



# Engineering and Policy

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Alaska Risk Assessment of Oil and Gas Infrastructure  
Alaska Department of Environmental Conservation

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Dear Mr. Rosen:

Thank you for the opportunity to comment on the Alaska Risk Assessment of Oil and Gas Infrastructure. As background, I am producing these comments as a paid consultant to two non-profit conservation organizations in Alaska. During the past 25 years, I served as a technical consultant to EPA on risk assessment and on underground and aboveground storage tank technical concerns related to releases and associated policies, and I testified before Congress numerous times on these concerns as well as on the federal oil and gas pipeline statute and its implementation by the U.S. Department of Transportation. Additionally, I commented on several occasions since 2001 on Alaska's proposed pipeline regulations. I am a licensed engineer in both Alaska and Maryland. I have participated in this analytical project since its inception including meeting with project contractors on October 14, 2008 during the project's scoping phase.<sup>1</sup>

## **Project Scope is Highly Problematic and Will Mislead the Public**

As someone experienced with the process of risk assessment, my first question to project contractors on October 14, 2008 was whether the project would be making recommendations for mitigation of risks. Recommendations for mitigation of risk are critical components of risk assessments because they can change the outcomes of the risk assessment. If mitigation measures are simple and comparatively inexpensive (e.g., draining oil from the tanks at the Drift River tank terminal prior to the volcanic eruption rather than after the eruption began), they can be implemented readily and the risk assessment can focus on risk issues that are tougher to prioritize. At the October 14 meeting with project contractors that I participated in, project contractors stated that "Potential mitigation measures and recommendations are out of scope."<sup>2</sup> Despite the points we made at this meeting, the contractors reaffirmed this position at the public meetings for the project in May 2009. *As a result of*

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<sup>1</sup> See *Meeting Minutes*, State of Alaska Oil & Gas Infrastructure Risk Assessment, Anchorage-based NGO's Consultation Meeting, October 14, 2008, 10:30-12PM, 8 pp.

<sup>2</sup> *Meeting Minutes*, p. 4.

*not including recommendations for mitigation of risk, the project's scope is highly problematic for policy-making purposes and not worthy of additional planned expenditures<sup>3</sup>.*

There is a second reason that recommendations for mitigation of risk need to be an outcome of the project – these recommendations will inform the public so it can participate in policy debates regarding implementation of the recommendations. If only the state and industry decide on what recommendations to move forward, there could be substantial conflicts of interest.<sup>4</sup> For example, with a recommendation for additional inspectors, the state could decide it does not have the resources for additional inspectors of oil and gas operations; if the public knew of such a recommendation and its underlying rationale, however, members of the public could contact state legislators and obtain the resources.

In addition to not including recommendations for mitigation of risk, the scope of the project does not include the following:

- Shipping (including, potentially, supply ships hitting offshore platforms which was the case this year<sup>5</sup>);
- Oil and gas processing facilities;
- Exploration activities;
- Abandoned infrastructure (which can and do cause releases, albeit frequently not large releases);
- Distribution pipelines;
- Certain gas transmission pipelines (Beluga gas transmission line and the Kenai to Anchorage transmission lines under Turnagain Arm), and;
- Product pipelines and tanks.

Additionally, certain key threats to infrastructure, e.g., natural gas distribution system threats to electrical power, a bullet hitting the Trans-Alaska Pipeline System,<sup>6</sup> have been excluded from the project's scope.

*With many types of oil and gas infrastructure and a number of key potential threats to operation not included in the risk assessment, the scope of the project has been so narrowed that it is technically unsupportable (especially not including shipping hazards, perhaps the greatest risk in Cook Inlet). Additionally, the project's title and substantive results will be highly misleading to the public.*

## **Pipeline Analysis Problems**

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<sup>3</sup> Several million dollars to the state.

<sup>4</sup> “The final step in the process (Activity 5) is to document the assumptions, data, and risk results in a manner that supports the State and the infrastructure owners/operators to help them develop recommendations to maintain or lower the identified infrastructure risks” (p. 12, *Proposed Risk Assessment Methodology*, emphasis added).

<sup>5</sup> See the Alaska Department of Environmental Conservation's Situation Reports:  
[http://www.dec.state.ak.us/spar/perp/response/sum\\_fy09/090115201/090115201\\_index.htm](http://www.dec.state.ak.us/spar/perp/response/sum_fy09/090115201/090115201_index.htm).

<sup>6</sup> See the comments on this project from the federal Pipeline and Hazardous Materials Safety Administration, May 26, 2009, p. 3. See <http://www.dec.state.ak.us/SPAR/ipp/ara/documents/PHMSA%20Comments.pdf>.

The project’s analysis of pipelines has fundamental problems. The project is not using consistent, field-checked definitions for pipeline segments. These definitions affect the regulations that apply and the risks the pipeline segments pose. For example, those pipelines that must meet federal integrity management requirements<sup>7</sup> likely pose much fewer risks than those that do not.

Because the state no longer uses the term “gathering line” in its pipeline regulations whereas the federal government still uses that term but began a process several years ago to clarify its definitions of oil and gas gathering lines, the term has a very unclear meaning to pipeline owners and operators. Release reports from pipelines, which are not required at the federal level for unregulated pipelines, thus can be very unreliable ways of identifying risks. What is needed is for the project team to define different types of pipeline segments (preferably using the state’s definitions of flowlines and transmission lines, and eliminating the term gathering line), to field-check those pipeline segments and their release history using owner/operator, state, and federal records, and then to identify which state and federal regulations apply now or in the past to determine risk prioritization. This is the most direct means to identifying regulatory deficiencies, however the project also should query federal and state pipeline inspectors.

