

# Comprehensive Evaluation and Risk Assessment of Alaska's Oil and Gas Infrastructure

## PROJECT MANAGEMENT PLAN

Prepared By



# **COMPREHENSIVE EVALUATION AND RISK ASSESSMENT OF ALASKA'S OIL AND GAS INFRASTRUCTURE PROJECT MANAGEMENT PLAN**

## **Project Management Plan Objectives**

This Project Management Plan (PMP) was prepared by Emerald Consulting Group LLC (EMERALD) and ABSG Consulting Inc. (ABS Consulting) to outline planning for the Comprehensive Evaluation and Risk Assessment of Alaska's Oil and Gas Infrastructure. This plan establishes guidelines for organizing, leading and tracking each phase of the project.

A well executed project requires effective planning, and a written PMP documents the planning and execution process for the project. Good judgment and project management principles will complement the intended use of these guidelines.

The size and complexity of a project determines the level of detail in the PMP. This PMP has been completed specific to the requirements defined in the RFP and Contract (Agency Contract No. 18-3019-08) to perform the Alaska Oil and Gas Risk Assessment.

## **Responsibility and Timing**

The EMERALD Project Manager is responsible for preparing and maintaining the PMP and coordinating all phases of the project. The PMP will be updated at the end of Phase 1 to reflect the outcome of the stakeholder consultation process and final risk assessment design.

Subsequent plan revisions will be implemented as agreed upon by EMERALD/ABS Consulting and the State of Alaska (State) when changes to the project baseline (e.g., scope, schedule, cost, etc.) occur.

## **Distribution**

The EMERALD Project Manager is responsible for proper distribution and file maintenance of the PMP and its updates. The PMP shall be distributed in accordance with the scope of work to the State Project Manager and representatives upon finalization and when updates occur which alter the agreed upon scope, schedule, or budget for the project.

# COMPREHENSIVE EVALUATION AND RISK ASSESSMENT OF ALASKA'S OIL AND GAS INFRASTRUCTURE PROJECT MANAGEMENT PLAN

## Revision Log

Rev. No.	Date	Section	Description	Approval
Rev. 0	7/25/08		Initial State of AK Approved Issue	Project Manager

## Authority Approval Signatures

<b>EMERALD PROJECT MANAGER</b>	
	7/29/08
<i>EMERALD Project Manager Signature</i>	<i>Date:</i>
<b>STATE OF ALASKA PROJECT MANAGER</b>	
	7/28/08
<i>State of Alaska Project Manager Signature</i>	<i>Date:</i>
<b>Comments:</b>	

## LIST OF ACRONYMS AND ABBREVIATIONS

Alaska Department of Environmental Conservation .....	ADEC
Alaska Oil & Gas Association .....	AOGA
Alaska Risk Assessment .....	ARA
American Bureau of Shipping .....	ABS
Cook Inlet Gas Gathering System.....	CIGGS
Cook Inlet Pipeline .....	CIPL
Health, Safety and Environment .....	HSE
Health, Safety and Environmental Management System.....	HSEMS
Integrity Management Standard.....	IM
Liquefied Natural Gas .....	LNG
Management of Change .....	MOC
Non-Governmental Organization.....	NGO
Point of Contact .....	POC
Project Management Plan .....	PMP
Quality Assurance .....	QA
Quality Control .....	QC
Scope of Work .....	SOW
State Agency Oversight Team .....	SAOT
Trans Alaska Pipeline System .....	TAPS
Valdez Marine Terminal .....	VMT
Work Breakdown Structure .....	WBS

## TABLE OF CONTENTS

---

<b>1.0</b>	<b>PROJECT OVERVIEW .....</b>	<b>1</b>
1.1	Project Objectives .....	1
1.2	Project Background.....	1
1.3	Project Scope .....	2
1.3.1	Geography.....	2
1.3.2	Infrastructure Components .....	3
1.3.3	Other Factors .....	3
1.4	Project Approach .....	4
1.5	Limitations.....	4
1.6	Critical Issues.....	4
1.7	Key Milestones and Schedule Considerations .....	5
1.8	Work Breakdown Structure (WBS).....	6
<b>2.0</b>	<b>PROJECT CONTROLS .....</b>	<b>7</b>
2.1	Project Schedule .....	7
2.2	Project Cost.....	7
2.3	Progress Reporting.....	8
2.4	Management of Change .....	8
<b>3.0</b>	<b>STAFFING MANAGEMENT PLAN .....</b>	<b>10</b>
3.1	Staffing Plan .....	10
3.1.1	Roles and Responsibilities .....	12
3.1.2	Personnel Competency .....	15
<b>4.0</b>	<b>COMMUNICATION MANAGEMENT PLAN .....</b>	<b>16</b>
4.1	Project Team Communication .....	16
4.1.1	Internal Project Team.....	16
4.1.2	State Interface .....	16
4.2	Stakeholder Communication.....	17
4.2.1	Stakeholder Communication Methods.....	18
4.2.2	Interested Parties.....	19
4.2.1	Infrastructure Owners/Operators .....	19
4.3	Communications Matrix .....	20
<b>5.0</b>	<b>QUALITY ASSURANCE/CONTROL (QA/QC).....</b>	<b>21</b>
<b>6.0</b>	<b>HEALTH, SAFETY, AND ENVIRONMENTAL (HSE) PROGRAMS .....</b>	<b>21</b>
<b>7.0</b>	<b>PHASE 1 – DESIGN RISK ASSESSMENT METHODOLOGY .....</b>	<b>21</b>
7.1	Task 1a – Project Plan .....	21
7.2	Task 1b – Consultation with Stakeholders.....	22
7.2.1	Consultation Overview .....	22
7.2.2	Consultation Objectives .....	22
7.2.3	Stakeholder Identification.....	23
7.2.4	Consultation with Interested Parties .....	23
7.2.5	Consultation with Oil & Gas Industry .....	25
7.3	Task 1c – Review Existing Information and Data .....	25
7.3.1	Identify Data/Information Sources .....	25
7.3.2	List of Data/Information Sources.....	26

7.4	Task 1d – Develop Interim Report.....	26
7.5	Task 2 – Proposed Risk Assessment Design .....	27
	7.5.1 Design Development Overview .....	27
	7.5.2 Application of Risk Assessment Methodology and Tools.....	27
	7.5.3 Risk Advisory Team Input.....	28
	7.5.4 Proposed Risk Assessment Design Report .....	29
7.6	Task 3 – Evaluate Risk Assessment Design .....	29
	7.6.1 Support of Independent Peer Review .....	29
	7.6.2 Support of Public Review .....	29
	7.6.3 Public and Peer Review Summary Document .....	30
7.7	Task 4 – Proposed Final Risk Assessment Design .....	30
7.8	Task 5 – Final Risk Assessment Design .....	30
<b>8.0</b>	<b>PHASE 2 – IMPLEMENT RISK ASSESSMENT METHODOLOGY.....</b>	<b>30</b>
8.1	Task 6 – Implement Risk Assessment .....	30
<b>9.0</b>	<b>PHASE 3 – ANALYZE RISK ASSESSMENT DATA, RECOMMEND MITIGATION MEASURES AND DEVELOP FINAL REPORT .....</b>	<b>31</b>
9.1	Task 7 – Produce Draft Risk Assessment Report .....	31
9.2	Task 8 – Produce Final Report and Presentation .....	31
<b>10.0</b>	<b>DELIVERABLES .....</b>	<b>31</b>
10.1	Deliverable List.....	31
<b>11.0</b>	<b>DOCUMENTATION .....</b>	<b>32</b>
11.1	Documentation Management and Confidentiality .....	32
<b>12.0</b>	<b>PROJECT CLOSE-OUT .....</b>	<b>32</b>
12.1	Closeout Report .....	32
12.2	Lessons Learned .....	33
12.3	Contract Closeout .....	33
	<b>APPENDIX A – CONTRACT SCOPE OF WORK (SOW).....</b>	<b>A-1</b>
	<b>APPENDIX B – DETAILED PROJECT SCHEDULE .....</b>	<b>B-1</b>
	<b>APPENDIX C – APPROVED STAKEHOLDER LIST .....</b>	<b>C-1</b>
	<b>APPENDIX D – MANAGEMENT OF CHANGE (MOC) FORM .....</b>	<b>D-1</b>
	<b>APPENDIX E – PROGRESS REPORT TEMPLATE .....</b>	<b>E-1</b>

## **LIST OF FIGURES**

---

Figure 1-2. Work Breakdown Structure.....	6
Figure 2-1. MOC Process .....	9
Figure 3-1. Project Organizational Chart.....	11
Figure 4-1. Stakeholder Communication Organization .....	18
Figure 7-1. Target Stakeholder Locations.....	24

## **LIST OF TABLES**

---

Table 1-1. Geographic Areas .....	2
Table 1-2. Infrastructure Components .....	3
Table 1-3. Other Factors .....	3
Table 3-1. Responsibility Assignment Matrix .....	14
Table 3-2. Approved Personnel Roster .....	15
Table 4-1. Project Contact List .....	17
Table 4-2. Communications Matrix.....	20

## 1.0 PROJECT OVERVIEW

### 1.1 Project Objectives

EMERALD, in collaboration with subcontractor ABS Consulting, has been contracted by the State of Alaska Department of Environmental Conservation (ADEC) to conduct a comprehensive, engineering-oriented baseline risk assessment of the entire oil and gas infrastructure in Alaska. The State Legislature's stated purpose for the risk assessment is to:

*"...baseline the condition of Alaska's oil and gas production, storage and transportation system and evaluate the economic, environmental and safety risks associated with continued operation for another generation and recommend measures to mitigate those risks."*

The EMERALD/ABS Consulting Team's goal is to accomplish the State's vision for the Risk Assessment. In order to reach that goal, the Team has identified the following objectives:

- Provide state and federal agencies with the information necessary to perform their mandated duties of overseeing the steady flow of oil and gas without unplanned interruptions in production, while protecting the environment and the public's safety.
- Actively seek and incorporate stakeholder cooperation and input from relevant state and federal agencies, industry, local governments, and other stakeholders. Consider stakeholder participation in assisting the State in determining a definition of "unacceptable consequences" for use in this project.
- Provide meaningful results that demonstrate a comprehensive risk "picture" of the State's oil and gas infrastructure, including insights into how risks to the Alaska Oil and Gas Industry infrastructure are currently controlled and practical recommendations for mitigating future threats to that infrastructure.
- Accomplish the project scope as agreed upon within the contracted budget of \$4.1M and by the expected completion date of June 1, 2010.

### 1.2 Project Background

The Alaska oil and gas industry provides a crucial source of energy for the nation, accounting for approximately 20% of U.S. domestic production. In addition, Alaska's economic wellbeing requires effective stewardship of statewide oil and gas resources. Oil and gas production is a primary revenue source for Alaska, contributing approximately 85% of the State's total revenue. The reliability of the oil and gas infrastructure is a continuing vital concern and the infrastructure must be maintained to ensure the safety of operational personnel and the general public, protect Alaska's environment, and ensure uninterrupted oil and gas production and flow.

Alaska's oil and gas infrastructure is a complex combination of systems operated by several different organizations. Over the years, new parts have been added and older parts have been modernized. Changes have been made to increase efficiency and production, improve integrity, and adapt to changes in field characteristics. At the same time, Alaska's oil and gas infrastructure is aging, and the recent pipeline leaks and corrosion issues raise questions about the condition of the infrastructure as well as the standards and practices in place to maintain it. While past incidents indicate infrastructure failures that have the potential to cause major oil spills, it is unreasonable to assume the next infrastructure failure will be similar to past failures.

Past incidents alone are not reliable predictors of future problems, and oversight of the integrity of the system requires rigorous analysis to anticipate and prevent future problems before they occur. The outcome of this risk assessment will be a “picture” of the system as it stands today, highlighting the infrastructure components with the highest threats of failure and highest consequence of loss.

The Trans Alaska Pipeline System (TAPS) and other infrastructure components have been assessed at various times, but no comprehensive risk assessment regarding the integrity of the complete oil and gas infrastructure system has ever been conducted in Alaska.

### 1.3 Project Scope

The State has established high level parameters for the scope of this project which will be defined in detail through Phase 1 activities. The scope described below includes the expected geographic and physical components as well as intrinsic and extrinsic factors that will be evaluated during the risk assessment. EMERALD/ABS Consulting will work to determine the content of the risk assessment during Phase 1 of the project, incorporating the input of the State Agency Oversight Team (SAOT) and federal agencies, oil and gas infrastructure owners/operators, and other stakeholders. The final scope will be approved by the State during Phase 1.

