Edward L. Morgan
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May 29, 2009

Commissioner Larry Hartig, ADEC
PO Box111800
Juneau, AK 99811-1800

Commissioner Tom Irwin, ADNR
550 West Seventh Avenue, Suite 1400
Anchorage AK99501-3554

Subject: Proposed Methodology for the Alaska Oil and Gas Infrastructure Risk Assessment Project

Dear Commissioners:

It is my professional opinion that no meaningful risk assessment can be conducted without a thorough assessment of process safety. Unfortunately, the proposed *Doyon-Emerald/ABS proposed Methodology for the State of Alaska Oil and Gas Infrastructure Risk Assessment Project* will not assess process safety. As a result of this fundamental omission (and other to be discussed), I most strongly recommend that the risk assessment be halted until circumstances allow it to be conducted in a meaningful manner, or be abandoned altogether. (Abandonment has the advantage of saving the state $3.5 million if executed promptly.) The rationale for my conclusions are contained in the following paragraphs.

As a business consultant who has spent much of my professional career dealing with risk-related issues (including 6 years in various capacities on Alyeska Pipeline Service Company's management team and contract work with the Alaska Oil and Gas Conservation Commission on North Slope issues; see resume, attached) and as a concerned citizen, I attended Alaska Risk Assessment meetings in Fairbanks in September 2008 and May 2009. Based on the discussions at the May 13 meeting and review of the Doyon-Emerald/ABS proposed Methodology for the State of Alaska Oil and Gas Infrastructure Risk Assessment Project, it is evident that the project team has been unable or unwilling to incorporate procedures to assess process safety in its review. Process safety encompasses: the design and engineering of facilities; management of change; inspection, testing, and maintenance of

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equipment; process controls; and other human factors which if absent increase the risk of major accidents (additional information on Process safety is also attached). because of this omission, it is my professional opinion that this project will not result in a meaningful analysis of the major risks associated with Alaska oil and gas infrastructure operations.

The proposed methodology for the risk assessment relies almost completely on an analytical evaluation of facility risk which is based on the type and number of components, their process interconnectivity, and estimates of the consequences of natural and manmade disasters. Little or no effort is being expended to actually study the facilities being risk ranked. Of what value is this one might ask? The answer is simple, it provides almost nothing of value (let alone $5 million dollars worth, the budgeted amount for the assessment).

The American Lifelines Alliance guideline being used to assess natural hazard and human threat events is only in draft form and cannot even be view on their website without agreeing to the following caveat:

> **"Neither ALA, NIBS, nor FEMA makes any warranty, express or implied, that any document available on this website is accurate or complete, or that it is fit for any specific purpose or any specific situation or will produce any specific result."**

Does it make sense to use this reference as an analytical guideline? Based on my experience with risk-related issues in Alaska and elsewhere in the world, I question whether this one-size-fits-all reference is an appropriate analytical guide to assess the unique natural and social conditions that confront the managers of Alaska's oil and gas infrastructure.

Anyone with basic knowledge could say that refineries are more risky than pipelines, that gathering stations are more risky than well houses, that pump stations are more risky than etc., but wait: refineries are not even included in the risk assessment even though they are a lot closer to the public than most other oil and gas components and would certainly be high on most risk lists. Does this make sense? And what difference would it make if the risk assessment ranking were only approximately accurate? None, because this project is ignoring the major source of risk: the risk of a process accident occurring in a specific facility.

As discussed in Attachment 1, implementation of process safety plans is the principal mechanism by which the likelihood of process safety accidents can be reduced. As an example, consider the case of two identical facilities classified by the proposed risk assessment methodology as high risk. Let's also assume that both have identical process safety plans. Do they really have the same actual as opposed to paper risk? It is impossible to tell without conducting audits, assessments, and observations to determine the extent to which their individual process safety plans have been implemented. To conduct these audits, assessments, and observations requires a physical presence in each of the facilities, access to administrative records, test and inspection results, interviews with managers and individual contributors, and facility plans.

But guess what, based on comments by Doyon-Emerald/ABS and ADEC representatives at the Fairbanks spring public meeting, the oil and gas industry is not willing to provide the information necessary to enable an adequate risk assessment. In fact, they are refusing to even provide their process safety plans, which for some facilities, are required by and have been submitted to OSHA.

If the situations described above are not sufficient to convince you that it is insane to continue with the risk assessment in its present form, consider the following additional objections:

- The proposed risk assessment is being conducted under the direction of the ADEC and the ADEC has been charged with providing recommendations based on the risk assessment results. Does this make sense? The ADEC is the agency charged with regulatory oversight of many aspects of the Alaska oil and gas industries. In the unlikely event that the risk assessment might actually determine that a here-to-fore unrecognized risk factor exists, it would reflect badly on them. If no new risks are discovered, it is likely that some could and would say, "What did you expect with the fox in charge of the hen house." It's no win in either case. Someone else should be in charge if the risk assessment is to have any public creditability.

