Incorporating Risk-Based Decision-Making into Government Actions

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Presentation Outline

• Prescriptive vs. performance-based approaches to oil and gas oversight
  – What is it?
  – Why do we care?
• Regulatory approaches around the globe
• What how does DOG incorporate risk into our decisions?
• Future opportunities
Prescriptive Approach

- Using all known and available information, an agency “prescribes” exactly what an operator must do.

- Generally, prescriptive regulations provide a detailed, often itemized list of requirements that must be met.
Prescriptive Approach – When to use?

• Internal expertise is available

• Standardized approach is desired or necessary
Pros and Cons: Prescriptive Approach

Pro:
- Clarity in what is required of industry and how they comply
- Requiring consistent technologies can provide comparable data
- Specific protections desired by the public and stakeholders can be required

Con:
- Requirements may fail to anticipate unusual circumstances and/or results
- May not encourage innovation
- May limit an operator’s willingness to go beyond compliance
Performance-Based Approach

- The agency outlines performance objectives and acceptance criteria that the final product must comply with.
- Industry is free to use any method to achieve the desired outcome.
Performance-Based Approach – When to use?

• Inside expertise is not available

• A unique problem exists that requires a unique solution
Pros and Cons: Performance-Based Approach

Pros:
- Identification of performance goals allows focus on the goal and not the methods
- Freedom to use different technologies allows for innovation, cost-savings
- Specific outcomes desired by the public and stakeholders can be required

Cons:
- Requires more analysis and documentation to verify performance
- Requires a well-trained and active regulator
- Public and other stakeholders may not have trust in government or industry to ensure performance expectations are met
Prescriptive AND Performance-Based Approaches

• Must be risk-informed, tempering the inherent risks of the activity with the benefits of society.

• Are based on the same inputs.
  – Engineering and technical advice
  – Past experience
  – Stakeholder processes
  – Experience of other agencies/operators
Around the Globe

• US – generally prescriptive

• UK and Norway – generally performance-based and require safety cases/detailed risk assessments
Safety case/detailed risk assessment definition:

- A documented, facility specific, safety and environmental program that:
  - Identifies all hazards
  - Estimates risks
  - Demonstrates how these are prevented or mitigated to a stringent target of safety, merging both prescriptive and facility-specific requirements.
Safety Case Development and Continuous Improvement

Diagram showing the process of safety case development and continuous improvement over time, with stages such as identifying hazards, assessing risks, identifying controls, implementing controls, and managing safety. The diagram also illustrates the concept of ALARP (As Low As Reasonably Practicable) and the submission of safety cases.
In US and Alaska

- Generally prescriptive
- Some largely performance-based regulations:
  - PHMSA: Integrity Management
  - Labor: Process Safety Management
- Some performance-based elements
DO&G’s Assessment of Risks

- Best Interest Findings (BIFs)

- BIFs are required, by statute, to consider and discuss risk, among other factors.
Sample Mitigation Measures for the Beaufort Sea

Mitigation measures encompass a combination of prescriptive and performance-based measures.
Sample Mitigation Measures for the Beaufort Sea

Combination (prescriptive and performance-based) requirements: (Green = prescriptive, red = performance-based)

A(1)(c) To the extent practicable, the siting of facilities, other than docks, roads, utility, and pipeline crossings will be prohibited within 500 feet of all fish-bearing streams and water bodies and 1,500 feet from all current surface drinking water sources. Additionally, to the extent practicable, the siting of facilities will be prohibited within one-half mile of the banks of the main channel of the Colville, Canning, Sagavanirktok, Shaviovik, Kadleroshilik, and Kuparuk rivers. Facilities may be sited within these buffers if the lessee demonstrates to the satisfaction of the director, in consultation with ADF&G, that site locations outside these buffers are not practicable or that a location inside the buffer is environmentally preferred. Road, utility, and pipeline crossings must be consolidated and aligned perpendicular or near perpendicular to watercourses.
DO&G: Addressing Unique Needs and Risks

• Stay responsive to new developments
  – Solicit new information annually
  – Receive information from agencies, NGOs, local residents, and general public
  – Add or change mitigation measures as necessary
DO&G’s Follow-Through

• Compliance with Mitigation Measures:
  – DO&G assesses an applicant’s methods of complying with mitigation measures prior to issuing authorizations for surface activities
  – DO&G follows-up in the field for compliance (or not) with the approved plans
DO&G’s Assessment of Risks

Petroleum Systems Integrity Office

• Incident investigations:
  – Focus on processes and procedures that led to incident

• Moving towards Assessment Program
  – Proactive, on-going assessment of operator business practices and procedures that assess and mitigate risks, and whether those processes and procedures are fully implemented
Where do we go – Prescriptive vs. Performance-based approach?

→ somewhere in the middle

• Through stakeholder interaction, agencies need to continuously inform ourselves of current risks and re-evaluate regulations and mitigation measures to ensure we are still using the best approach