#### 1.3.1 Geography

The risk assessment includes Alaska’s entire oil and gas production, storage, and transportation systems from wells to marine terminal loading arms. The geographic scope of this project is depicted in **Table 1-1**:

*Table 1-1. Geographic Areas*

Included	Excluded
<ul style="list-style-type: none"> <li>• North Slope Infrastructure, including production facilities and pipelines up to Pump Station 1</li> <li>• Trans Alaska Pipeline System (TAPS), including the Valdez Marine Terminal (VMT) up to the marine terminal loading arms</li> <li>• Cook Inlet Infrastructure, including production facilities, the Cook Inlet Gas Gathering System (CIGGS) up to the Nikiski LNG Plant and the Cook Inlet Pipeline (CIPL) up to the Drift River Marine Terminal loading arms (Cook Inlet will be considered in the initial phase of this project.)</li> </ul>	<ul style="list-style-type: none"> <li>• Areas of future oil and gas development (i.e., areas where production operations begin after the commencement of this project, July 1, 2008)</li> </ul>

### 1.3.2 Infrastructure Components

The risk assessment will consider the following existing physical components of the Alaska oil and gas infrastructure in **Table 1-2**:

*Table 1-2. Infrastructure Components*

Included	Excluded
<ul style="list-style-type: none"> <li>• Production wells</li> <li>• Gathering lines (flowlines from wells upstream of processing center)</li> <li>• Facility piping</li> <li>• Crude oil pipelines</li> <li>• Gas and water injection systems (including wells)</li> <li>• Gas transport pipelines integral to operating infrastructure (Cook Inlet)</li> <li>• Oil and gas processing and treatment</li> <li>• Waste management and disposal (re-injection materials)</li> <li>• Storage tanks</li> <li>• Terminals</li> <li>• Marine loading facilities</li> <li>• Support systems (e.g. utility systems, electric power, fuel systems, water supplies, control/communications systems)</li> </ul>	<ul style="list-style-type: none"> <li>• Marine transportation (e.g., tankers and other marine infrastructure)</li> <li>• Refineries and product distribution lines not integral to operating infrastructure</li> <li>• Exploration and other future development infrastructure (e.g., drilling rigs)</li> <li>• Reservoir maintenance</li> <li>• Future facilities or projects (i.e., production operations with planned start-up after the commencement of this project, July 1, 2008)</li> </ul>

### 1.3.3 Other Factors

The project will consider several intrinsic and extrinsic factors that weigh into the comprehensive risk “picture” for existing oil and gas infrastructure. Factors that are included and excluded are shown in **Table 1-3**:

*Table 1-3. Other Factors*

Included	Excluded
<ul style="list-style-type: none"> <li>• Original design/operating life</li> <li>• Natural aging process (corrosion, abrasion, wear, and fatigue)</li> <li>• Operating procedures and standards</li> <li>• Maintenance and management</li> <li>• Regulations and agency oversight</li> <li>• Foreseeable changes in oil type such as increase in heavy oils</li> <li>• Natural hazards (earthquake, tsunami, severe weather, ice, volcanic, etc.)</li> </ul>	<ul style="list-style-type: none"> <li>• Security issues</li> <li>• Intentionally man-made hazards (e.g., terrorist attacks or sabotage)</li> <li>• Other extractive industries</li> <li>• Market conditions (e.g., commodity prices that drive the economics of shutting in operations)</li> </ul>

## 1.4 Project Approach

The EMERALD/ABS Consulting team will implement both technical and project management practices to ensure success in achieving established objectives. Central to this effort is exceptional communication within the project team and with stakeholders. Well-established communication channels to obtain input and feedback are important throughout the project life-cycle but are especially vital on the front end, when the risk assessment methodology is under development.

EMERALD/ABS Consulting will use the following elements to manage the three phases of the project:

- Approved Project Management Plan (PMP)
- Detailed project schedule
- Approved budget (per contract)
- Communications including meetings and progress reports

## 1.5 Limitations

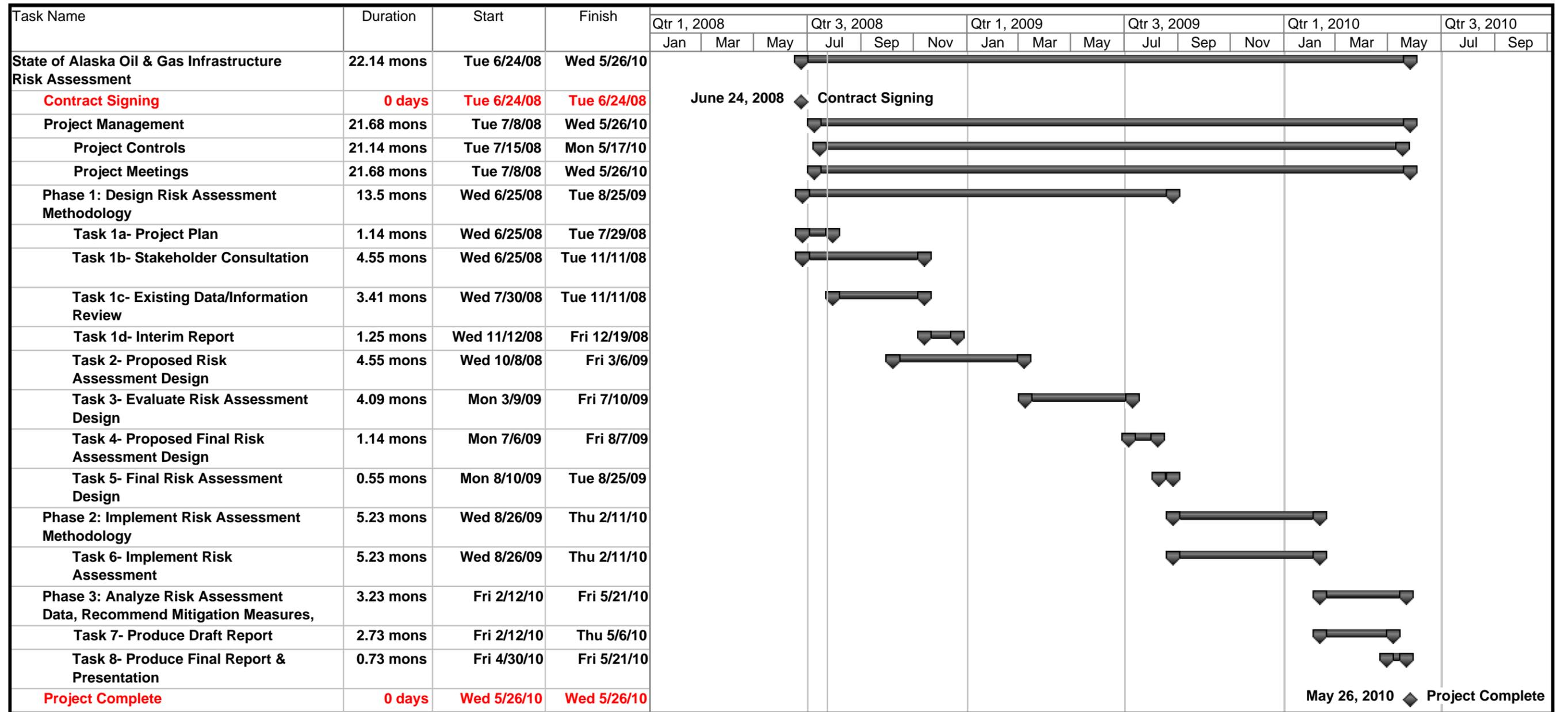
The scope as defined in the contract is achievable within the allotted project funding and time constraints. The level of detail that can be achieved commensurate with these constraints will be defined during the Phase 1 scoping process. EMERALD/ABS Consulting will work with the State to focus project work to the appropriate level of detail so the overall objectives can be achieved.

## 1.6 Critical Issues

Issues critical to the successful completion of the project include the following:

- *Cooperation from Infrastructure Owners/Operators* – Support from owner/operators is essential to achieving successful results in the Risk Assessment. Therefore, strategies for obtaining information will be developed with due consideration to industry concerns as identified. Creating an open dialog with industry will help facilitate this process. Consequently, EMERALD/ABS Consulting will emphasize the potential benefits of the project fostering a win-win project culture.
- *Reaching an appropriate definition of “unacceptable consequences” and risk factors* – The development of the methodology for the Risk Assessment requires the input of diverse stakeholders, who have different perceptions of what risk factors should be considered and what constitutes an “unacceptable consequence.” A decision regarding the best approach for the level of consequences and unacceptable risks must be made in order to achieve the objectives of this project. The SAOT will be responsible for making this decision, and will be the final arbiter in determining what constitutes “unacceptable consequences” for the purposes of this project. The EMERALD/ABS Consulting team will provide options to assist the SAOT in making this decision. The team’s input will consider all relevant stakeholder viewpoints while developing these options.
- *Obtaining methodology support from evaluators* – The proposed methodology will be reviewed by multiple entities, including the SAOT, a third-party peer review entity, and the public. The methodology should appropriately consider input from all stakeholders and thoroughly meet the State’s vision for the risk assessment, as well as be technically sound and aligned with industry standards for risk assessments.

1.7 Key Milestones and Schedule Considerations



## 1.8 Work Breakdown Structure (WBS)

The hierarchy shown below defines the scope of the project visually and organizes major components of work to be accomplished first by phase and subsequently by deliverable. This WBS is reflective of the project schedule, which mirrors it with additional layers of detail by outlining project activities.

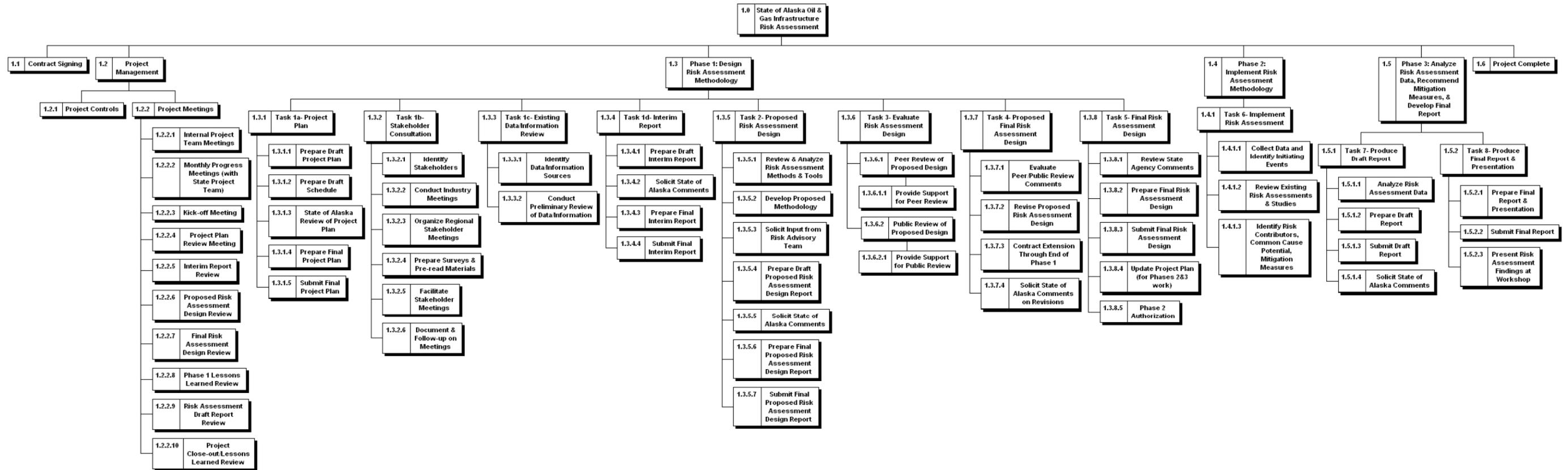


Figure 1-1. Work Breakdown Structure

## **2.0 PROJECT CONTROLS**

### **2.1 Project Schedule**

The EMERALD/ABS Consulting team has developed and will maintain a detailed project schedule for this project using Microsoft Project® scheduling software. The schedule encompasses all phases of the project and is organized based on the outline provided in the Contract SOW. The schedule will reflect major activities, key milestones and deliverable due dates for the project. Durations, start/end dates, resource loading, task relationships and other critical information have been assigned to each activity. The detailed schedule is included in Appendix B.

A baseline will be established after the schedule is approved by the State. Changes to this baseline schedule that impact the expected completion date of June 1, 2010 will be routed through the Management of Change (MOC) process described in Section 2.4. Each monthly progress report submitted to the State will include a progressed schedule detailing percent complete for each task and identification of tasks that are behind and/or ahead of schedule.

The EMERALD/ABS Consulting team will complete all work associated with this project no later than June 1, 2010.

### **2.2 Project Cost**

The EMERALD/ABS Consulting team has completed an estimate of labor and direct costs required to accomplish the scope of work. The contract type is cost, based on labor rates as agreed upon in the contract, plus fixed fee, which will be billed on monthly invoices based on percent complete by project phase. The EMERALD/ABS Consulting team will accomplish the scope of work as agreed upon within the State budget of \$4.1M.

The EMERALD/ABS Consulting team will work to maximize value to the State for costs incurred during the course of the project and will employ cost control methodology to track and communicate expenditures. Invoices with certified timesheets for EMERALD and all subcontractors will be submitted in accordance with the payment schedule to the State Project Manager for approval. Throughout the project, cost reports will be submitted as a component of the monthly progress report. Cost reports will break down the work by task and will include at a minimum:

- Original Budget
- Approved Change Orders / Contract Amendments
- Current Budget
- Total Expended Cost
- Period Expended Cost
- Total Percent Complete
- Variance from Budget

In addition to the cost reporting data listed above, forecasting information will be included in progress reports to articulate potential risks and issues that may affect project cost in upcoming activities.

Potential changes to the project scope affecting the approved project budget of \$4.1M will be managed using the MOC process. The EMERALD/ABS Consulting team will proceed with additional work only after the State Project Manager has approved a firm price for the work and issued a written contract amendment approved by the ADEC Commissioner.

## **2.3 Progress Reporting**

The EMERALD Project Manager is designated as the main point of contact for progress reporting, and will produce and submit progress reports to the State throughout the project on the 15<sup>th</sup> of each month.

Progress reports will include the following components:

- Project Status—a brief narrative description of work completed over the reporting period
- Schedule and Cost Overview
- Risks
- Changes
- Progressed Schedule reflected percent complete by task
- Cost Report

## **2.4 Management of Change**

The EMERALD/ABS Consulting team will use a structured Management of Change (MOC) process to manage changes to the project that impact the agreed upon scope, project end date of June 1, 2010, or budget of \$4.1M. The MOC flowchart below (**Figure 2-1**) outlines the process for requesting and gaining approval for a change to this project. Changes will be documented using the MOC Form included in Appendix D and assessed and approved by the State. Change requests will be cataloged and tracked on a Change Log.