- The risk assessment is divided into three categories: Safety, Environment, and Reliability. The reliability leg, or more accurately 'financial leg', is concerned with the effects on the state's oil money in the event of an interruption of oil flow. The proposed methodology to

evaluate financial loss seems burdensome, out of place in a document originally intended to determine safety and environmental risk, and unnecessarily expensive to complete. For example, with respect to North Slope and TAPS operations, it doesn't matter what causes a shut or slow down, the financial impact is the same and can be easily computed by simple multiplication: (reduced state thru-put volume) times (duration) times (price of crude). Why try and make it any more complicated?

In closing, I would like to acknowledge and thank those involved in the public outreach efforts on behalf of the risk assessment project. They were very professional and informative.

Sincerely,

Edward Morgan

CC:

Senator Joe Thomas
Senator Lesil McGuire
Senator Bill Wielechowski
Representative David Guttenberg
Representative Scott Kawasaki
Representative Craig Johnson
Representative Mark Neuman

Alaska Risk assessment Project Team (by email)

Attachment 1
Process and Occupational Safety

Personal or ***occupational safety hazards*** give rise to incidents—such as slips, falls, and vehicle accidents—that primarily affect one or a few individual workers for each occurrence.

Personal or ***occupational safety programs*** focus on preventing worker injuries by requiring proper use of PPE, safe driving instruction, knowledge of OSHA requirements, electrical safety, and provide vital information on dozens of other potential workplace hazards specific to a given industry.

Process safety hazards give rise to major accidents involving the release of potentially dangerous materials, the release of energy (such as fires and explosions), or both. Process safety accidents can have catastrophic effects and can result in multiple injuries and fatalities, as well as substantial economic, property, and environmental damage. Process safety accidents can affect workers inside the facility and members of the public who reside nearby.

Process safety programs focus on the design and engineering of facilities, hazard assessments, management of change, inspection, testing, and maintenance of equipment, effective alarms, effective process control, procedures, training of personnel, and human factors.

Both types of safety programs are important. Sometimes however the distinction between the two becomes blurred and leads to the erroneous belief (particularly in boardrooms) that if lost time accident rates are low, process safety is assured. An example of such an occurrence is well documented in the Baker Report which looked into process safety failures following the BP refinery explosion at Texas City which resulted in 15 deaths and over 170 injuries. The report is available on line at: http://www.bp.com/liveassets/bp_internet/globalbp/globalbp_uk_english/reports_and_publications/presentations/STAGING/local_assets/pdf/Baker_panel_report.pdf

According to this report and others, process safety requires:

Process safety leadership. Leadership from the top of a company, starting with the Board and going down, is essential. It is imperative that leadership set the process safety "tone at the top" of the organization and establish appropriate expectations regarding process safety performance. While many companies have aspirational goals such as "no accidents, no harm to people," these type of goals are not effective in reducing process safety hazards unless management and the workforce also understand what is expected of them regarding process safety performance. If only personal safety is emphasized, companies may mistakenly interpreted improving personal injury rates as an indication of

acceptable process safety performance. If so, process safety accidents maybe more likely to occur.

Employee empowerment. A good process safety culture requires a positive, trusting, and open environment with effective lines of communication between management and the workforce, including employee representatives.

Resources and positioning of process safety capabilities. Management must ensure that it identifies and provides the resources required for strong process safety performance. There should be a designated, high-ranking leader dedicated to process safety. Some companies issue numerous initiatives intended to produce safer operations but often these cause "initiative overload" which may also decrease process safety performance. In addition, sometimes operations and maintenance personnel are required to work high rates of overtime, and this could impact their ability to perform their jobs safely and increases process safety risk.

Incorporation of process safety into management decision-making. Some companies do not effectively incorporate process safety into management decision-making. Often they tend to have a short-term focus, a decentralized management system, and an entrepreneurial culture that delegates substantial discretion to plant managers without clearly defining process safety expectations, responsibilities, or accountabilities. It is essential that accountability be a core concept. Executive management, line managers, and supervisors, both at the corporate level and at the refinery level, must be held accountable for process safety performance.

Process safety cultures. A company should install a common, unifying process safety culture among its divisions.

Process risk assessment and analysis. Companies should have active programs to analyze process hazards and to ensure adequate identification and rigorous analysis of process safety hazards.

Compliance with internal process safety standards. Companies must have internal standards and programs for managing process risks and insure they are followed. Examples of standards include: equipment inspections, maintenance and testing of critical alarms and emergency shut-down devices, area electrical classification, and near miss investigations to name just a few.

