ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION

DIVISION OF SPILL PREVENTION AND RESPONSE
INDUSTRY PREPAREDNESS AND PIPELINE PROGRAM

TRANS ALASKA PIPELINE SYSTEM
PIPELINE OIL DISCHARGE PREVENTION AND CONTINGENCY PLAN

Findings Document
and
Response to Comments

November, 2001

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Alaska Department of Environmental Conservation

Division of Spill Prevention and Response
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INTRODUCTION

What is this document?

This document presents the summary findings of the Alaska Department of Environmental Conservation (ADEC) concerning the contents of the Trans-Alaska Pipeline System (TAPS), Pipeline Oil Discharge Prevention and Contingency Plan (CPlan), dated May 30, 2001, with additional information submitted on August 24, 2001 and October 12, 2001. This CPlan addresses activities related to prevention, containment, and clean up of oil along the TAPS that consists of the 800 mile Trans-Alaska Pipeline and associated pump stations. This CPlan is comprised of six volumes; the first is the plan's General Provisions, and the next five are region specific plans for each geographic segment of the pipeline.

These findings are written as a result of an extensive review of the CPlan and consideration of public comments. They are presented to summarize the analysis by which the Department has arrived at its decision to issue an oil discharge prevention and contingency plan approval subject to certain conditions. State law provides for the Department to attach reasonable terms and conditions to its approval of a contingency plan that it determines are necessary to ensure preparedness or to ensure that the plan holder can comply with the plan. This document provides the basis for the terms and conditions that appear in the Department's plan approval.

A portion of this document also contains the Department's response to oral comments presented by individuals and representatives of organizations during the public hearings and written comments received during the public comment period. All comments have been considered by the Department. This document does not respond to each specific comment, but rather, it is a summary response to key issues raised by commentors.

The Department has benefited from and appreciates the contribution of many individuals and organizations made during the public process of reviewing and approving this plan.

Individuals that may desire to understand the Department's review of a particular comment not mentioned here may write or call for further information by contacting ADEC at 411 West 4th Avenue, Anchorage, Alaska, 99501, or call at (907) 271-5070.

What Has Been the Process to Approve This Plan?

Alyeska's CPlan for the Trans-Alaska Pipeline System (TAPS) was substantially re-written in 1991, through a combined effort between Alyeska Pipeline Service Company and the participating agencies of the Joint Pipeline Office (JPO) as a result of the Exxon Valdez oil spill In 1994, the plan was revised and approved in accordance with the state's then newly promulgated oil pollution control statutes and regulations requiring triennial renewal of all contingency plans.

The CPlan was significantly modified during the 1998 plan review, both in format and content. Events leading up to the 1998 review included the closure of four of the eleven pump stations and a change in Alyeska's organization from one that was Anchorage based to one centered in Valdez and Fairbanks. The 1998 review resulted in a plan approval with twenty-two conditions to be completed within a time frame specified in the approval document. All conditions were complete by April 2001.

Since the 1998 approval, the CPlan was revised several times. All the revisions were routine plan updates with the exception of one amendment regarding corrosion control for facility piping that was subject to public review. Many of the revisions were text changes resulting from the implementation of the plan conditions of approval (see below for examples of these changes).

In May, 2001, the plan holder submitted an application and a "Sufficiency Review Copy" of the CPlan for the current triennial renewal. A ninety day public comment period was set between July 9, 2001 and October 6, 2001. During this period, two public hearings were held, one in Fairbanks on August 8, 2001 and one in Glennallen on August 9, 2001. Members of the Department and the Joint Pipeline Office also met informally with stakeholders following the hearings to discuss renewal issues. Additional information was submitted by the plan holder on August 24, 2001 and October 12, 2001. The public comment period was extended beginning on October 25, 2001 and lasting through November 6, 2001 to allow for the review of additional information submitted by the plan holder and to receive additional public comments as a result of the TAPS Pipeline Mile Post 400 release, which occurred on October 4, 2001. A total of five sets of comments were received during the initial public comment period and five sets were received during the extended period.

After extensive review of the application, the CPlan, additional information submitted by the plan holder, and consideration of public comments, the Department has found that the plan meets the criteria for plan approval as specified in Alaska law.