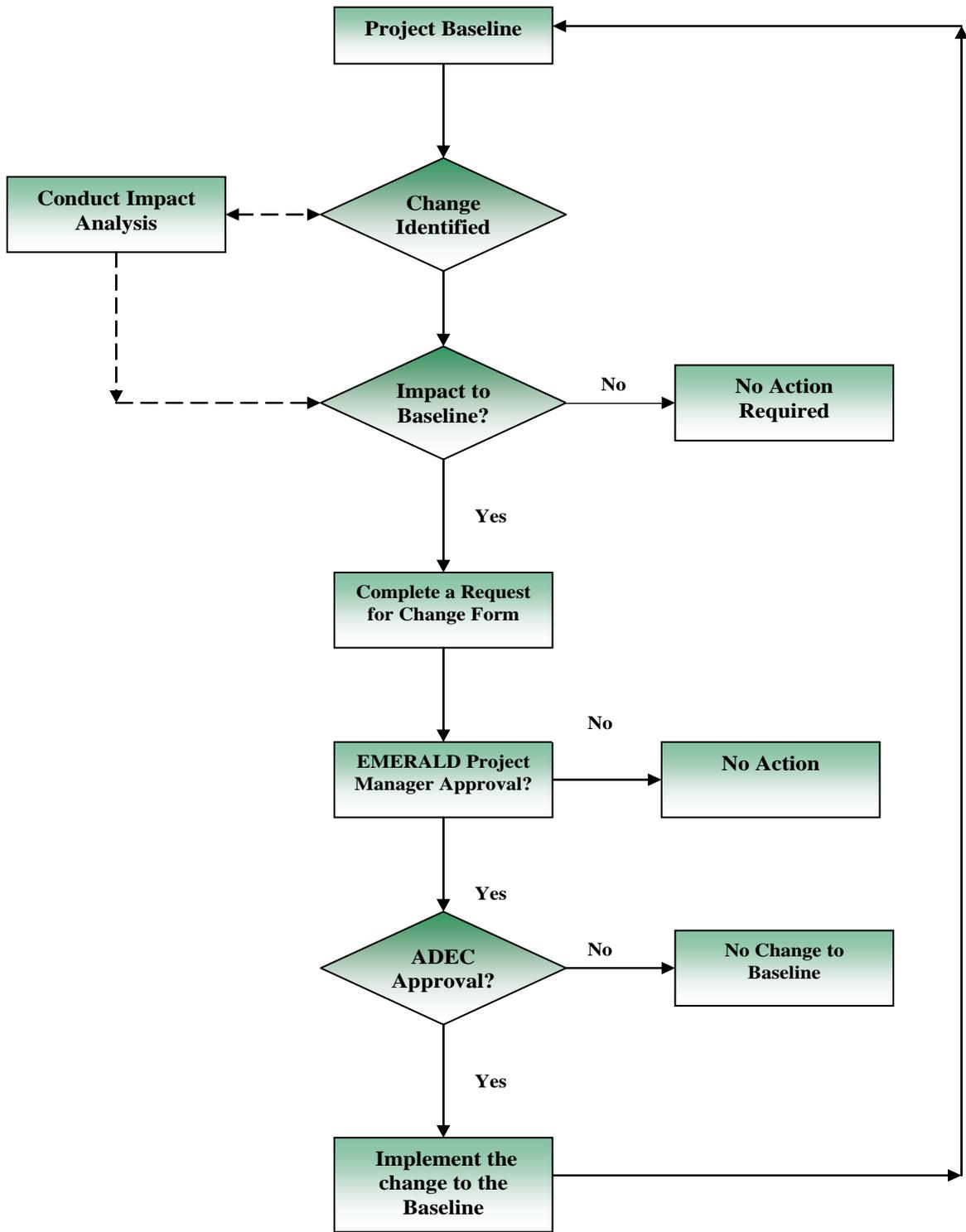


Figure 2-1. MOC Process

## **3.0 STAFFING MANAGEMENT PLAN**

### **3.1 Staffing Plan**

EMERALD will lead the project as a local Alaska Professional Engineering firm with extensive experience in oil and gas risk assessment, Alaska oil and gas facilities, and Alaska stakeholder management. ABS Consulting will support the project team as a subcontractor by providing cutting edge risk assessment methodology, tools, and design. Grady and Associates will support the project team as a subcontractor with a unique background in Alaska community relations and stakeholder management. A project organizational chart detailing lines of management and key roles is detailed below.

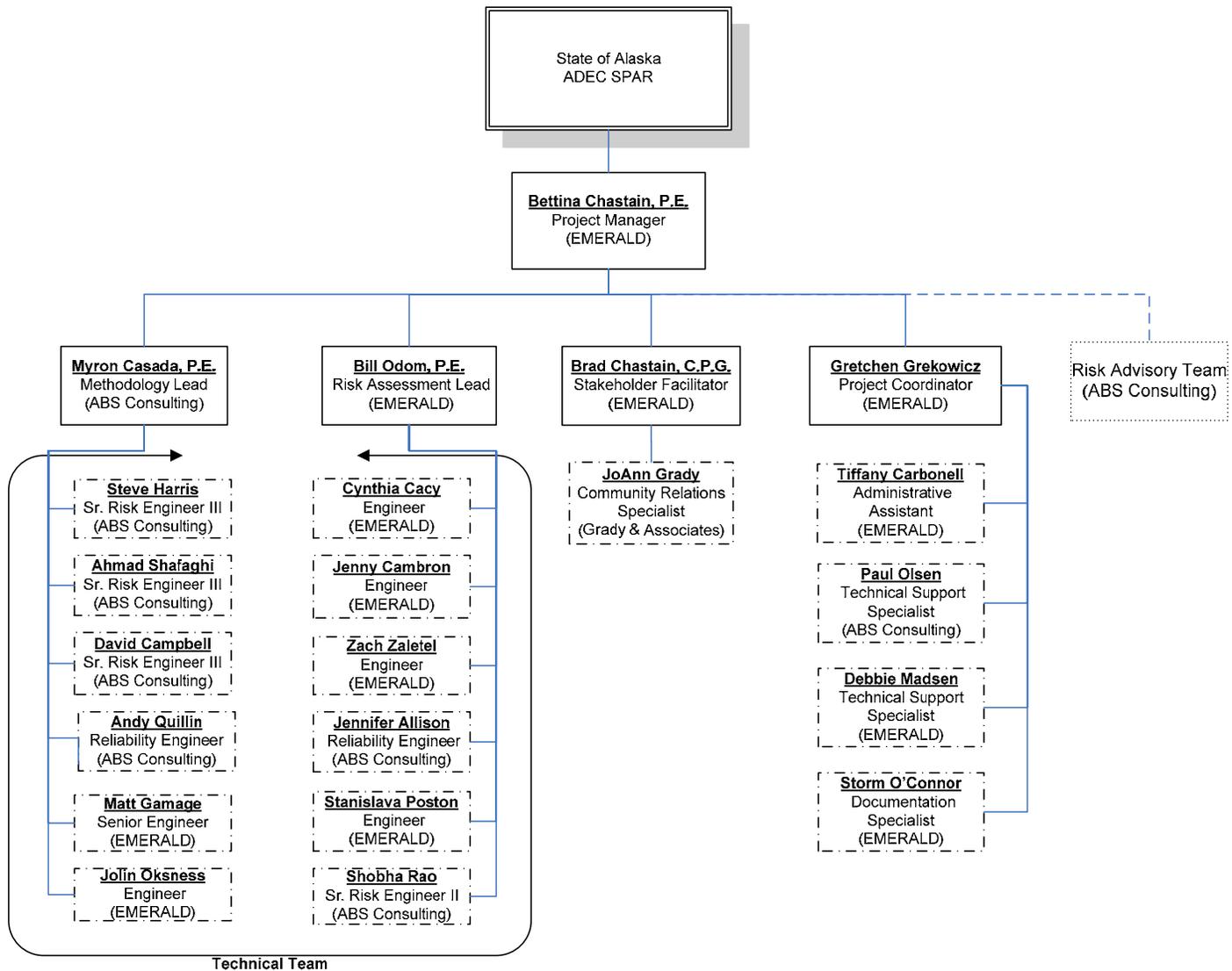


Figure 3-1. Project Organizational Chart

### 3.1.1 Roles and Responsibilities

The EMERALD/ABS Consulting team has carefully considered key staffing roles to meet established project requirements and has designated individuals based on core competencies and previous experience to maximize value to the State. The following role descriptions detail the function of each project team member. A detailed Responsibility Assignment Matrix outlining participation level by project task is included in **Table 3-1**. The project will only utilize personnel who have been formally approved per the Contract, and any changes to project staffing will be executed using the MOC form in **Appendix D**.

- **State of Alaska Project Manager:** The State of Alaska Project Manager is responsible for overseeing and endorsing the efforts of the Risk Assessment to ensure that the State's objectives are being met. The State of Alaska Project Manager provides support and resources to assist with the project.
- **Project Manager** (*Bettina Chastain, EMERALD*): This position is the primary point of accountability to the State for the project and is responsible for ensuring that State expectations are met and that the project is delivered on time and within budget. The Project Manager manages project resources, both human and financial, to maximize project outputs and is the senior technical lead for the project. The Project Manager facilitates the project team to ensure seamless integration of EMERALD and ABS Consulting team resources. The Project Manager leads the stakeholder consultation process, peer, and public reviews.
- **Methodology Lead** (*Myron Casada, ABS Consulting*): The Methodology Lead collaborates with the EMERALD Project Manager, manages project resources to ensure delivery of ABS Consulting project commitments, and is the ABS Consulting Project Manager. The Methodology Lead is responsible for designing customized risk assessment tools and methodology for the project, supporting implementation of the design, participating in stakeholder consultation as a technical resource, and contributing to production of deliverables.
- **Project Coordinator** (*Gretchen Grekowicz, EMERALD*): The Project Coordinator is responsible for facilitating day-to-day work on the project and for successful completion of project deliverables including reports, plans, and status reports throughout all phases of the project. The Project Coordinator organizes, coordinates, and documents stakeholder communication.
- **Risk Advisory Team** (*ABS Consulting*): The Risk Advisory Team provides senior level technical expertise for review of and aid in the development of the Risk Assessment methodology. This includes providing expert opinions on the design of the methodology, with an emphasis on ensuring that the final methodology is technically sound and based upon established industry standards for risk assessment. The Team will be responsible for endorsing the methodology design.
- **Stakeholder Facilitator** (*Brad Chastain, EMERALD*): The Stakeholder Facilitator shares responsibility with the EMERALD Project Manager for planning and leading stakeholder consultation meetings and responding to stakeholder inquiries during Phase 1 of the project.
- **Community Relations Specialist** (*JoAnn Grady, Grady & Associates*): The Community Relations Specialist provides specialized expertise in planning stakeholder meetings and support for stakeholder communications, as required. The

Community Relations Specialist provides expertise to the project team with regard to interaction with the public, government agencies, Alaska Oil and Gas Industry, and non-governmental agencies.

- **Risk Assessment Lead** (*Bill Odom, EMERALD*): The Risk Assessment Lead directs execution of the approved risk assessment design, including management of engineering field crews and data collection.
- **Engineers** (*EMERALD/ABS Consulting*): Engineers implement approved risk assessment design within designated parameters including data collection in the field, interviews, and other established activities as defined during Phase 1 of the project.
- **Documentation Specialist** (*Storm O'Connor, EMERALD*): The Documentation Specialist manages document control, provides information for posting on the project website (hosted by Nuka Research), and tracks the project schedule and budget progress for incorporation into monthly progress reports. In addition, the Documentation Specialist will maintain a Communications Log to track all relevant phone, email and in-person communications as necessary.
- **Technical Support Specialists** (*Debra Madsen, EMERALD*): Technical Support Specialists provide technical writing and graphics expertise in support of stakeholder communications and deliverable preparation.
- **Administrative Assistant** (*EMERALD*): The Administrative Assistant provides support for compilation, printing, and delivery of project deliverables. The Administrative Assistant coordinates travel preparations and other support functions on an as-needed basis.