Implementation of external good engineering practices. A companies corporate safety management system must ensure timely implementation of external good engineering practices that support and could improve process safety performance.

Process safety knowledge and competence. Companies must effectively define the level of process safety knowledge or competency required of executive management, line management above process managers, and process managers AND ensured that its personnel and contractors have sufficient process safety knowledge and competence.

Process safety education and training needs to be rigorous, comprehensive, and integrated. While important, over-reliance on computer based training can contribute to inadequate process safety training.

Effectiveness of a corporate process safety management system. A corporate process safety management system must effectively translate corporate expectations into measurable criteria for management of process risk and define the appropriate role of qualitative and quantitative risk management criteria.

Measuring process safety performance. Many companies have very effective measures to track and trend personal and occupational safety performance but sometimes make the mistake of believing this data is an indication of process safety well being. Specific process safety leading and lagging indicators must be developed, measured, trended, and evaluated at all levels from corporate down.

Incident and near miss investigations. Process safety improvements require that all process safety incidents and near misses be investigated employing effective root cause analysis procedures to identify systemic causal factors that may contribute to future accidents. When true root or system causes are not identified, corrective actions may only address immediate or superficial causes, but not likely the true root causes that need to fixed.

Process safety audits. Effective process safety audit systems are required to evaluate process safety. For example the audit system employed should evaluated factors such as: auditor qualifications, audit scope, reliance on internal auditors, and adequate review of audit findings. The principal focus of audits should not just be on compliance and verifying that required management systems are in place to satisfy legal requirements. Audits should also ensure that the management systems were delivering the desired safety performance and to assess a site's performance against industry best practices.

Timely correction of identified process safety deficiencies. Process safety identified deficiencies must be tracked to completion promptly. Failure to follow through compromises the effectiveness of even the best audit program or incident investigation. Once corrective actions are in place, they must be evaluated for their effectiveness.

Corporate oversight. Often process safety performance information is combined from similar facilities as it is passed up the management chain. Thus when it gets to corporate headquarters it is merely an average corporate-wide and thus not particularly useful. If you're boating, knowledge of the average depth of water won't keep you from running into the rock just below the surface.

Attachment 2
Professional Experience

Present Position - Fairbanks, AK (2005 - present)

- Principal of E. L. Morgan Consulting, specializing in supplying short-term management, individual-contributor, and consulting services in support of temporary business needs.

Manager SERVS (Ship Escort and Response Vessel System) - Alyeska Pipeline Service Company, Valdez, AK (2002-2005)

- Responsible to the Senior Vice-President for over 300 personnel and 300 million dollars of equipment to prevent and respond to oil spills in Prince William Sound.
- President of Prince William Sound Corporation, a holding company with over 10 million dollars in assets.
- Member of the Board of Directors of Alaska Clean Seas, an oil spill industry cooperative responsible to respond to oil spills on the North Slope of Alaska, both on land and in the Arctic Ocean.

Administration Manager - Alyeska Pipeline Service Company, Fairbanks, AK (2000 - 2002)

- Responsible to the Senior Vice-President for the delivery of administrative and support services including Human Resources, Training, Organizational Development, Safety, Security, Environmental, Document Control, Legal, Contracting, Finance, Business Planning, and Material Management.

Employee Concerns Program Director - Northeast Utilities, Waterford, CT

- Director of Employee Concerns Programs for 5 nuclear reactor plants.

Facility and Program Integration Manager - Rocky Flats Site, Golden, CO

- Managed the safe removal and packaging of highly enriched uranyl nitrate solutions, less than 4 liters of which if improperly handled could cause severe injury or death.
- Responsible for the storage and maintenance of six tons of weapons grade plutonium.

Chief of Staff, Submarine Group, U. S. Navy - New London, CT

- Responsible to the Group Commander for all aspects of the operation and performance of 54 nuclear submarines, 5 submarine squadrons, and 4 submarine tenders.

Commanding Officer, Submarine Tender - La Maddalena, Sardinia, Italy

- Supervised 1,200 technicians conducting nuclear component and other repairs on US, British, and French nuclear submarines.

Asst COS for Operations, Atlantic Submarine Force - Norfolk, VA

- Directed an operational staff of 50 to coordinate the movements and missions of all allied submarines operating in the Atlantic Ocean.

Commanding Officer, Nuclear Submarine - San Diego, CA

- Responsible for the ship's operational performance and all aspects of submarine, reactor plant, and nuclear weapons safety.

Chief Engineer, Nuclear Submarine - San Diego, CA

- Responsible for the operation and maintenance of the nuclear reactor, propulsion plant, and auxiliary support systems.

Education: BSEE, University of Notre Dame