The law also provides that the Department may attach reasonable terms and conditions to its approval to ensure that the applicant has access to sufficient resources to protect environmentally sensitive areas and to contain, clean up and mitigate potential oil discharges from the facility. Under this authority, the plan has been approved with several conditions.

Although the ADEC is responsible for coordinating a single agency review of this contingency plan, many of the analyses in this document represent the combined efforts of the participating agencies of the Joint Pipeline Office (JPO), a consortium of eleven state and federal agencies.

What Does it Mean When a Contingency Plan is Approved?

A CPlan is approved when a plan holder has demonstrated in the plan that a level of prevention and readiness has been accomplished to prevent a spill, or if a spill should occur, to effectively respond. The Department does not make its decision to approve a plan based on the operator proving everything in the plan, but rather upon the reasonableness of assertions and evidence that certain essential resources and practices are secured. Therefore, the ADEC's work does not end once the contingency plan is approved. The contingency plan approval is only a portion, although a major one, of the entire program of spill prevention and response. Many follow-up field tasks are done to proof the plan and assure that persons assigned response and prevention duties are trained and ready to respond if need be. The tasks range from both planned and unannounced inspections and oil spill exercises, regular surveillance of field operations, training audits, third party engineering inspections for checking structural integrity of tanks and piping and applying lessons learned from actual incident responses.

Changes in this Contingency Plan Since the Previous Plan Approval

There have been many changes to the TAPS Oil Discharge Prevention and Contingency Plan since the 1998 plan approval. That plan was approved with numerous conditions resulting in many improvements in prevention and response. Some of the resultant projects and activities implemented since the 1998 approval include:

- Completion of a mainline valve assessment and repair program
- Increase in the numbers of initial spill responders in Fairbanks and Glennallen
- Improved secondary containment at Pump Station 1
- Additional civil improvements for containment and recovery of crude oil in the Copper River area
  Additional scientific investigations into the fate and effect of crude oil in silty rivers
- Implementation of a multiyear exercise schedule requiring the exercising of plan scenarios and containment sites
- Documentation and submission of quarterly status reports for oil spill exercises
- Purchase of aircraft based infra-red technology for discharge tracking
- Training improvements in such areas as Incident Command System (ICS) and HAZWOPER training
  Multiple spill prevention methods implemented for storage tanks

- Assessment of tank farm secondary containment liners at the pump stations
- Reporting requirements for the Transient Volume Balance (TVB) pipeline leak detection system
- More stringent requirements for equipment storage, location and maintenance

Significant changes have been made in the May 2001 draft CPlan and its two revisions. Many text changes reflect the implemented conditions of approval as listed above. The following are examples of the most notable changes:

Region Plan containment site information has been updated to reflect information gathered and includes site deployment drawing, and verified location information.

- Region 5 Plan now includes USGS Quadrangle maps for the Copper River.
- A commitment to update the format of the oil spill scenarios in the plan.
- An updated risk assessment conducted by Capstone Engineering Services has been included
- A commitment to submit quarterly exercise reports.
- Oil Containment and Control Strategies have been updated to reflect the tactics sheets developed by the Alaska Clean Seas Cooperative.

Section 3.7 "Compliance Schedule and Waivers" has been updated to reflect completion of conditions of approval.

Region Plan equipment tables have been edited to show the use of newly purchased 24 foot, 32 foot and 45 foot spill response trailers.

A new section titled "Crude Oil and Suspended Solids Interaction in Silty Rivers" has been added to the plan.

Format for this Document:

This document provides a summary of the basis for its decision to approve the plan subject to specific conditions. The issues identified in this document have come about as a result of the Department's step by step analysis of the submitted plan, additional information provided by the plan holder and careful consideration of oral and written comments from the public. The first three issues in these summary findings are issues that are addressed in the plan approval document. These are followed by additional issues brought up by the public comments.

This document uses the following format to address each of the selected topics:

1) Statement of Issue

(2) Findings

(3) Regulatory Authority

(4) Response to Comments

(4) Basis for Decision

It is important to know that a wide variety of issues were commented on in response to the Mile Post 400 oil spill. Issue number 1 encompasses all of these comments, and they are not individually addressed under the other issues in this document.