Table 3-1. Responsibility Assignment Matrix

RAECI Chart Definitions: <b>R</b> esponsible: Individual responsible leading the work. <b>A</b> ccountable: Individual that is ultimately answerable for the work. <b>E</b> ndorse: Individuals that must approve the work. <b>C</b> ontribute: Individuals that will participate in the work by providing input or contributing to deliverables. <b>I</b> ncome: Once the work is finalized, these individuals should receive a copy.		ADEC		EMERALD								ABS Consulting		Grady	
		State Project Manager	Project Manager	Project Coordinator	Stakeholder Facilitator	Risk Assessment Lead	Engineers	Documentation Specialist	Technical Support Specialist	Administrative Assistant	ABSC Project Lead	Engineers	Technical Support Specialist	Risk Advisory Team	Community Relations Specialist
<b>Phase 1 Design Risk Assessment Methodology</b>															
Task 1	Project Plan	E	A,R	R	I	I	N/A	C	C	C	C	N/A	C	N/A	I
	Consultation with Stakeholders	E	A,R	C	C	I	N/A	I	C	C	C	C	C	N/A	C
	Review Existing Information and Data	E	A,R	C	I	I	N/A	I	I	N/A	R	C	I	N/A	N/A
	Interim Report (Draft and Final)	E	A	R	I	I	N/A	I	C	C	C	C	C	N/A	I
Task 2	Proposed Risk Assessment Design	E	A,R	C	I	I	N/A	I	C	N/A	R	I	C	E	N/A
	Technical Assistance with Peer Review Entity	E	A,R	C	C	I	N/A	C	C	C	C	C	C	N/A	C
	Support of Public Review of Proposed Design	E	A,R	C	C	I	N/A	I	C	C	R	C	C	N/A	C
Task 3	Public and Peer Review Summary	E	A	R	C	I	N/A	I	C	C	C	N/A	C	N/A	C
	Proposed Final Risk Assessment Design	E	A,R	C	I	I	N/A	I	C	C	R	C	C	N/A	N/A
Task 4	Final Risk Assessment Design	E	A,R	C	I	I	I	C	C	C	R	I	C	N/A	N/A
Task 5	Final Risk Assessment Design	E	A,R	C	I	I	I	C	C	C	R	I	C	N/A	N/A
<b>Phase 2 Implement Risk Assessment Methodology to Identify Risk Factors</b>															
Task 6	Implement Risk Assessment	E	A	C	I	R	C	I	C	C	C	C	C	N/A	N/A
	Status Reports	E	A	R	I	C	C	I	C	C	C	C	C	N/A	N/A
<b>Phase 3 Analyze Risk Assessment Data, Recommend Mitigation Measures, and Develop Final Report</b>															
Task 7	Draft Final Report	E	A	R	I	C	C	I	C	C	C	C	C	I	N/A
Task 8	Final Report	E	A	R	I	C	C	I	C	C	C	C	C	E	N/A
	Project Presentation/Workshop	E	A,R	C	C	I	N/A	I	C	C	C	N/A	C	N/A	N/A
	Raw Data Files & Metadata Submission	E	A	R	I	I	C	I	C	N/A	C	C	C	N/A	N/A

\*The "Project RAECI Chart" details project team member levels of participation by designating Responsible, Accountable, Endorse, Contribute, and Inform (RAECI) roles for each task to be performed.

### 3.1.2 Personnel Competency

The EMERALD/ABS Consulting team is composed of highly experienced risk assessment professionals with extensive oil and gas infrastructure risk assessment experience, including local Alaska industry, large-scale risk assessment, and Alaska stakeholder management expertise, all of which are essential to achieving the State's target outcomes for this project.

Senior level engineers and managers, as well as highly qualified support staff, will be utilized to execute project tasks. A list of approved personnel per the Contract is shown below in **Table 3-2**. Resumes have been provided and can be referenced for information on approved personnel. Changes to this Approved Personnel Roster will be routed through the MOC process and formally approved by the State Project Manager.

*Table 3-2. Approved Personnel Roster*

Name	Title/Personnel Category
<b>EMERALD</b>	
Bettina Chastain	Project Manager
Gretchen Grekowitz	Project Coordinator
Brad Chastain	Stakeholder Facilitator
Bill Odom	Risk Assessment Lead
Debbie Madsen	Technical Support Specialist
Storm O'Connor	Documentation Specialist
Tiffany Carbonell	Administrative Assistant
Matt Gamage	Senior Engineer
Cynthia Cacy	Engineer
Jenny Cambron	Engineer
Jolin Oksness	Engineer
Stanislava Poston	Engineer
Zach Zalatel	Engineer
<b>ABS Consulting</b>	
Myron Casada	Methodology Lead
Steve Harris	Senior Risk Engineer III
Ahmad Shafaghi	Senior Risk Engineer III
David Campbell	Senior Risk Engineer III
Vernon Guthrie	Senior Risk Engineer III
Shobha Rao	Senior Risk/Reliability Consultant II
James Rooney	Senior Risk/Reliability Consultant II
Paul Thenhaus	Senior Risk/Reliability Consultant II
Andrew Quillin	Senior Risk/Reliability Consultant I
Tazim Rehmat	Senior Risk/Reliability Consultant I
Jennifer Allison	Reliability Engineer
Paul Olsen	Professional Admin Support
David Montague	Senior Risk Advisor

Name	Title/Personnel Category
Steve Arendt	Senior Risk Advisor
Henrique Paula	Senior Risk Advisor
David Johnson	Senior Risk Advisor
<b>Grady and Associates</b>	
JoAnn Grady	Community Relations Specialist

## 4.0 COMMUNICATION MANAGEMENT PLAN

Success of this project hinges upon effective communication between project team members, interfaces with the State, and acquiring strong stakeholder buy-in. The EMERALD/ABS Consulting team intends to institute clear communication channels early in the project by identifying key individuals and their informational needs, ensuring those needs are met, and monitoring the effectiveness of communication throughout the project. An overview of this strategy is included below.

### 4.1 Project Team Communication

#### 4.1.1 Internal Project Team

The EMERALD/ABS Consulting team intends to seamlessly unify its resources. To achieve this objective, each company has assigned technical leads who report to the Project Manager. The Project Manager will work closely with project staff to ensure consistent alignment with project objectives. In addition to daily interface, the following methods will be employed to strengthen project team communication.

- **Role and Responsibility Planning** – To ensure a unified team approach, a hierarchy has been established to delineate lines of management, assign roles and responsibilities, and define participation levels for each deliverable. Documentation of these efforts has been included throughout this PMP and will be communicated to the Project Team accordingly.
- **Internal Project Team Meetings** – Weekly project meetings with EMERALD and ABS Consulting will be held to evaluate progress and plans for upcoming project tasks. Each meeting will address project status, schedule tracking, upcoming work, potential challenges, risk review, and lessons learned.

#### 4.1.2 State Interface

The EMERALD Project Manager has been designated as the single point of accountability for communication with the State. The Project Coordinator will supervise day-to-day project coordination and communication to resolve issues requiring state involvement. Contact information is as follows:

Table 4-1. Project Contact List

Name	Title	Phone	Email
Bettina Chastain	Project Manager	(907) 258-8137	bchastain@emeraldalaska.com
Gretchen Grekowitz	Project Coordinator	(907) 258-8137	ggrekowitz@emeraldalaska.com

The EMERALD Project Manager will work collaboratively with the State throughout each phase of the project to ensure the vision and intent of the project is fulfilled. State guidance will be sought when questions arise as to the direction and focus of the risk assessment, given the allotted budget and time constraints.

The following methods will be employed to facilitate interface between the Project Team and the State.

- **Monthly Progress Meetings** – The EMERALD Project Manager will hold monthly meetings throughout the project to update the State on project goals, methods, progress, and milestones with support from key members of the project team.
- **Progress Reports** – The EMERALD Project Manager will produce and submit monthly progress reports to the State throughout the project. Progress reports will include a brief narrative description of work completed over the reporting period, schedule and cost overview, risks, changes, progressed schedule reflecting percent complete by task, and a cost report.

## 4.2 Stakeholder Communication

A robust and transparent communications process with stakeholders is vital to the success of the risk assessment. Prior to contract award, the State worked to identify high level stakeholder categories and initiate communication with each stakeholder group. The organizational structure resulting from this effort places the State at the center of communication channels directly interfacing with each major stakeholder category, each of which is represented by an advisory group. The stakeholder interface structure created by the State is displayed below in **Figure 4-1**.

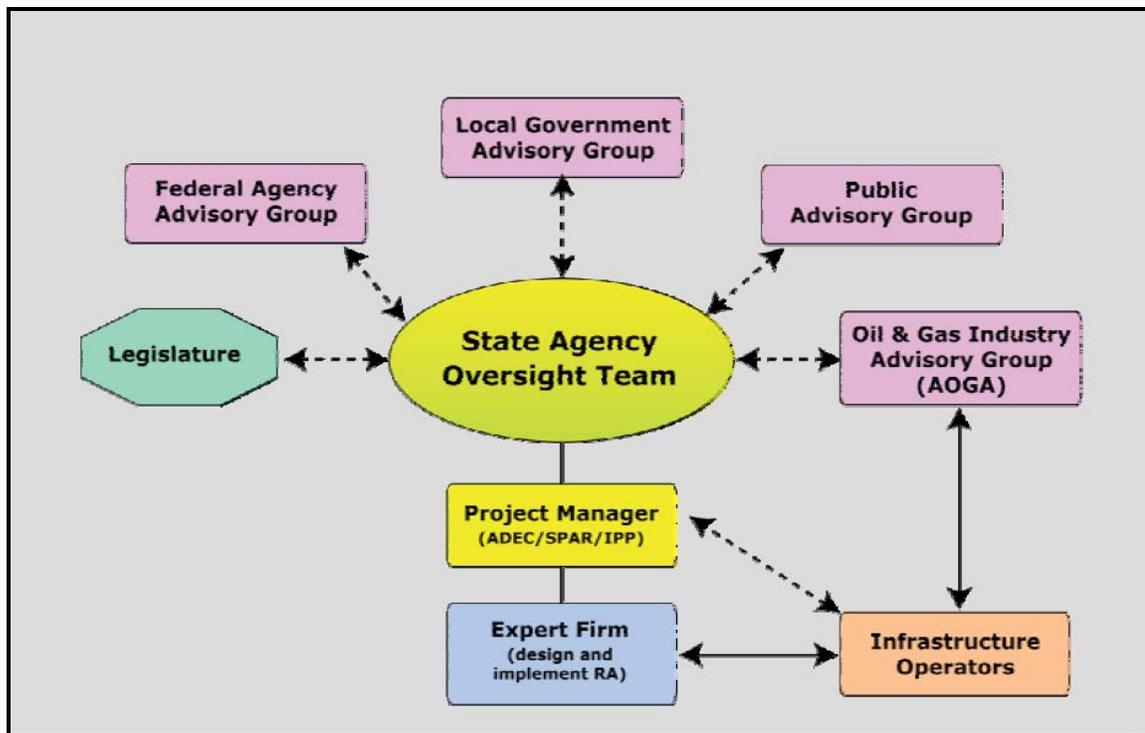


Figure 4-1. Stakeholder Communication Organization

#### 4.2.1 Stakeholder Communication Methods

To fully engage and solicit participation from stakeholders, multiple avenues for input will be established. EMERALD/ABS Consulting involvement in this effort will include the following:

- **Stakeholder Website Contributions** – The EMERALD/ABS Consulting team will provide content to the State of Alaska Risk Assessment website (hosted by Nuka Research). Postings will include outreach for upcoming events and official consultation meetings; consultation pre-read materials, surveys, schedules, agendas, presentations, and meeting minutes; status updates for the public, and selected deliverables as approved by the State.
- **Surveys** – Surveys will be developed during Phase 1 to solicit information from stakeholders. The surveys will be posted on the project website, as well as provided before and during meetings to key contacts. Two surveys will be developed, one for non-industry stakeholder input and one for infrastructure owner/operator input. Refer to **Section 7.2** for further details.
- **Regional Stakeholder Meetings** – The EMERALD/ABS Consulting team will provide project personnel with Alaska-specific technical experience to assist the State in explaining the project to stakeholders and soliciting input from key regions affected by Alaska oil and gas infrastructure during Phase 1 of the project. Additional details on regional stakeholder meetings are included in **Section 7.2.4**.
- **Anonymous Input** -- It is EMERALD/ABS Consulting’s goal to gain input from a wide range of interested stakeholder groups during Phase 1 of the project. As such, it is essential that individuals who may not be comfortable expressing their concerns in a public forum have the ability to provide input anonymously. To support this goal,

EMERALD/ABS Consulting will provide an option for submitting anonymous input via surveys materials that will be available at meetings, through the regular mail system, and on the project website. Stakeholders who choose to provide input utilizing this option will be assured that their identity will remain completely confidential.

- **Informal Communications** – Although stakeholders will be encouraged to use formal communication channels such as surveys and meetings, input may also be solicited or received from stakeholders through informal communication routes such as email, telephone, or in person communications. The EMERALD/ABS Consulting team will work with the State to define a process for tracking stakeholder input received outside facilitated meetings, including response guidelines and parameters.
- **Stakeholder Inquiries** – Stakeholder inquiries will be referred to the EMERALD Project Manager and Project Coordinator, who may defer to the State Project Manager as a final authority. A Question and Answer (Q&A) page on the project website will be utilized to answer common inquiries posed by stakeholders.
- **Media Inquiries** – All media inquiries will be deferred to the State Project Manager. A link to the State risk assessment website will be included on the EMERALD webpage. EMERALD will not make statements to the media or post information relating to the Project without express written consent from the State Project Manager.
- **Project Team Orientation** – Project staff with the potential to come in contact with stakeholders will receive orientation guiding interaction with stakeholders prior to task execution to ensure consistency in message from the Project Team and appropriate lines of communication are followed.

#### 4.2.2 Interested Parties

The State Agency Oversight Team (SAOT), with assistance from Nuka Research, will lead ongoing, long-term stakeholder communication efforts with state legislature, federal agencies, local governments, Alaska native organizations, NGOs, the industry advisory group (AOGA), and the general public. The State has established structured advisory groups to organize the input and assistance from these major stakeholders throughout the life of the project (as shown in **Figure 4-1**).

EMERALD/ABS Consulting will take an active role in managing interested parties by organizing and facilitating the technical portions of regional public meetings during Task 1b of Phase 1. A deadline for public stakeholder input has been established at the end of Task 1b, allowing adequate time for gaining input while ensuring methodology development is allowed to proceed as scheduled. Once Task 1b is complete, responsibility for management and response to interested parties will transfer to the State.

#### 4.2.1 Infrastructure Owners/Operators

During Phase 1 and 2 of the project, EMERALD/ABS Consulting (the “Expert Firm” in **Figure 4-1**) will directly engage Alaska infrastructure owners/operators to acquire data for the risk assessment. Communications during Phase 1 will focus on gaining technical contacts, establishing working relationships, and to begin requesting data and previous study information. Long-term communications with owners/operators throughout the project are expected to include a mix of formal and informal communications.

EMERALD/ABS Consulting will follow all legal requirements in protecting and ensuring the confidentiality of proprietary or potentially sensitive information.

### 4.3 Communications Matrix

The Communications Matrix below provides a snapshot of planned communications for the project.

