

Press Coverage of Transportation Research Board Report on Alaska Risk Assessment (ARA) Proposed Methodology

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Risk assessment of Alaska oil infrastructure called flawed EXPERTS: Study is too dependent on industry cooperation, panel says.

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A panel of national scientific experts is raising serious concerns about the state-led, \$5 million project to evaluate risks posed by Alaska's aging oil and gas infrastructure.

The study, initiated by former Gov. Sarah Palin, was triggered by recent spills, leaks and corrosion on the North Slope, including the 2006 spill that shut down half of Prudhoe Bay for weeks and resulted in multimillion-dollar penalties for BP, the Prudhoe operator.

But the National Academy of Sciences said in a 45-page report circulated Tuesday that the state's study -- as currently designed -- is unlikely to meet its own ambitious goals.

The study, funded by the Legislature in 2007, involves reviewing and ranking oil and gas-related risks along the 800-mile trans-Alaska oil pipeline, at the Valdez tanker port and at North Slope and Cook Inlet fields.

The Alaska Department of Environmental Conservation launched the study last fall and spent a year gathering public input. It hired contractors to design the study, based on that input.

After the contractors published the study's proposed design, the DEC asked the National Academy of Sciences to evaluate it. In its report, a seven-member National Academy panel said the design is "problematic" and state regulators should make major revisions to ensure that the study will produce useful results.

MAJOR REVISIONS

The state faces a big challenge because the problems it is trying to pin down are complex, said Paul Fischbeck, the Carnegie Mellon University professor who chaired the panel.

As designed, the study would involve sifting through a massive amount of data. Also, it assumes oil and gas "industry cooperation that is neither promised or likely to be forthcoming," the panel's report says.

Even if companies provide the large amount of data requested, it may not result in useful findings, according to the report.

For example, the panel wrote that it is unlikely the study's methods would detect the sort of problems that led to several major problems involving Alaska's oil infrastructure in recent years.

The study probably wouldn't have detected the kind of errors in oil-field management that caused the 2006 spills on the North Slope, or detected the communication failures and other problems that almost caused a catastrophic fire at a trans-Alaska pipeline pump station last winter, the report says.

The report notes that state regulators have not yet secured cooperation from oil and gas producers to provide their data. The state needed that cooperation early on in the project, the report says.

WHAT'S NEXT?

The National Academy panel suggests that the state break its study into three phases, rather than tackling reliability, environmental and safety risks from aging infrastructure all at once.

The panel also suggests that the state's research efforts be pegged to data that is relevant, rather than the current approach of gathering a vast amount of information from the industry, and then deciding which data is relevant.

For the study to be successful, the state needs "complete cooperation and buy-in" from the industry, the panel wrote.

A BP Alaska spokesman said the National Academy review seems to affirm some of the industry's concerns about the project.

The spokesman, Steve Rinehart, said BP has raised concerns about the scope of the study and the confidentiality of internal data it submits for the study.

Within a few weeks, a DEC oversight team will decide how to proceed with the study in light of the National Academy report and feedback from the public, companies and others who have weighed in since the study's proposed methods were released in March, said DEC project manager Ira Rosen.

"While there is a general consensus around the enormity and complexity of the undertaking, we are hearing somewhat disparate views about the best methods to achieve results," Rosen said.

He said only \$700,000 of the \$5 million for the project has been spent. However, the summer 2010 completion date for the study may slip a few months because the National Academy report was late. It was due in June, he said.

For now, the state does not have a contractor assigned to the study.

The DEC recently ended its relationship with the firm it hired to design the study. The state's contract with Doyon Emerald Consulting, an Alaska Native-owned firm in Anchorage, expired in late June without being renewed, said Royal Weld, a DEC spokeswoman.

She said the state will not look for a new contractor until after the study's oversight team completes its review.

Report's key findings

National Academy findings on the state's planned oil-gas risk assessment:

- It doesn't appear to be feasible.
 - It is too detail-oriented to capture important risks.
 - Its results won't include recommendations on how to reduce the risks.
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Petroleum News, Week of Oct. 25, 2009, p. 17 (accessed 091110 at <http://www.petroleumnews.com/pnarchpop/091025-19.html>).

Risk analysis gets low marks from NAS

National peer review recommends Alaska take a top-down look at oil and gas failures costliest to state, get industry cooperation

Kristen Nelson

Petroleum News

An oil and gas infrastructure risk assessment methodology developed by a contractor for the State of Alaska has received failing marks in a review by the National Academy of Sciences.