ISSUE # 1 TAPS Pipeline Mile Post 400 Release

STATEMENT OF ISSUE

Does the TAPS Pipeline Oil Discharge Prevention and Contingency Plan contain enough information, analyses, supporting data, and documentation to demonstrate the plan holder's ability to implement a response action plan, a prevention plan and demonstrate best available technology in light of lessons learned from the TAPS Pipeline Mile Post 400 Release?

FINDINGS

The Department finds that the TAPS Pipeline Oil Discharge Prevention and Contingency Plan does meet the requirements of state law. However, specific spill prevention and response issues associated with the TAPS Mile Post 400 Release will be addressed under the Department's settlement agreement authority under AS Title 46.

REGULATORY AUTHORITY

Alaska law requires that an oil discharge prevention and contingency plan contain enough information, analyses, supporting data, and documentation to demonstrate the plan holder's ability to meet the requirements of AS 46. and 18 AAC 75.400-18 AAC 75.495 (18 AAC 75.425(a)).

RESPONSE TO COMMENTS:

Various commentors have requested that numerous portions of the CPlan be reviewed in light of the lessons learned from the TAPS Mile Post 400 release. Commentors have asked that lessons learned from the oil spill be incorporated into the plan contents such as the response action plan, the prevention plan and the best available technology analysis. Specific aspects of the response having to do with leak detection, safety, communications, source control, resource deployment strategies, and response strategies have been requested to be reviewed and considered for compliance with the plan.

At this time, the Department, the associated agencies of the Joint Pipeline Office and Alyeska are in the process of writing an after action report for the spill response. The report will provide lessons learned regarding the incident command system, leak detection, source control, safety, containment/cleanup, return to service and contingency plan implementation. In response to the public's comments on this issue, the Department has included language in the plan approval document stating that all issues associated with the incident will be addressed under the Department's settlement authority.

BASIS FOR DECISION

On October 4, 2001, the Trans-Alaska Pipeline was struck by a bullet resulting in a spill of 6800 barrels of crude oil. An incident investigation report is currently being conducted by the Department, the associated agencies of the Joint Pipeline Office, and Alyeska Pipeline Service Company. The report, titled "Joint After Action Report for the TAPS Bullet Hole Response", is expected to be published in January 2002. The report will identify recommended improvements, including, but not limited to contingency plan amendments.

The Department will review the contents of the report and incorporate the recommendations into a legal settlement agreement with the plan holder under the Department's authority (AS Title 46). The settlement agreement will specifically outline required plan amendments under the authority of 18 AAC 75.490. The proposed amendment will undergo public review using Department review procedures set out at 18 AAC 75.455.

ISSUE #2 CONDITION OF APPROVAL, Multi-year exercise schedule public review requirement

STATEMENT OF ISSUE

Is the plan holder's three year schedule of oil spill response exercises for the current plan approval cycle sufficient to demonstrate that oil spill response personnel are well trained in implementing the response action plan, that response strategies in the plan are sufficient to meet the applicable response planning standards of the regulations and are appropriate for preventing oil from entering environmentally sensitive areas and areas of public concern?

FINDINGS

In the pursuit of continuous plan improvement and as a demonstration of plan compliance, Alyeska has committed in the plan to provide a three year schedule of oil spill response exercises. While the Department has concluded that the exercise program schedule was sufficient and satisfactorily completed during the past approval cycle, to assist the Department with communicating the details of the exercise program to the public, the Department will require the plan holder's next schedule of oil spill response exercises to be publicly reviewed.

The Department finds that there is value in preparing a multi-year exercise program schedule to address certain plan implementation criteria, and that by presenting the schedule for public review, will assist the plan holder, the public and the Department in arriving at mutual expectations.

REGULATORY AUTHORITY

The Department may require an applicant or holder of an approved contingency plan to ensure the plan holder's continuous compliance with the plan through periodic training, response team exercises, and verifying access to inventories of equipment, supplies and personnel (AS 46.04.030(e)(1)-(3)) as well as to ensure that the plan holder demonstrate that designated oil spill response personnel are trained and kept current in the specifics of plan implementation, including deployment of containment boom, operation of skimmers and lightering equipment, and organization and mobilization of personnel and resources (18 AAC 75.445(J). The Department uses the procedures set out in 18 AAC 75.455 to review non-routine plan amendments.

RESPONSE TO COMMENTS

Many comments were received concerning drills and exercises. In response to the public comments on this issue, the Department has placed a condition on the plan approval to allow the public to have an opportunity to review and comment on the plan holder's exercise program schedule.