Table 4-2. Communications Matrix

<b>Form of Communication</b>	<b>Responsibility</b>	<b>Purpose</b>	<b>Frequency</b>	<b>Method/Delivery Type</b>
Project Team Meetings	EMERALD Project Manager/Project Coordinator	Review project progress, tasks assignments, resources, and action items.	Weekly Meetings	Meeting/ Teleconference
State Interface Meetings	EMERALD Project Manager	Update State on status and discuss critical issues. Seek approval for changes to PMP as needed.	Monthly Meetings	Meeting
Regional Stakeholder Meetings	State, EMERALD Facilitator	Consult, engage and collect input from key regional stakeholders.	Phase 1	Public Meetings
Industry Introductory Session	State, EMERALD Facilitator	Consult, engage and collect input from key industry stakeholders.	Phase 1	Meeting
Detailed Progress Reports	EMERALD Project Manager/Project Coordinator	Update State on progress of the project.	Monthly	Hard copy and Electronic via email
Project Website **Content will be submitted to Nuka website administrator	Nuka Research/ EMERALD Project Manager	Communicate project information and status to stakeholders and the general public. Public status updates, meeting pre-reads, schedules and agendas, meeting minutes and selected deliverables will be posted.	As project progresses	Electronic via email
Presentations	EMERALD/ ABS Consulting Team	To provide information to stakeholders during stakeholder consultation, peer/public review, and upon final report submission.	As agreed upon in the project schedule	Presentation
Other Communications (As Required)	EMERALD/ ABS Consulting Team	To gain or provide information and input from special groups and keep them updated on Project Progress.	As requested	Presentation or Discussion

## **5.0 QUALITY ASSURANCE/CONTROL (QA/QC)**

The EMERALD/ABS Consulting team takes the quality of its deliverables seriously. Throughout the project, quality initiatives will be applied as follows:

- Utilize only capable and experienced management and technical personnel
- Develop high quality deliverables within the scope, schedule, and budget
- Provide review of deliverables by a technical editor
- Provide project management review of deliverables
- Solicit and respond to State feedback to ensure project objectives are met
- Provide concise, accurate, and timely communication
- Coach team members on talking points and use a central point of contact (POC) to ensure the project team communicates consistent messages regarding the project.
- Provide accurate project controls
- Conduct routine project status reviews, meetings, and working sessions

## **6.0 HEALTH, SAFETY, AND ENVIRONMENTAL (HSE) PROGRAMS**

The EMERALD/ABS Consulting team will comply with all Federal, State, and local HSE requirements. In addition, orientation and training required by Alaska oil and gas production and transportation facilities to conduct site visits will be attended by field team members as needed to support project activities.

## **7.0 PHASE 1 – DESIGN RISK ASSESSMENT METHODOLOGY**

The purpose of the initial phase of this project is to create the foundation upon which the remaining work will be executed. This will be accomplished through stakeholder communication, information gathering, and creation of a customized risk assessment methodology. The resulting design will reflect the State's vision for the project. The scope of Phase 2 will target components of infrastructure that meet the unacceptable consequences definition approved by the SAOT.

### **7.1 Task 1a – Project Plan**

EMERALD/ABS Consulting has prepared this Project Management Plan describing the workflow, schedule, methodology, and management tools that are expected to be employed for successful execution of the project. The project scope includes stakeholder consultation, unacceptable consequence definition, risk assessment methodology development, and data collection.

This plan will be updated prior to implementation of the risk assessment design to reflect details of the methodology as defined during the Phase 1 scoping effort. The updated plan will be submitted to the State for review and approval.

## 7.2 Task 1b – Consultation with Stakeholders

### 7.2.1 Consultation Overview

The goal of the stakeholder consultation effort is to identify, engage, and collect input from key stakeholders that have an interest in the outcome of the project. The results of this consultation will be used to solidify the scope of the risk assessment and create a ranking scheme to be incorporated into the overall risk assessment design. EMERALD/ABS Consulting will work with the State to consult interested parties during Phase 1 of the project (refer to **Section 4.2.1**). In addition, EMERALD/ABS Consulting will work directly with Industry to facilitate data collection during Phase 2. Consultation with other interested parties during Phase 2 will be led and managed by the State.

### 7.2.2 Consultation Objectives

Stakeholder consultation will focus on achieving the following objectives:

- **Define the Benchmarks for “Unacceptable Consequences”**- in terms of both magnitude of consequence and frequency of occurrence. The definition will be customized to meet the State’s primary goal for the project to “provide State agencies with the information necessary to perform their mandated duties of overseeing the steady flow of oil and gas without unplanned interruptions, while protecting the environment and public safety.”
- **Define the Scope of the Risk Assessment Project** – by identifying infrastructure systems and hazards that represent the greatest probability for failure which would lead to unacceptable consequences to overall safety, the environment or reliability. This scope will be consistent with the State’s already established parameters and will exclude marine transportation systems, petroleum product refining, down-hole infrastructure, and future exploration.
- **Identify Other Priorities and Ideas for the Study** - Although the consultation effort will be structured, it will be formatted to provide the flexibility for stakeholder groups to raise concerns for possible consideration in the overall evaluation of infrastructure risk. Stakeholders will also be offered the option to communicate concerns anonymously in order to protect confidentiality of individuals with specific infrastructure concerns.
- **Identify Data/Information Sources** – by defining an appropriate interaction with industry stakeholders, locating and contacting key technical POCs who have the knowledge and authority to speak for the company and asset they represent, and obtaining input on the most beneficial routes for gathering data. This effort will focus strongly on establishing a cooperative working relationship and fostering a “win-win” project culture.
- **Establish Information Confidentiality Requirements** – by seeking feedback from the industry regarding individual company requirements for protecting and ensuring confidentiality of proprietary or potentially sensitive information that, if provided to the project, could contribute to meeting project objectives. Where appropriate, the State and project team participants will also discuss cooperative methods and procedures for obtaining information and data necessary to conduct the risk assessment while ensuring confidentiality of sensitive or proprietary information.

### 7.2.3 Stakeholder Identification

EMERALD/ABS Consulting and the State have worked collaboratively to develop a final list of stakeholders including the State Agency Oversight Team, federal agencies, local governments, industry and the public (including NGOs and Alaska native organizations) to be consulted during Phase 1 of the project. This list has been mutually agreed upon by the SAOT and EMERALD/ABS Consulting and is included as **Appendix C**. Changes to this list will be routed through the MOC Process (**Section 2.4**).

### 7.2.4 Consultation with Interested Parties

Interested parties include members of governments, NGOs, Alaska native organizations, and the general public with an interest in the outcome of the risk assessment. Surveys, personal meetings, and public meetings will be used to solicit information from these stakeholders in order to identify consequences of concern to be used as input to the design of the risk assessment methodology. A timeframe for obtaining stakeholder input will be clearly established and communicated on the project website and associated stakeholder consultation documents. Input and inquiries following the established cut-off date will be routed to the State to be addressed in ongoing phases of the project.

#### 7.2.4.1 Regional Stakeholder Consultation Process

The following consultation process will be used for regional stakeholders:

- **Surveys** – Surveys will be used as a tool to solicit public stakeholder input. EMERALD/ABS Consulting will gain approval for survey questions from the State prior to distribution. The survey will be posted on the State’s project website and will be distributed to key regional personnel prior to the public meetings. Stakeholders will have the option to bring their survey results to a consultation meeting or to submit anonymously through the state project website.
- **Individual Meetings with Key Regional Personnel** – EMERALD/ABS Consulting will directly contact and meet with key regional personnel in federal and local governments, Alaska native organizations, and NGOs to inform and solicit their support for the public input process. These meetings will be held on the day(s) prior to the public meetings, and these individuals will be asked to extend invitations to their constituents for attendance at the regional forums.
- **Public Regional Meetings** – Public meetings will be held in identified target regions that are most likely to be affected by a failure of Alaska oil and gas infrastructure (see **Section 7.2.4.2**). The State will take the lead in hosting these public meetings by providing a representative to introduce and close-out each meeting, and to respond to media inquiries.

EMERALD/ABS Consulting will conduct all preparation for regional meetings including developing and printing meeting handouts/pre-read materials, coordinating, scheduling, and booking meeting venues, advertising and conducting public outreach, and other logistics as required. Pre-read materials will focus on providing participants information describing the purpose of the Alaska oil and gas risk assessment and will outline expectations for their participation in the public meeting.

EMERALD/ABS Consulting will facilitate the main portion of each meeting following the State introduction and will provide a highly qualified meeting facilitator and a scribe to record the results of each meeting. EMERALD/ABS

Consulting will prepare and submit meeting minutes to Nuka Research for posting on the project website following each set of regional meetings.

Nuka Research will provide support to the stakeholder consultation process as approved by the State Project Manager. Nuka is expected to assist in identifying key individuals for contact and to initiate contact with specified stakeholder groups as deemed appropriate by the State and EMERALD/ABS Consulting.

#### 7.2.4.2 Regional Meetings

Regional meetings will be held in the following six target urban locations within Alaska's oil and gas corridor, as shown in **Figure 7-1**:

- Anchorage
- Barrow
- Fairbanks
- Kenai
- Juneau
- Valdez

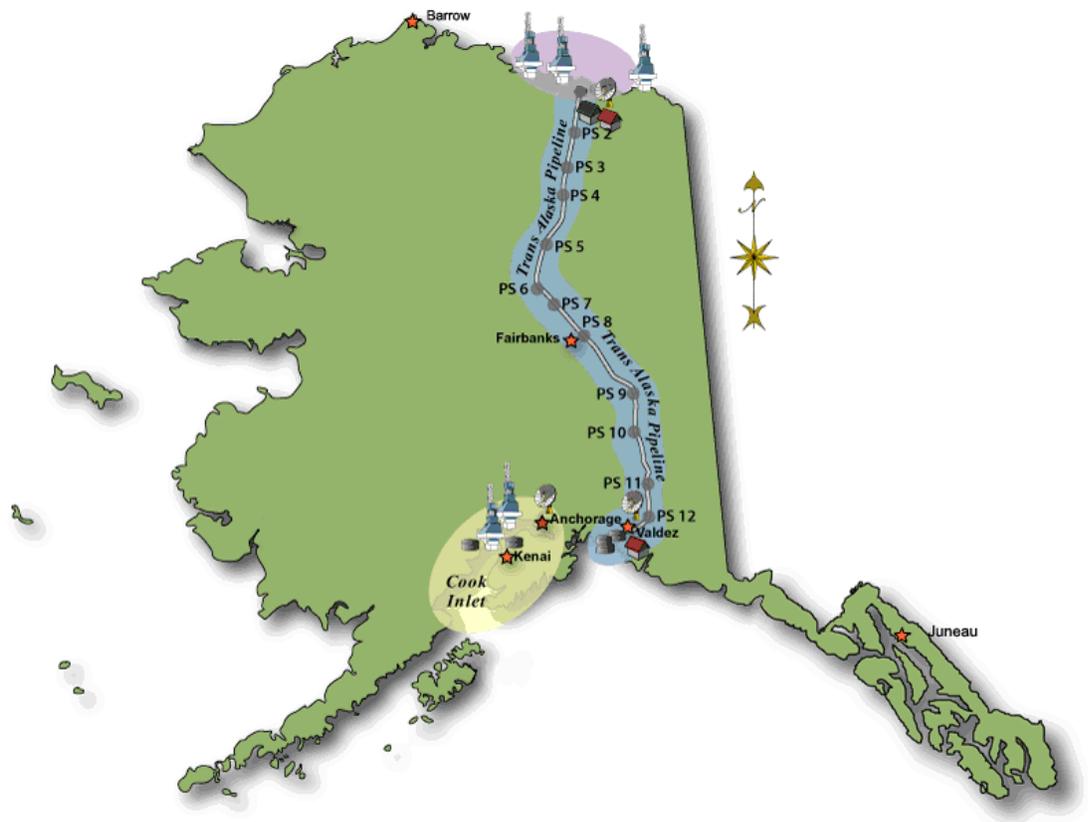


Figure 7-1. Target Stakeholder Locations

### **7.2.4.3 Meeting Documentation**

Stakeholder meetings will be documented and meeting minutes will be submitted for posting to the SOA project website. Results will be utilized by EMERALD/ABS Consulting in the development of the risk assessment methodology.

### **7.2.5 Consultation with Oil & Gas Industry**

During Phase 1, the project team will focus on establishing constructive relationships and communicating a clear picture of the project to key industry representatives. Cooperation from companies that own or operate oil and gas infrastructure in Alaska is crucial for implementation of the risk assessment methodology during Phase 2 of the risk assessment.

#### **7.2.5.1 Oil & Gas Industry Consultation Process**

During Phase 1, introductory sessions will be held with infrastructure owner/operators. An informational presentation and pre-read materials will be provided to participants. These sessions will be coordinated through AOGA and will be held in Anchorage. EMERALD/ABS Consulting will provide a meeting facilitator and a scribe to record the results of each meeting. Industry introductory sessions are expected to accomplish the following:

- Communicate an accurate and complete message to industry on the purpose, objectives, and approach of the Alaska Oil and Gas Risk Assessment. Emphasis will be given to the fact that this is an unbiased, engineering-oriented study to identify areas of vulnerability for the State, not a regulatory enforcement activity.
- Identify and establish key technical POCs who have the ability to provide data. Examples of relevant POCs include Integrity/Risk Management Managers for specific assets and facilities.
- Initiate discussions regarding the identification of methods and procedures to maintain confidentiality of sensitive or proprietary information that could be made available to support this risk assessment.

EMERALD/ABS Consulting expects that additional informal communication with technical representatives from industry will occur throughout this consultation process and during the remainder of the project.