After Prudhoe Bay transit line leaks revealed corrosion problems that shut down parts of the Alaska North Slope field for two months in 2006, the state began looking for ways to increase its monitoring of oil and gas facilities in the state. Frank Murkowski, governor at the time of the 2006 spills, envisioned an agency to monitor oil and gas field facilities comparable to the state-federal Joint Pipeline Office which monitors the trans-Alaska oil pipeline. His successor, Gov. Sarah Palin, established a smaller monitoring office in the Department of Natural Resources and also got \$5 million funding from the Alaska Legislature for a risk assessment of the state's oil and gas infrastructure.

In 2008 the state put out a request for proposals for a risk assessment study and awarded a \$4.1 million two-year contract to a joint venture of Doyon Emerald Consulting Group LLC and American Bureau of Shipping Consulting.

Part of the risk assessment involved a third-party peer review of the methodology in the risk assessment, and the Alaska Department of Environmental Conservation, which is leading the risk assessment project, commissioned the National Academy of Sciences to conduct that review.

The report of that review, by the Transportation Research Board of The National Academies, was completed in September and was released to the public Oct. 20.

DEC said in an Oct. 20 press release that the risk assessment is one element in the state's response to oil spills and revelations about the condition of certain North Slope pipelines.

DEC's Ira Rosen, the state project manager for the risk assessment, said in the release that, "The state oversight team is in the process of weighing the Academy's input, along with what we are hearing from the public, industry and government, to chart the best way forward."

Academy: State not well served

The board's conclusion was that the state was not well served by the design of the risk assessment, based partly on the state's request for proposals and partly on the risk assessment methodology developed by Doyon Emerald-ABS. The board reviewed available documentation and meetings in Washington, D.C., and Anchorage, and found the risk assessment methodology to be problematic in three main areas. The board said "the management plan was not feasible given real-world constraints, ... the proposed risk methods were too detailed and lacked a sufficient top-down perspective necessary for capturing important risks, and ... the proposed results were static and stopped well short of providing the State with a set of tools for evaluating risk mitigation opportunities."

Focus on reliability

The board recommended that the state revise the scope of the project for future risk assessment efforts, "focusing first on risks to infrastructure reliability followed by studies and environmental and safety concerns." It recommended a combination of top-down and bottom-up approaches, and characterized the initial risk assessment as bottom-up. The board said the state should work with industry from the beginning "so that common goals can be identified and mutual cooperation

can be ensured,” and recommended focusing on an end goal of risk management including methods to increase system robustness.

In analyzing the methodology developed by Doyon Emerald-ABS the board said it “appears to be too data intensive given the available resources,” and “assumes significant industry cooperation that is neither promised nor likely to be forthcoming.”

But, the board said, even if industry were willing and able to provide the requested data, “it appears unlikely that the proposed methods are doable and would be useful in identifying and ranking the risk components of the physical and operational infrastructure system.”

The board said it had requested a “worked example” of one small portion of the proposed method but was told that was not available without “significant additional funding.”

And, even if the method proposed was successful in uncovering risk factors, the board said it did not believe that the output of the project in the proposed format would be useful to the state in risk management decision making.

The data issue

The board said that for the proposed assessment to be completed given the time and funding constraints, the contract team “was apparently expecting to draw upon significant industry cooperation and voluntary assistance.”

One document, the board said, pegged a gratis industry contribution at 50,000 hours for a six-month period, some 25 man-years of work or 50 industry personnel working just on providing data for this project for six months.

Industry assistance was needed for all phases of the project, including obtaining detailed facility descriptions and historical failure data.

The board said it was “unclear that the contract team had a clear idea as to what specific data were needed to complete the assessment,” and apparently planned “to cast a very broad net and collect as much information as possible from various industry sources and then to sort through it and select what was needed.”

The approach raised “legitimate concerns” with industry, which did not know how the data would be used and how access to it would be controlled.

System complex

The board characterized two types of events with the potential for harm: large events which cause the state financial harm, such as the 2006 spills which caused BP Exploration (Alaska), the operator at Prudhoe Bay, to do a major shutdown in order to search for additional corrosion that could be the cause of further leaks; and smaller events which would have the potential to harm the environment or people, but would not cause the state financial harm.

“The approach to assessing the risks of major reliability and financial events generally requires a different approach than would be used for the environmental and safety risks,” the board said.

Large-scale events “might include communications failures involving two or more operating organizations, human factors issues . . . , failures of management systems . . . , or events outside the oil and gas infrastructure that propagate into the infrastructure. As one might expect, a detailed, bottom-up analysis of all of the infrastructure elements is unlikely to identify such overarching factors that would lead to major events.”

The board recommended starting with “the identification of situations that could cause major financial impacts,” such as an extended shutdown of the trans-Alaska oil pipeline.

The second step would be to identify events which could cause such a shutdown. Once all possible situations that might lead to major reliability events are identified, “it would be possible to conduct specific, detailed analyses in order to develop mitigation strategies to eliminate or at least manage the risks.”