Several of the commentators expressed concern that there were not adequate numbers of personnel to contain and control a response planning standard volume spill (for the Trans-Alaska Pipeline, this is equal to 49,450 barrels and for Pump Station 1 is 67,000 barrels). The Minton Creek scenario was exercised in June of 2000 for the pipeline RPS volume. The Pump Station 1 scenario (containing the RPS volume spill from a storage tank on TAPS) was exercised in 1999. Both of these scenarios will be exercised again during the next planning cycle. The plan condition of approval will afford the public the opportunity to review the proposed schedule for these exercises as well as other details about the exercise to ensure compliance with the plan.

Many public comments advocated for the Department to hold unannounced exercises. The multi -year exercise schedule will indicate that some exercises are surprise. However, the Department has both statutory and regulatory authority to conduct agency initiated unannounced exercises. The Department conducted three unannounced exercises along TAPS in the past twelve months and intends to conduct more during the next approval cycle.

Several requests were made to develop site specific containment and control plans and site specific recovery strategies. Some commentators advocated for Geographic Response Strategies (GRS's) to be developed and tested through exercises. Although the TAPS plan does not contain GRS's as seen in the Prince William Sound Tanker plan, site specific strategies are given in the scenarios and in the Region Plans where containment instructions are given for each segment. Additionally, the plan under review now has site specific information for the 220 containment sites as a result of the last three year's efforts.
A response strategy is listed for each containment site in the plan consisting of a site diagram with summer and winter tactics and equipment requirements.

It is possible to improve site specific protection through the exercise program. Priority areas of concern may be scheduled for exercises to result in site specific strategies. The Department encourages the interested public to participate in these efforts through the public review of the exercise program schedule.

Comments were received regarding increased protection for specific watersheds along the pipeline corridor. River drainage in the southern portion of the pipeline, especially tributary rivers to the Copper and Lowe Rivers were mentioned. One commentator also expressed a desire to see site specific strategies developed for the Middle Fork of the Koyukuk River. This commentator expressed a concern about adequate response between pipeline milepost 175 and 253 along the Dietrich and Koyukuk Rivers. These comments are being considered for potential exercises to better evaluate deployment and mobilization times in this area.

Commentators have advocated for "real time", "in the field", and "surprise" exercises. While unannounced, real time field mobilization exercises are beneficial, there is no state or federal regulation providing detailed requirements for industry preparedness exercises. The Department, as well as the Federal agencies which adhere to the National Preparedness for Response Exercise Program Guidelines, PREP, follows the guiding principle that preparedness can be measured by testing selected components of a response plan. The Department finds that both announced and unannounced, as well as field and table top exercises, are valuable to improve oil spill readiness and response.

Comments were received that oil spill response personnel were observed to be unable to carry out certain response tactics during exercises. The Department views shortcomings in meeting objectives and consequent follow up to the lessons learned from the exercise as an integral part of an exercise program to ensure compliance with the plan. For each Department initiated exercise, a follow up report is completed, specifically listing corrective actions which the plan holder is required to take.

A commentator noted that the same twelve scenarios exercised during the period between 1998 and 2001 should not be exercised again. The Department agrees and notes that the plan holder has already taken steps to define new, equivalent scenarios for the next plan cycle. Again, this information will be available for public review as a result of the plan condition.

Some commentators suggested that exercises be held where a sheet of black plastic is set out along the pipeline right of way and agency personnel require that it be discovered. The Department assumes that this comment refers to using the black plastic to simulate a volume of oil spilled to test the sensitivity of ground or aerial surveillance for leak detection. It is true that these exercises were indeed performed in the past and could be considered again. However, the Department is unsure that this is the most efficient means to evaluate leak detection.

Commentators have asked that exercises be designed to demonstrate that techniques are sufficient to collect oil and suggested that the collection of oranges be used to simulate oil. This past summer, Alyeska used spruce seeds to simulate oil behavior in a river. Members of the Joint Pipeline Office were present to observe this exercise. The Department agrees with the intent of the comment and encourages the incorporation of more oil simulation techniques into the exercise program.