#### **7.2.5.2 Meeting Documentation**

Formal industry stakeholder meetings will be documented, and meeting minutes will be posted to the SOA project website. Results will be utilized by EMERALD/ABS Consulting in the development of the risk assessment methodology.

## **7.3 Task 1c – Review Existing Information and Data**

### **7.3.1 Identify Data/Information Sources**

Identifying, gathering, and reviewing existing data will be coordinated by the Emerald Project Manager, and all documentation will be maintained and available through a

project document management system. The focus of the document management and review efforts will be two-fold: 1) to collect information pertinent to the risk assessment methodology, and 2) to collect existing risk assessments and studies that provide existing data on the oil and gas infrastructure to avoid duplication of efforts. The following categories will be researched and included in the document review process:

- Federal regulations
- Alaska statutes and regulations
- Industry standards
- Other risk assessment standards and guidance
- Relevant risk assessments, hazard analyses, and studies conducted upon components of Alaska's oil and gas infrastructure, or carried out in other parts of the United States or worldwide

### **7.3.2 List of Data/Information Sources**

The identification and review of existing data/information will culminate in a list of publicly available resources. This list will address, at a minimum, each of the categories listed above and will summarize the pertinent risk assessment information identified. This list will be considered during the design of the risk assessment methodology and data will be utilized to avoid duplication of efforts during Phase 2.

## **7.4 Task 1d – Develop Interim Report**

Following stakeholder consultation and review of existing information sources, an interim report will be developed. The Emerald Project Manager will be responsible for producing this report with support from key project personnel as appropriate. The Interim Report will, based on the information collected and examined and it will provide an initial evaluation and screening of the hazards and risks associated with Alaska's Oil and Gas Industry infrastructure. The report will include the following:

- A description of risk issues identified during the information/data review and stakeholder consultation process
- A listing of the oil and gas infrastructure components, processes, and systems proposed for inclusion in the risk assessment and the reasoning for their inclusion
- Proposed definition for unacceptable consequences
- A summary of the information and data review and its relevance to this risk assessment
- A summary of stakeholder consultation results and discussions including priorities and issues raised by each group
- Identification of methods and procedures for cooperatively working with owners and operators of Alaska's Oil and Gas Industry infrastructure to efficiently and effectively request information in support of this risk assessment in a consistent non-duplicative way
- Identification of methods and procedures to maintain confidentiality of sensitive or proprietary information that could be requested and made available to support this risk assessment.

## 7.5 Task 2 – Proposed Risk Assessment Design

### 7.5.1 Design Development Overview

Development of the proposed risk assessment design will be a cooperative effort between the Emerald/ABS Consulting Team, with technical oversight provided by the Emerald Project Manager, Bettina Chastain and the ABS Project Manager Myron Casada. The proposed design will synthesize the outcomes achieved during Task 1a and 1b based on input from the agencies and stakeholders, existing risk work for the oil and gas infrastructure, and globally recognized risk assessment methodology standards. The methodology will give the State’s vision highest priority and will center on the objectives set out at the inception of this project by the legislature and State Agency Oversight Team. The level of detail achievable within the resource constraints of the project will be outlined in the design.

### 7.5.2 Application of Risk Assessment Methodology and Tools

The risk assessment methodology will be based on accepted best industry practices and applicable regulatory requirements. Specifics of the approach and tools employed will depend on the results of stakeholder input and the scope of existing, available, and relevant hazard evaluations, risk assessments, studies, data, audits and reports designed and/or applied to oil and gas infrastructure. The methodology will be based on fundamental risk standards as described below.

#### 7.5.2.1 Risk Fundamentals

**Identification of Adverse Events-** Risk assessment is generally defined as the potential for adverse consequences to occur, and assessment of risk is performed on a scenario basis. Identification of these adverse events is addressed by developing a systematic, structured set of scenarios that account for design and operating features specific to the facility or infrastructure item being analyzed.

**Consequences-** Once potential adverse events have been identified as described above, the consequences of such an event occurring is defined. This is done by modeling the scenarios in various areas of concern. For the purposes of this project, areas of concern will include:

- Reliability
- Safety
- Environmental

The measurement scale for categories of consequences specific to this project will be defined during Task 1 by working with the State, industry, and other stakeholders. The level at which consequences will be deemed “unacceptable” will also be defined as part of Task 1. In analyzing the risk of unacceptable events, metrics will be selected and used to assess the risk.

**Frequency-** In addition to severity of consequence, the frequency of such events occurring is estimated. The estimate is based on past experience, available data, and sometimes a failure logic model. In addition, since frequency estimates are inherently

uncertain, they are sometimes estimated in terms of a probability curve that conveys the state of knowledge, or confidence, about that frequency.

#### 7.5.2.2 Additional Methodology Options

In addition to basic risk fundamentals that are core to all risk assessments, the following tools will be considered for use based on the results of Task 1.

- **What-if Analyses** – a brainstorming exercise, utilizing a team of experts, that predicts alternative outcomes of the same course of action.
- **Hazards and Operability (HAZOP) Analyses** – a systematic, highly structured assessment relying on guide words and team brainstorming to generate a comprehensive review and to ensure that appropriate safeguards against accidents are in place.
- **Reliability Block Diagram** – a tool in which systems, represented by “blocks”, are logically connected in a diagram that illustrates a reliable process operation. Any pathway through the diagram from start to finish identifies a set of systems that, if reliable, achieve reliable infrastructure operation.
- **Event Tree Models** – a system-of-systems tool in which a triggering event (the beginning of an accident scenario) challenges one or more mitigation actions. A logic diagram (event tree) is constructed that shows the various combinations of mitigation actions that preclude (and do not preclude) a triggering event from creating a consequence of concern.
- **Fault Tree Models** – logic diagrams that illustrate the combinations of component failures that lead to an undesired system failure.
- **Consequence Equivalency Matrix** – aligns severity levels among multiple consequence categories. This is often vetted through stakeholders for transparency. Based on the judgment of those stakeholders, all of the consequences listed in a single severity category would be considered equivalent for the purposes of the analysis. This alignment allows for consideration of the impact of an event for each consequence of interest. For example, a single accident scenario might result in a death/injury severity category of 4, a direct economic severity of 3, and an environmental severity of 3. The sum of these losses can then be used to represent the cumulative loss if the accident scenario occurred.
- **Loss Exceedance Risk Assessment** – analysis through use of an analytic framework developed to capture and process asset data, analyze and quantify each asset class and peril, which is used to develop an enterprise wide risk profile.

#### 7.5.3 Risk Advisory Team Input

Throughout the development of the risk assessment methodology, the core project team will solicit input from the internal Risk Assessment Advisory Team. These resources are some of the most experienced process safety, risk assessment, and risk management professionals in the industry. The purpose of their input will be to provide review and consultation of proposed methodology in order to ensure that the methodology selected receives broad internal input from experts with a variety of specialties.

#### **7.5.4 Proposed Risk Assessment Design Report**

The proposed methodology for the risk assessment will be documented in a report that will describe in detail the proposed methodology for use in assessing the risks of Alaska's oil and gas infrastructure. The report will include at a minimum:

- Scope of the assessment detailing the description and justification of the types of components, systems, structures and processes that will and will not be included in the Risk Assessment.
- A review and analysis of the various risk assessment methods, tools, and processes examined in Task 1 and a discussion of the appropriateness (pro's and con's) of using these methodologies to meet the needs of the Alaska Oil and Gas Risk Infrastructure Risk Assessment.
- Methodology for analyzing the sufficiency of existing oil and gas system integrity standards and practices.
- A structure and methodology for comparative analysis between identified risks.
- A review of the results from the stakeholder survey/consultation and an explanation of how these results are incorporated and used in the proposed risk assessment methodology.
- A description of the best practices/lessons learned from the information and data reviewed in Task 1(e.g., other risk assessment projects) and an explanation of how these ideas are incorporated into the proposed methodology.

#### **7.6 Task 3 – Evaluate Risk Assessment Design**

The purpose of Risk Assessment Design evaluation is for the State to assess the input of stakeholders, the public, and peer reviewers. EMERALD/ABS Consulting technical leads will provide support to this process with presentations to and/or discussions as determined appropriate by the State. The EMERALD/ABS Consulting project team will revise the Proposed Risk Assessment Design based on input from this evaluation process.

##### **7.6.1 Support of Independent Peer Review**

EMERALD/ABS Consulting will support the 120 calendar day peer review process by preparing and delivering to the State sufficient documents to enable the selected peer review panel to review/critique the Proposed Risk Assessment Design. Project team members will remain available, on call, to attend meetings and answer questions the panel may have as they review the documentation.

##### **7.6.2 Support of Public Review**

EMERALD/ABS Consulting will assist the State in conducting public workshops to discuss the Proposed Risk Assessment Design. This will include organizing and attending up to five workshops at various locations within Alaska during the first 30 days of Task 3. EMERALD/ABS Consulting will prepare and deliver a PowerPoint presentation to describe the proposed methodology. The team will also prepare and distribute related materials and information to supplement the presentation.

### **7.6.3 Public and Peer Review Summary Document**

EMERALD/ABS Consulting understands that the State may opt to have the Public/Peer Review Summary document prepared by an independent third party. EMERALD/ABS Consulting will develop this document only at the State's request. The summary document will be prepared with State input and will support the inclusion of appropriate changes in the risk assessment design (see Task 4). EMERALD/ABS Consulting assumes that the project schedule will not be impacted by the State's decision to retain a third party for this sub-task.

### **7.7 Task 4 – Proposed Final Risk Assessment Design**

EMERALD/ABS Consulting will evaluate comments provided during evaluation of the Risk Assessment Design in Task 3, evaluate the merits of those comments, and revise the Proposed Risk Assessment Design accordingly. The project team will work closely with the State during this process to ensure that risk factors of priority to the State remain a high priority. This effort will be supported by the project technical leads and the Risk Advisory Team. The result of this task will be a Proposed Final Risk Assessment design that will be submitted to the State to obtain final review from the SAOT.

### **7.8 Task 5 – Final Risk Assessment Design**

EMERALD/ABS Consulting will respond to the SAOT comments and prepare a Final Risk Assessment Design for implementation during Phase 2 of the project.

## **8.0 PHASE 2 – IMPLEMENT RISK ASSESSMENT METHODOLOGY**

This project phase consists of a single, but potentially complex task, the implementation of the approved risk assessment methodology to identify the risks of the oil and gas infrastructure within the scope of this project.

### **8.1 Task 6 – Implement Risk Assessment**

Mr. Bill Odom will lead the integrated EMERALD/ABS Consulting Risk Assessment Implementation Team (Implementation Team) that will perform the risk assessment activities. The Implementation team will be supported by the developers of the methodology who will provide technical and administrative contributions. The specific activities to be performed will not be defined until the Final Risk Assessment Methodology is designed and approved; however, it is anticipated these activities will include:

- Consideration of existing risk assessment and condition assessment studies
- Identification of initiating events that can cause potentially unacceptable events
- Appropriate analysis of those events to define both their frequencies and consequences (i.e., in order to define the specific levels of risk posed by the events)
- Evaluation of those risks for major contributors, common cause potential, and existing and possible new mitigation measures

## **9.0 PHASE 3 – ANALYZE RISK ASSESSMENT DATA, RECOMMEND MITIGATION MEASURES AND DEVELOP FINAL REPORT**

Phase 3 consists of two tasks – analysis of the risk assessment data and preparation of a Draft Risk Assessment Report.

### **9.1 Task 7 – Produce Draft Risk Assessment Report**

As the risk results become available, the Implementation Team will use them to examine existing and potential risk mitigation measures, including:

1. Physical changes to the infrastructure
2. Changes to policies, procedures, standards, or regulations
3. Changes to infrastructure audits, management, or oversight

As early as practical in the risk assessment process, the Implementation Team will begin to develop the Draft Risk Assessment Report. The Draft Final Report will be reviewed by the SAOT and will, at a minimum, include the sections defined by the RFP:

- Executive Summary
- Introduction
- Methodology Description
- Risk Results
- Recommended Mitigation Measures

### **9.2 Task 8 – Produce Final Report and Presentation**

Once the Implementation Team has received comments from the SAOT on the Draft Risk Assessment Report, a final report will be developed along with an accompanying presentation that will be presented in a 1-day meeting/workshop arranged by the ADEC.

## **10.0 DELIVERABLES**

Draft and final deliverables will be provided to the State in multiple formats including the following:

- 5 hard copies
- 2 electronic copies on separate CD-ROMs (including both source files and Adobe PDF versions)
- Raw data files including meta-data

### **10.1 Deliverable List**

The following deliverables will be submitted in draft and final form in accordance with the format requirements described above:

- Project Management Plan
- Project Plan Update (for Phase 2 and 3)
- Monthly Progress Reports (throughout project life-cycle)
- Interim Report
- Proposed Risk Assessment Design
- Public/Peer Review Summary Document (if requested)
- Proposed Final Risk Assessment Design
- Final Risk Assessment Design
- Draft Report
- Final Report
- Project Presentation

## **11.0 DOCUMENTATION**

### **11.1 Documentation Management and Confidentiality**

The EMERALD/ABS Consulting team will maintain control of project documents through established document control and records management processes, including control of confidentiality. Electronic files relating to project documentation will be stored on an electronic server which is backed up routinely. Access to documents stored on server systems will be controlled by a Documentation Specialist and limited to project team members only. Hard copies of documents will be filed and controlled by the Documentation Specialist and available to project team members only. The EMERALD/ABS Consulting team will not publish, permit to publish, or distribute information concerning the results or conclusions of this project, without the prior written consent of the State. Hard copy documents related to this project will be shredded prior to disposal. Upon conclusion of the project, the project team will provide raw data files and metadata used in the assessment to the State.

