NO LATER THAN FRIDAY, August 29, 2014.

Having the appropriate membership is central to the success of every National Academies activity, so we appreciate your help in this committee nomination process. Please keep in mind, however, that it is not uncommon to receive 100 or more nominations for a slate of ~14 candidates and the final decision about committee membership rests with the Chair of the National Research Council. In developing a slate, care is given to ensuring that the committee includes appropriate expertise and is balanced and free from conflicts of interest.

Many thanks,  
Douglas Friedman  
Study Director  
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- Nominations for:
  - Committee Members
  - Reviewers
  - Speakers
- Suggesting reports and other data that the committee should analyze
- Speaking with the committee at an early meeting
- Etc...

Questions?  
Comments?

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