BASIS FOR DECISION

The 1998 plan approval required the plan holder to provide to the Department a multi-year exercise program schedule to be carried out through the term of the plan approval. The schedule was required to include the exercising of all twelve scenarios and two hundred twenty containment sites in the plan. The plan holder was also instructed to submit quarterly status reports with summaries of the training activities performed, including identification of specific training, lessons learned, site conditions during the exercise, successes, deficiencies and suggested improvements to those tactics or containment sites, and a listing of those who participated.

In January 1999, Alyeska provided the Department its Oil Spill Response Exercise Program consisting of approximately sixty two exercises per year for the plan approval cycle.

The Department and the associated agencies of the Joint Pipeline Office have tracked the exercises by attending and participating in a portion of the exercises and reviewing the quarterly status reports.

For the current review, the plan holder has added text to Section 2.8.10 text stating that at each plan renewal, the plan holder will provide the Department and the associated agencies of the Joint Pipeline Office a three year schedule of oil spill response exercises. While the Department has concluded that the exercise program schedule was sufficient to demonstrate plan compliance and had been satisfactorily executed during the past cycle, it is requiring that the plan holder's next three year schedule of exercises be reviewed by the public. Condition Number 1 for this approval requires that:

"The plan holder has taken pro-active steps committing to develop a comprehensive exercise program that is referenced in the plan. To assist the Department with communicating the details of the exercise program to the public, the plan holder will, by January 1, 2002, provide to the Department a) a three year Oil Spill Response Exercise Program Schedule that will be carried out through the three year term of the plan approval, b) a listing of the exercises that are commensurate with the plan scenario exercises completed during the previous three year plan approval period and c) an explanation of the scope and objectives of each type of exercise to be conducted over the next three year plan approval period. The exercise program schedule will be submitted to the Department as a Supplementary Information Document to the plan and will be subject to public review. To ensure that the public has adequate the opportunity to review and comment on non-routine plan amendments, the amendment will be reviewed in accordance with the Department review procedures outlined in the regulations under 18 AAC 75.455."

Presenting the exercise program schedule for public review will assist the plan holder, the public and the Department in understanding mutual expectations. It is the intent of the Department that the review of the schedule at the beginning of the approval period can more clearly inform the public about the criteria to be used to evaluate continuous compliance. For example, the public review of the exercise program can be used to define which exercises will be announced or unannounced, which are table top and which include equipment mobilization. Some exercises may be scheduled to address certain objectives such as to further explore detailed response strategies in areas of public concern.

ISSUE # 3 CONDITION OF APPROVAL Response Planning Scenarios Public Review Requirement

STATEMENT OF ISSUES

Do the plan scenarios provide a description of the discharge containment, control and clean up actions to be taken which clearly demonstrate the strategies and procedures to conduct and maintain an effective response? Are the scenarios useable as a general guide for a discharge of any size?

FINDINGS:

The Department has found that the scenarios in the plan meet the minimum regulatory requirements. In the interest of providing continuous improvement to the plan, and as a demonstration of plan compliance, the plan holder has committed to present the scenarios in an improved format beyond the minimum regulatory requirements. The Department will require that the revised scenarios undergo public review before they are incorporated into the plan.

REGULATORY AUTHORITY

The response planning scenarios are being presented in an improved format beyond the minimum regulatory requirements to more readily demonstrate compliance with 18 AAC 75.445(d)(3), 18 AAC 75.445(d)(4), 18 AAC 75.445 (d)(5) as well at to provide continuing improvements to the plan. The Department uses the procedures set out in 18 AAC 75.455 to review non-routine plan amendments.

RESPONSE TO COMMENTS

A comment was received stating that the scenarios do not meet the requirements of State regulation. Later in the text, it is stated that "The scenarios appear to have been developed solely to meet the minimum regulatory requirements rather than as an evaluation process to determine the requirements for a specific response. The scenarios do not include enough details to determine whether the plan holder has the capability to mobilize a response system to adequately meet the RPS and other applicable regulations". During the 1998 plan review, the scenarios demonstrating the RPS volume spills were substantially re-written and additional scenarios were added to the plan. The Department has carefully examined the scenarios in regard to the requirements of 18 AAC 75.425 (e)(1)(F)(i) through (xii) and has found that the scenarios address the components required by law. During the past plan approval period, these scenarios have been exercised, and based on lessons learned, some modifications have been made.