This project will follow EMERALD standards for creating, modifying, finalizing, and archiving project documents. Project documents include correspondence, meeting notes, progress reports, collected data, survey information, preliminary reports, and final deliverables.

## **12.0 PROJECT CLOSE-OUT**

### **12.1 Closeout Report**

EMERALD will submit a final close-out progress report that will contain all final cost expenditures, an updated and complete project schedule and a list of all accepted deliverables for approval by the State. Upon approval, EMERALD will proceed with the necessary and approved actions to complete contract administrative and project closeout, as directed by the ADEC Contract Manager.

## **12.2 Lessons Learned**

A Lessons Learned session will be scheduled following the acceptance of all deliverables to the State and will be led by the EMERALD Project Manager. This session will include key project team members from the State and the EMERALD/ABS Consulting team. This meeting will be designed to capture and document project successes, identified risks, challenges, and opportunities for improvement to aid in the learning process and to improve future project work. Minutes of this meeting will be provided to the State.

## **12.3 Contract Closeout**

The EMERALD Project Manager will coordinate with the ADEC Contract Manager to submit and track final invoices in accordance with project closeout. After the final report is submitted, and invoices have been finalized with the ADEC, EMERALD will submit a final closure letter to formally conclude the project.

## **Appendix A – Contract Scope of Work (SOW)**

## **CONTRACT SCOPE OF WORK**

The Project will be broken down in three (3) distinct phases. There will be multiple tasks within each phase:

- Phase 1- Design risk assessment methodology
- Phase 2- Implement risk assessment methodology
- Phase 3- Analyze risk assessment data, recommend mitigation measures, and develop final Report

### **Phase I Design Risk Assessment Methodology**

#### **Task I — Project Plan, Consultation, Data Identification and Risk Statement**

This task consists of meetings with stakeholders, a review of existing information, and development of an interim report that identifies all unacceptable consequences from an oil infrastructure failure.

##### **Task Ia - Project Plan**

Prepare a Project Plan to define and describe the proposed process, actions, steps, workflow, schedule, methodology, and criteria that will be used to design the risk assessment for Alaska's oil and gas infrastructure. The Risk Assessment Plan will be prepared in a report format and submitted in draft format for Department of Environmental Conservation review and comments.

The Project Plan must include a schedule and timeline for completion of all tasks under this REP and include a description of the workflow and other information regarding how the work will be performed.

The Project Plan must include a clear description of the scope of the unacceptable consequence identification and risk assessment project, including a description of the stakeholder consultation process, data collection plan and level of detail that can be attained commensurate with available funding.

##### **Task Ib - Consultation with Stakeholders**

The Risk Assessment Plan will contain the process for surveying and consulting with other organizations to acquire information and determine priorities and interests that provide background for developing project objectives.

The risk assessment contractor will consult, at the interval specified in the management plan, with the State about the project's goals, methods, progress, and milestones. The risk assessment contractor will consult with relevant state agencies, subject matter experts and other stakeholders. The State vision and factors will be given highest priority. The contractor, in consultation with ADEC, will develop a final list of agencies, subject matter experts and other stakeholders to consult.

State agencies include:

- Alaska Oil and Gas Conservation Commission
- Department of Environmental Conservation
- Department of Labor and Workforce Development
- Department of Law
- Department of Natural Resources
- Department of Public Safety

Department of Revenue  
University of Alaska, College of Engineering and Mines

Other stakeholders include, but are not limited to:

Owners/operators of Alaska's oil and gas infrastructure,  
Local municipalities and boroughs,  
Federal agencies,  
Non-governmental organizations  
Other generally recognized subject matter experts

The contractor will consult with each organization to determine their input on: 1) defining the benchmarks for *unacceptable consequences*, 2) scope of the risk assessment, and 3) other priorities and ideas for the study. Where appropriate, the contractor will also discuss cooperative methods and procedures for obtaining information and data necessary to conduct the risk assessment while ensuring confidentiality of sensitive or proprietary information.

#### **Task Ic - Review Existing Information and Data**

- Review existing regulations, studies, assessments, standards, literature, and guidance applicable to risk assessments, both within the oil and gas industry and other complex systems. Such documentation is to include, but is not limited to, the following:
  - Regulatory requirements involving hazard evaluation and risk assessments, such as the Integrity Management Program under 49 CFR 195.452, Process Safety 2
  - Management under 29 CFR 1910i19, or Risk Management Planning under 40 CFR68
  - Applicable Alaska Statutes and Regulations.
  - Petroleum industry standards, such as API Publication 353, Managing Systems Integrity of Terminal and Tank Facilities, API RP 580, Risk Based Inspection, API Publication 581 . Base Resource Document on Risk-Based Inspection, API I I 60, Managing System Integrity for Hazardous Liquid Pipelines, ASME B31 8S, Managing System Integrity of Gas Pipelines, CSA Z662-03, Oil and Gas Pipeline Systems
  - Other risk assessment standards and guidance applicable to this project, such as, for example only, NASA Reference Publication I 358 .System Engineering Toolbox for Design-Oriented Engineers, Probabilistic Risk Assessment Procedures Guide for NASA Managers and Practitioners, AS/NZS 4360 .Risk Management, *CANICSA-Q850-97* (Canada) .Risk Management: Guideline for Decision Makers
  - Other risk assessments and hazards analyses conducted upon components of the state's oil and gas infrastructure, or relevant studies or assessments carried out in other parts of the United States or worldwide

#### **Task Id .Develop Interim Report**

Using the information received from consultations with the State and stakeholders and from review of existing information, evaluate and screen the risks and hazards posed to the oil and gas infrastructure and develop an Interim Report. The Interim Report required by this task will include, but not be limited to:

- A description and documentation of all risk factors identified through the information review and stakeholder scoping processes
- A summary of existing information and data reviewed

- A summary of stakeholder discussions including:
  - A listing of the oil and gas infrastructure components, processes, and systems proposed for inclusion in the risk assessment and the reasoning for their inclusion
  - Proposed benchmarks for unacceptable consequences, and
  - Other priorities and issues raised.
- Identification of methods and procedures for cooperatively working with owners and operators of Alaska's oil and gas infrastructure to eliminate redundancy or duplication of historical or current information, processes, studies, reports or other evaluations which have already been completed or are underway and to be consistent with ongoing or emerging management hierarchies for hazard identification and risk assessment.
- Identification of methods and procedures for maintaining confidentiality of sensitive or proprietary information that would be accessed during the risk assessment process.
- Submit the draft Interim Report to ADEC for review and comment. The contractor must then incorporate comments and return a final Interim Report to ADEC.

### **Task 2 Proposed Risk Assessment Design**

The Proposed Risk Assessment Design document will synthesize the Task I process and deliverables into a document that will be reviewed by the public and a peer review entity. The Proposed Risk Assessment Design must describe and vigorously defend the specific methodology for evaluating and assessing the risk factors that lead to unacceptable consequences previously identified in the interim report required under Task I. The proposed methodology must take into consideration other applicable hazard evaluations and risk assessments, studies, data, audits, or reports that have been designed or applied on a comparable oil and gas infrastructure system.

The Proposed Risk Assessment Design must identify the hazards, facilities, and components that will be included in a systematic risk assessment of the oil and gas infrastructure in Alaska. The Proposed Risk Assessment Design will also include a consequence analysis based on safety, environmental and reliability criteria.

The Proposed Risk Assessment Design document will include, but is not limited to:

- A review of the results of the consultation process in Task I. The review will detail how these results are incorporated and used in the Proposed Risk Assessment Design.
- A review of the research performed in Task I. The description will detail how best practices or lessons learned from other risk assessment projects, comparable in scope or complexity to this project, are incorporated in to this Proposed Risk Assessment Design.
- A review and analysis of relevant risk assessment tools, processes and standards that are or are not appropriate for this project. This review and analysis will compare and contrast various methodologies against the unique requirements of this project.
- A structure and methodology for comparative analysis between identified risks.
- A thorough description and justification of the types of components, systems, structures and processes that will and will NOT be included in the Risk Assessment
- Methodology for analyzing the sufficiency of existing oil and gas system integrity standards and practices

The Proposed Risk Assessment Design document will also describe the contractor's proposed methodology for completing the remaining tasks. Components will include, but are not limited to:

- A work breakdown structure for remaining deliverables.

- A proposed general project schedule and work flow, including milestones, review loops, progress reports, and work products
- A review of the difficulties that have been encountered in Task I and problems that may be anticipated in the following Tasks. This project risk analysis will also include potential or proposed solutions

### **Task 3 Evaluate Risk Assessment Design**

After development of the Proposed Risk Assessment Design, the contractor will assist the Department of Environmental Conservation in conducting public and peer reviews of the design. The State of Alaska will assess the input of stakeholders, the public, and peer reviewers and will direct the contractor to revise the methodology or project design accordingly.

#### **Independent Peer Review of Initial Risk Assessment Design**

The Proposed Risk Assessment Design will be peer reviewed by an independent organization contracted by the Department of Environmental Conservation and determined to have recognized engineering, statistical, and scientific expertise in the risk assessment field. The selected contractor will provide the Department of Environmental Conservation with documents, reports, and subject matter expertise for this peer review process. It is anticipated that the peer review process will require 120 days.

#### **Public Review of Initial Risk Assessment Design**

In conjunction with the Department of Environmental Conservation, conduct a 60- day public review process of the Risk Assessment Design including up to five public workshops around the State during the first 30 days of the review period. The contractor will conduct the public workshops and prepare and distribute all related materials and information.

#### **Public and Peer Review Summary, As Requested**

As requested by the State, develop with agency input, a summary document addressing any relevant comments received during the public and peer review period described above. Relevant public comments will be incorporated into the final Risk Assessment Design document.

### **Task 4— Proposed Final Risk Assessment Design**

The contractor will evaluate the Department of Environmental Conservation, public and technical comments from Task I and prepare a Draft Final Risk Assessment Design. 5

The Department of Environmental Conservation will coordinate a State agency review of the Risk Assessment Design and provide comments back to the contractor.

### **Task 5 .Final Risk Assessment Design**

The contractor will incorporate agency comments into a Final Risk Assessment Design.

*If the State is not satisfied with the contractor's Final Risk Assessment Design or if the peer or public review indicates significant aversion to the contractor's methodology and project design, the State may opt out of Phases 2 and 3 of this project, and may publish a new RFP to select an alternate contractor.*

## **Phase 2      Implement Risk Assessment Methodology to Identify Risk Factors**

### **Task 6 .Implement Risk Assessment**

Using the final Risk Assessment Design developed in Tasks 3 through 5, contractor will implement the risk assessment. Status reports are to be presented by the contractor on a monthly basis.

As directed by the State, the activities for this task will, at the minimum, include:

1. Adaptation of existing risk assessment and condition assessment studies
2. Identification of initiating events that can cause potentially unacceptable events
3. Detailed analysis of those events to define both their frequency and consequences (i.e., in order to define the specific levels of risk they pose)
4. Evaluation of those risks for major contributors, common cause potential, and existing and possible new mitigation measures.

## **Phase 3      Analyze Risk Assessment Data, Recommend Mitigation Measures, and Develop Final Report**

### **Task 7 .Produce Draft Final Report**

Once the risk assessment methods have been executed, the contractor will analyze the results, and produce a Draft Final Report. The Draft Final Report will at a minimum include the following sections: executive summary, introduction, methods, results, and recommended mitigation measures. The contractor will consider at least the following possible mitigation categories when making recommendations:

- Physical changes to the infrastructure,
- Changes to policies, procedures, standards, or regulations,
- Changes to infrastructure audits, management, or oversight.

The Department of Environmental Conservation will coordinate a State agency review of the Draft Final Report and provide comments back to the contractor

### **Task 8 .Produce Final Report and Presentation**

After considering the Department of Environmental Conservations comments on the Draft Final Report, the contractor will provide the Department of Environmental Conservation with a Final Report. In addition to the written report, the contractor will prepare and present a presentation on the report in a workshop lasting no more than one business day.

## **Summary of Project Deliverables**

All deliverables are to be five hard copies and two electronic copies on separate CD-ROMs. The electronic files must contain both the source files and Adobe PDF versions of applicable reports. The State will also receive a digital copy of all raw data files, including metadata, used to conduct the analysis.

Throughout the project, status reports are to be presented by the contractor at an interval agreed upon by the Department of Environmental Conservation.