The definitions for “gathering lines” and “transmission lines” in Table 5.1.2 (p. 80) are extremely problematic, and that imprecision carries on in the text following which needs to be changed as well. According to the existing definitions in Table 5.1.2, it is completely unclear where gathering lines end and transmission lines begin. *As stated above, LNE Engineering and Policy recommends eliminating the term gathering line from this analysis and performing field-checks of pipeline segment types.*

### **Project Ignores Injuries**

As currently structured, the project ignores injuries to workers and the public and focuses only on fatalities. This disregards two key concerns:

- When there are injuries, there are operational problems which could be systemic, and
- Injuries could be indicators of “near misses” that avoided fatalities only by chance.

*Any injuries – of workers or the public – requiring hospitalization should be considered having severe/significant consequences.*

Table 6-1, shown below, and its note are particularly problematic. First, though the note states otherwise, members of the public who are killed are ignored as well, as accidents with less than five deaths. It is clear from the note that the project contractors and/or the state wished to reduce the scope of the analysis and used the questionable rationale that, “Less severe safety threats to workers and the public are already managed by regulations and extensive corporate safety/risk management programs.” A well-done risk assessment would not assume that existing regulations and corporate safety/risk management programs were effective without examining outcomes.

*Table 6-1 Safety Consequence Categories for Preliminary Screening*

<sup>7</sup> 49 CFR 195.452 for oil transmission pipelines and 49 CFR 192, Subpart O for natural gas transmission pipelines.

| Category | Occupational Safety Impact<br>(Number of Potential Fatalities) | Public Safety Impact<br>(Number of Potential Fatalities) |
|----------|--|--|
| 5        | > 100  | >10  |
| 4        | 51 to 100  | 6 to 10  |
| 3        | 11 to 50   | 2 to 5   |
| 2        | 5 to 10  | 1  |
| 1        | < 5  | No public safety impact                                  |

Note: *The safety categories used in Table 6-1 are not intended to imply that workers in the oil and gas production business are less important than members of the public, nor does it imply that events that could potentially injure less than five workers are not important. The categories that have been defined above 1) reflect the purpose of this risk assessment as chartered by the State; i.e., to examine catastrophic level events that are potentially high risk which could result in severe or significant consequences, and 2) recognize the large quantity of resources that are already dedicated to protecting the workers and members of the public from accidents that involve the oil and gas infrastructure. Less severe safety threats to workers and the public are already managed by regulations and extensive corporate safety/risk management programs.*

### **Risk Assessment Should Not be the Only State Response**

By spending millions of dollars on this risk assessment project which has numerous methodological problems as discussed in this letter and in the comments submitted by the federal Pipeline and Hazardous Materials Safety Administration, the Alaska Wilderness League *et al.*, and others, *the State of Alaska is foregoing opportunities to spend the money in more productive ways.* These strategies include:

- Creating an oil and gas Ombudsman position to receive and act on public and whistleblower-identified problems. The Ombudsman position would have funds for field investigation and analysis;
- Increasing enforcement of existing regulations, especially for large releases, chronic releases, and releases into environmentally (and historic or culturally) sensitive areas;<sup>8</sup>
- Strengthening regulations where needed so Alaska would, in fact, have the best possible oil and gas regulatory system in the world. This can be done by conducting a comparative analysis;
- Contracting with accident investigators so severe/significant accidents are investigated for root causes, with recommendations made to prevent future similar events. This is needed because the National Transportation Safety Board and the Chemical Safety and Hazard Investigation Board rarely, if ever, come to Alaska to investigate accidents, and they will never investigate large numbers of severe/significant accidents in the state due to the lack of federal resources, and;

<sup>8</sup> See *Cops Off the Beat: Problems with Alaska's Environmental Enforcement Under the Murkowski Administration*, Lois N. Epstein, P.E., Cook Inletkeeper, 2004, p. 1. See <http://www.inletkeeper.org/enforcement.htm>.

- Developing a reporting requirement to the state for “near misses” which would protect confidential business information but provide enough information to ensure that the Ombudsman and state regulators would be able to detect problematic patterns of behavior.

### **Data Submittals and Needs**

LNE Engineering and Policy recommends that project contractors review reports and data I compiled while a Senior Engineer for Cook Inletkeeper. At <http://www.inletkeeper.org/pipelines.htm>, you can click on a comprehensive 2002 report entitled *Lurking Below: Oil and Gas Pipeline Problems in the Cook Inlet Watershed*, and focus especially on the information about large spills in 1999-2001 in the Kenai National Wildlife Refuge, Captain Cook State Recreation Area, and offshore in Cook Inlet (pp. 6-8). Additionally, I compiled updated pipeline release data in 2005 for the previous 8 years, which are available at that same site.

The project also needs to review all applicable Situation Reports from the Alaska Department of Environmental Conservation, including those earlier than the ones posted on the website.<sup>9</sup>

To be successful, *the project needs to have the full cooperation of the oil and gas infrastructure owners and operators*. Additionally, the project needs to have the full cooperation of all relevant regulators, including the Minerals Management Service. It’s unclear that either of those conditions exists.

Thank you very much for you attention to these concerns.

Sincerely,

A rectangular box containing a handwritten signature in black ink. The signature appears to read "Lois N. Epstein" with a long, sweeping underline.

Lois N. Epstein, P.E.  
President

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<sup>9</sup> See [http://www.dec.state.ak.us/spar/perp/response/sr\\_active.htm](http://www.dec.state.ak.us/spar/perp/response/sr_active.htm).