The Department agrees that the format of the scenarios may be improved to better enable the evaluation of a response. In response to this comment, the plan holder has committed to reformat the scenarios during the current approval cycle and the Department, through a condition of plan approval, has required that these changes be reviewed by the public.

A comment was made that the assumed scenario conditions for Regions 4 and 5 do not constitute a worse case for these watersheds and that the plan should demonstrate a "worse" case discharge in these areas. In the 1998 plan review, ten scenarios, in addition to the two RPS volume spill scenarios, were developed to demonstrate responses in various areas of the pipeline under different conditions as agreed upon by the Department, the associated agencies of the Joint Pipeline Office and Alyeska. The Department finds that these scenarios meet the state CPlan requirements. However, this comment will be considered in future exercises designed for this area.

One commentator requested that a new set of scenarios be developed and tested. There is not a regulatory requirement to change scenarios written in the plan at each renewal. However, exercising different scenarios to demonstrate plan compliance over the next plan approval period can be valuable. The Department notes that the plan holder has already taken steps to define new, equivalent scenarios to be exercised during the next approval cycle.

BASIS FOR DECISION

In the pursuit of continuous plan improvement, the plan holder has added text to Section 1.7.1 of the plan stating that the response planning scenarios will be reformatted within one year of plan approval. The new matrix format is proposed to be consistent with that currently under development for use with the Valdez Marine Terminal Oil Discharge Prevention and Contingency Plan. It is the goal of the plan holder to present the response planning scenarios in an improved format beyond the minimum regulatory requirements in order to more readily demonstrate plan compliance.

The Department agrees that the proposed re-formatting of the scenarios will result in information that is more readily useable and easier to evaluate for plan compliance. The reformatted scenarios will be incorporated into the plan as amendments. Because these plan amendments are not routine plan updates as described in the regulations, the Department will conduct a public review under 18 AAC 75.455. The Department is approving the plan with Condition Number 2 which requires:

"The plan holder pro-actively committed to re-formatting the plan response scenarios. The scenarios will be reformatted by a team comprised of the plan holder, the Department, and the associated agencies of the Joint Pipeline Office. A plan amendment consisting of the final revised response scenarios will be submitted to the Department on or before May 30, 2003. To ensure that the public has adequate the opportunity to review and comment on non-routine plan amendments, the amendment will be reviewed in accordance with the Department review procedures outlined in the regulations under 18 AAC 75.455."

ISSUE #4 RESPONSE PLANNING STANDARDS

STATEMENT OF ISSUE

Has the Response Planning Standard been properly calculated and applied?

FINDINGS

The Department finds that the Response Planning Standard volumes listed in the plan have been calculated and applied according to the regulatory requirements.

REGULATORY AUTHORITY

18 AAC 75.432 and 18 AAC 75.436 describe the calculation for the RPS volume for the facility. For a terminal (pump stations), the RPS volume is equal to "the capacity of the largest oil storage tank at the facility covered by the plan, unless there are specific natural or man-made conditions outside the facility which could place the facility at an increased risk of an oil discharge affecting one or more storage tanks."

*The response planning standard volume for a crude oil pipeline facility is "the amount of oil which equals the length of the pipeline between pumping or receiving stations or valves (Lpl), minus the hydraulic characteristics of the pipeline due to terrain profile (Hpl), times the capacity of the pipeline in barrels per lineal measure (Cpl), plus the flow rate of the pipeline in barrels per time period (FRpl), multiplied by the estimated time to detect a spill event (TDpl), plus the time to shut down the pipeline pump or system (TSDpl). Written as a formula, the response planning standard is (Lpl - Hpl) * Cpl + FRpl * (TDpl + TSDpl)."*

For oil terminal facilities:

"(d) The Department will, in its discretion, reduce the requirements of (b) of this section, by a percentage up to that shown, for each of the following prevention measures in place at the facility:

(1) alcohol and drug testing of key personnel: 5 percent;

(2) an operations training program with a professional organization or federal certification or licensing of program participants: 5 percent;

(3) on-line leak detection systems for TANKS and piping: 5 percent;

(4) a sufficiently impermeable secondary containment area with a dike capable of holding the contents of the largest tank, or all potentially affected TANKS in the case of increased risk, and precipitation: 60 percent;

(5) for secondary containment as described in (4) of this subsection, designed with the following enhancements, an additional allowance for

(a) cathodic protection: 10 percent;

(b) fail-safe valve piping systems: 15 percent; or

(c) impervious containment area extending under the full area of each storage tank or double bottoms with leak detection: 25 percent; and

(6) containment outside the secondary containment area: 10 percent."