### **Phase 1: Design Risk Assessment Methodology deliverables:**

- Project Plan
- Interim Report (draft and final)
- Proposed Risk Assessment Design
- Technical assistance with independent review entity
- Up to five (5) public workshops preparation and attendance
- Public and Peer Review Summary Document (If requested by the State)
- Proposed Final Risk Assessment Design
- Final Risk Assessment Design

### **Phase 2: Implement Risk Assessment Methodology to Identify Risk Factors deliverables:**

- Monthly status reports

### **Phase 3: Analyze Risk Assessment Data, Recommend Mitigation Measures, and Develop Final Report deliverables:**

- Draft Final Report.
- Final Report
- Project presentation and attendance at one-day workshop
- Raw data files and metadata

### **Timeline**

#### *Phase 1: Design Risk Assessment Methodology –per project management plan*

- Task 1 a –Project Management Plan –draft to ADEC no later than 15 working days from contract signing.
- Task 1 b –Consultation with Stakeholders –per project management plan
- Task 1 c –Review Existing Information and Data –per project management plan
- Task 1 d –Develop Interim Report –per project management plan
- Task 2 –Proposed Risk Assessment Design –per project management plan
- Task 3 –Evaluate Risk Assessment Design –per project management plan
- Task 4 –Proposed Final Risk Assessment Design –per project management plan
- Task 5 –Final Risk Assessment Design –per project management plan

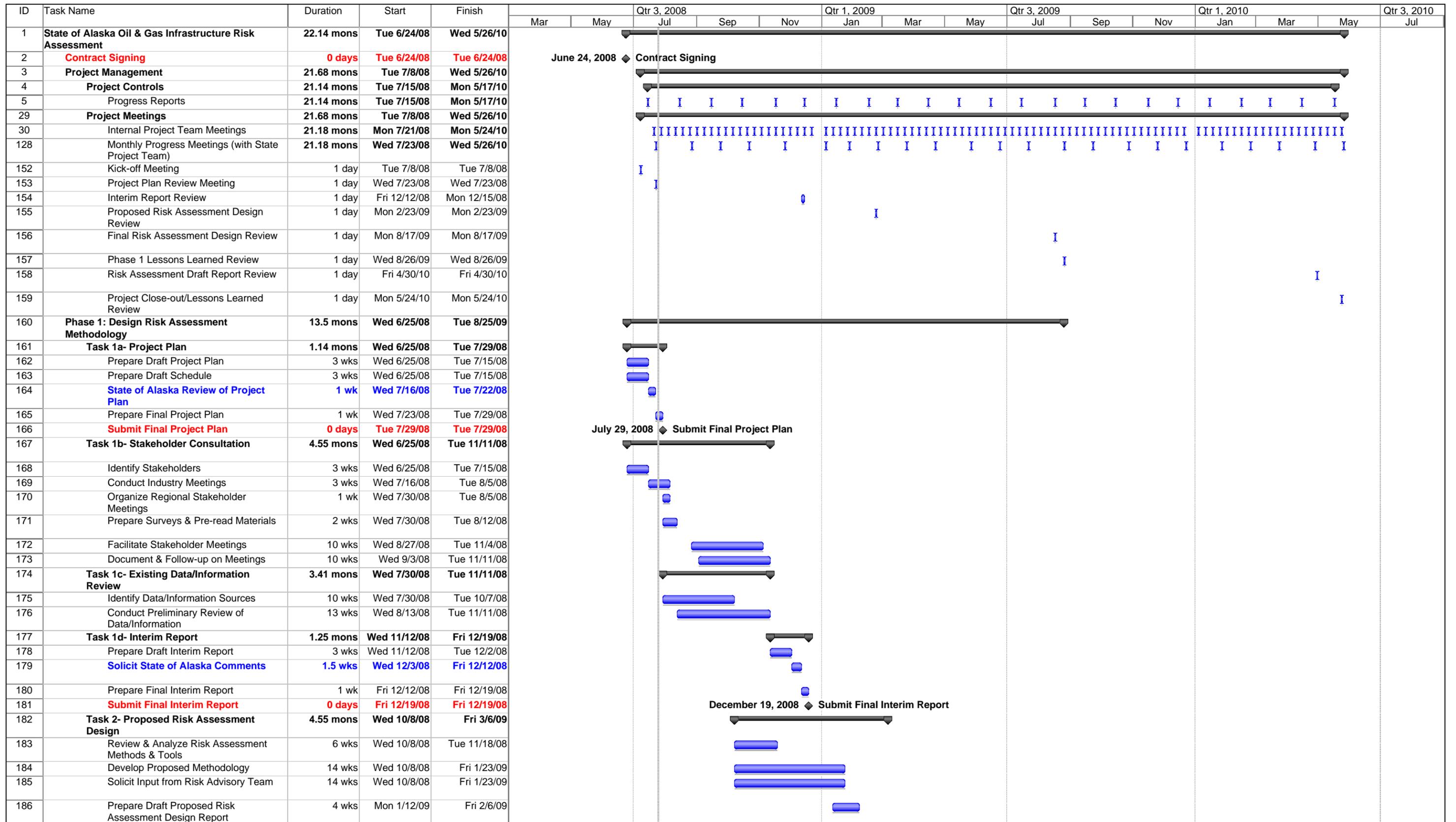
#### *Phase 2: Implement Risk Assessment Methodology to Identify Risk Factors*

- Task 6 .Implement Risk Assessment Methodology –per project management plan

#### *Phase 3: Analyze Risk Assessment Data, Recommend Mitigation Measures, and Develop Final Report*

- Task 7 —Produce Draft Final Report –per project management plan
- Task 8 –Produce Final Report and Presentation –completion by June 1, 2010

## Appendix B – Detailed Project Schedule



Project: SOA RA WBS v.00  
Date: Fri 7/25/08

Task		Progress		Summary		External Tasks		Deadline	
Split		Milestone		Project Summary		External Milestone			

ID	Task Name	Duration	Start	Finish	Qtr 3, 2008			Qtr 1, 2009			Qtr 3, 2009			Qtr 1, 2010			Qtr 3, 2010
					Mar	May	Jul	Sep	Nov	Jan	Mar	May	Jul	Sep	Nov	Jan	Mar
187	Solicit State of Alaska Comments	2 wks	Mon 2/9/09	Fri 2/20/09													
188	Prepare Final Proposed Risk Assessment Design Report	2 wks	Mon 2/23/09	Fri 3/6/09													
189	Submit Final Proposed Risk Assessment Design Report	0 days	Fri 3/6/09	Fri 3/6/09													
190	Task 3- Evaluate Risk Assessment Design	4.09 mons	Mon 3/9/09	Fri 7/10/09													
191	Peer Review of Proposed Design	4.09 mons	Mon 3/9/09	Fri 7/10/09													
192	Provide Support for Peer Review	18 wks	Mon 3/9/09	Fri 7/10/09													
193	Public Review of Proposed Design	4.09 mons	Mon 3/9/09	Fri 7/10/09													
194	Provide Support for Public Review	18 wks	Mon 3/9/09	Fri 7/10/09													
195	Contract Extension Through End of Phase 1	0 days	Fri 6/26/09	Fri 6/26/09													
196	Task 4- Proposed Final Risk Assessment Design	1.14 mons	Mon 7/6/09	Fri 8/7/09													
197	Evaluate Peer/Public Review Comments	2 wks	Mon 7/6/09	Fri 7/17/09													
198	Revise Proposed Risk Assessment Design	1 wk	Mon 7/20/09	Fri 7/24/09													
199	Solicit State of Alaska Comments on Revisions	2 wks	Mon 7/27/09	Fri 8/7/09													
200	Task 5- Final Risk Assessment Design	0.55 mons	Mon 8/10/09	Tue 8/25/09													
201	Review State Agency Comments	1 wk	Mon 8/10/09	Fri 8/14/09													
202	Prepare Final Risk Assessment Design	1 wk	Mon 8/17/09	Fri 8/21/09													
203	Submit Final Risk Assessment Design	0 days	Fri 8/21/09	Fri 8/21/09													
204	Update Project Plan (for Phases 2&3 work)	2 days	Mon 8/24/09	Tue 8/25/09													
205	Phase 2 Authorization	0 days	Fri 8/21/09	Fri 8/21/09													
206	Phase 2: Implement Risk Assessment Methodology	5.23 mons	Wed 8/26/09	Thu 2/11/10													
207	Task 6- Implement Risk Assessment	5.23 mons	Wed 8/26/09	Thu 2/11/10													
208	Collect Data and Identify Initiating Events	20 wks	Wed 8/26/09	Thu 1/21/10													
209	Review Existing Risk Assessments & Studies	20 wks	Wed 8/26/09	Thu 1/21/10													
210	Identify Risk Contributors, Common Cause Potential, Mitigation Measures	20 wks	Wed 9/16/09	Thu 2/11/10													
211	Phase 3: Analyze Risk Assessment Data, Recommend Mitigation Measures, & Develop	3.23 mons	Fri 2/12/10	Fri 5/21/10													
212	Task 7- Produce Draft Report	2.73 mons	Fri 2/12/10	Thu 5/6/10													
213	Analyze Risk Assessment Data	12 wks	Fri 2/12/10	Thu 5/6/10													
214	Prepare Draft Report	7 wks	Fri 2/26/10	Thu 4/15/10													
215	Submit Draft Report	0 days	Thu 4/15/10	Thu 4/15/10													
216	Solicit State of Alaska Comments	2 wks	Fri 4/16/10	Thu 4/29/10													
217	Task 8- Produce Final Report & Presentation	0.73 mons	Fri 4/30/10	Fri 5/21/10													
218	Prepare Final Report & Presentation	3 wks	Fri 4/30/10	Thu 5/20/10													
219	Submit Final Report	0 days	Thu 5/20/10	Thu 5/20/10													
220	Present Risk Assessment Findings at Workshop	1 day	Fri 5/21/10	Fri 5/21/10													
221	Project Complete	0 days	Wed 5/26/10	Wed 5/26/10													

Project: SOA RA WBS v.00  
Date: Fri 7/25/08

Task Progress Summary External Tasks Deadline

Split Milestone Project Summary External Milestone

Page 2

## Appendix C – Approved Stakeholder List

## Alaska Oil and Gas Infrastructure Risk Assessment Stakeholder List

<b>State of Alaska:</b>	
Alaska Oil and Gas Conservation Commission	
Department of Environmental Conservation	
Department of Labor and Workforce Development	
Department of Law	
Department of Natural Resources	
Department of Public Safety	
Department of Revenue	
University of Alaska, College of Engineering and Mines	
<b>Infrastructure Owner/Operators:</b>	
<i>*indicates companies that currently operate Oil and Gas Infrastructure in Alaska</i>	
Alaska Oil and Gas Association (AOGA) <ul style="list-style-type: none"> <li>- Agrium Kenai Nitrogen Operations</li> <li>- Alyeska Pipeline Service Company*</li> <li>- Anadarko Petroleum Corporation</li> <li>- BP Exploration (Alaska) Inc.*</li> <li>- Chevron*</li> <li>- Eni Petroleum</li> <li>- ExxonMobil Production Company</li> <li>- Flint Hills Resources, Alaska</li> </ul>	<ul style="list-style-type: none"> <li>- Marathon Oil Company*</li> <li>- Pacific Energy Resources*</li> <li>- Petro-Canada (Alaska) Inc.</li> <li>- Petro Star Inc.</li> <li>- Pioneer Natural Resources Alaska, Inc.*</li> <li>- Shell Exploration &amp; Production Company</li> <li>- StatoilHydro</li> <li>- Tesoro Alaska Company</li> <li>- XTO Energy, Inc.*</li> </ul>
Aurora Gas*	
Conoco Phillips*	
<b>Regional Stakeholders – Local Governments, Native Organizations, Non-Governmental Organizations (NGOs), Public</b>	
Anchorage Region <ul style="list-style-type: none"> <li>- Municipality of Anchorage</li> <li>- City of Wasilla</li> <li>- City of Palmer</li> <li>- Matanuska-Susitna Borough</li> </ul>	Non-Governmental Organizations  Alaska Native Organizations  Interested Public
Fairbanks Region <ul style="list-style-type: none"> <li>- Northstar Borough</li> <li>- City of Fairbanks</li> <li>- City of Glennallen</li> <li>- City of Copper Center</li> </ul>	
Kenai Region <ul style="list-style-type: none"> <li>- Kenai Peninsula Borough</li> <li>- City of Kenai</li> <li>- Cook Inlet Regional Citizens' Advisory Council (CIRCAC)</li> </ul>	
Juneau Region <ul style="list-style-type: none"> <li>- City and Borough of Juneau</li> </ul>	
North Slope Region <ul style="list-style-type: none"> <li>- North Slope Borough</li> <li>- City of Barrow</li> </ul>	
Valdez Region <ul style="list-style-type: none"> <li>- City of Valdez</li> <li>- City of Cordova</li> <li>- Prince William Sound Regional Citizens' Advisory Council (PWSRCAC)</li> </ul>	

## Alaska Oil and Gas Infrastructure Risk Assessment Stakeholder List

-	
<b>Federal Agencies:</b>	
Alaska Occupational Health and Safety Office	Department of Homeland Security
Bureau of Land Management	Department of Transportation Office of Pipeline Safety
Department of Energy	U.S. Coast Guard
Federal Energy Regulatory Commission	U.S. Army Pacific (USARPAC)
Environmental Protection Agency	U.S. Pacific Air Force (PACAF)
Minerals Management Service	

## Appendix D – Management of Change (MOC) Form



# Project Management of Change Form

Date: \_\_\_\_\_

<b>Project Name:</b>	State of Alaska Risk Assessment	<b>Change Number:</b>	
<b>Task Affected:</b>		<b>Change Originator:</b>	

## Qualitative Change Analysis

**Change Description:**

**Justification:**

**Negative impact if change is not implemented**

**Positive impact if change is is implemented**

## Quantitative Change Analysis

**Estimated Overall Cost of Change:**

<b>Labor</b>	\$
<b>Travel</b>	\$
<b>Other Direct Costs</b>	\$
<b>Total =</b>	\$

**Overall Schedule Impact:** (List major milestones affected by change and list any new milestones that are created)

## Approval Authority

**Check One:**  **Approved**  **Not Approved**

**EMERALD Project Manager:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**State of Alaska Project Manager:** \_\_\_\_\_ **Date:** \_\_\_\_\_

## Appendix E – Progress Report Template

	<b>Monthly Project Progress Report</b>
	Project Name: State of Alaska Risk Assessment
	EMERALD POC: Gretchen Grekowitz, Project Coordinator (907) 258-8137 ggrekowitz@emeraldalaska.com
	Reporting Period: xx/xx/xx – xx/xx/xx

**Project Status:**

- 
- 
- 
- 
- 

**Schedule and Cost Overview:**

- 
- 

**Requested and Approved Changes:**

- 
- 

**Risks:**

- 
- 

**Issues:**

- 
- 

**Look Ahead:**

- 
- 
- 
- 

**Attachments:**      Progressed Schedule  
                                 Cost Report