For crude oil pipelines:

"(c) The Department will, in its discretion, reduce the requirements of (b) of this section, by a percentage up to that shown, for each of the following prevention measures in place at the facility:

(1) alcohol and drug testing of key personnel: 5 percent;

(2) an operations training program with a professional organization or federal certification or licensing of program participants: 5 percent;

(3) on-line leak detection systems: 5 percent;

(4) corrosion control using

(a) ultrasonic thickness meters: 15 percent;

(b) instrumented in-line cleaning and diagnostic equipment ("smart pigs"): 15 percent; or

(c) a method described in (a) or (b) of this paragraph, coupled with cathodic-profile inspection at least triennially: 30 percent; and

'5) underwater pipeline cathodic- and burial-profile inspection: 5 percent."

RESPONSE TO COMMENTS

One commentator requested that a RPS volume be established for each watershed and that the plan holder should demonstrate response readiness for each RPS volume calculated. The plan holder uses the TAPS Oil Spill Program to determine the RPS for the pipeline. This program calculates the potential dynamic spill volume for each of the approximately 200 segments of the pipeline and is listed in the plan in Table 3.14. Two RPS volumes are listed in the plan, one for the pipeline, at 49,450 barrels and one for the pump stations at 67,200 barrels. The Department does not find that there is a regulatory requirement to develop response scenarios for each segment. The Department interprets the regulations as requiring a detailed scenario for the largest volume, and that this scenario is to be "used as a general guide for a discharge of any size"(18 AAC 75.425(e)(1)(F). The Department recognizes that each area of the pipeline presents unique challenges for response, deployment, and conditions, however, much of the information in the RPS scenario may be inferred for other areas since Alyeska uses a line wide, tiered response strategy to utilize equipment and personnel to various parts of the line. For this reason, ten scenarios in addition to the RPS volume scenarios were added to the 1998 plan to demonstrate capabilities. The Department does note, also, that readiness for various areas of the pipeline, other than the segment with the largest volume, can be required to be demonstrated through the exercise program to verify plan compliance.

Another commentator requested the verification of TAPS leak detection to ensure the proper calculation of the response planning standard, since it is dependent on the estimated time to detect a spill. As a condition of the 1998 plan approval to ensure effective operation of the leak detection system, the Department required monthly operating reports summarizing the performance of the system to be reviewed by a Joint Pipeline Office engineer. There has been no indication that the assumptions used to calculate the RPS volume required review. However, it should be noted that a review of TAPS leak detection is being conducted by the Joint Pipeline Office relative to the TAPS Mile Post 400 Release. If the results of this review warrant a change in the RPS calculations, a plan amendment would be required.

A comment was received which questioned the validity of RPS calculations due to damaged valves. The Department and the associated agencies of the Joint Pipeline Office have been working with Alyeska on their TAPS Valve Maintenance Monitoring Plan for the past several years. This program has brought about the testing, and repair/replacement of valves along the pipeline. Base upon the work completed by Alyeska, the "Memorandum of Agreement in the Matter of the Assessment of Valves on the Trans-Alaska Pipeline" was considered closed in April 2001. That this MOA was closed out gives the Department the basis to support the portion of the RPS calculations that are dependent upon the valves sealing. It is important to note that the program is on-going and that the valves are subject to continued monitoring and a seven year re-test cycle.

One commentator stated that prevention credits were inappropriately granted at Pump Station 1 due to insufficient secondary containment. Additional secondary containment dikes were constructed at Pump Station 1 according to a compliance schedule in the 1998 plan. Once the dikes were completed, the plan holder met the regulatory requirements of 18 AAC 75.075(a)(1) and the prevention credit could be applied. The issue of permeability of the containment areas at Pump Stations was reviewed during the 1998 plan review. The Department at that time considered the Pump Station 1 containment area to be sufficiently impermeable. Pump Station 8 is off line and not relevant to the comment.

BASIS FOR DECISION:

After review of the public comments, the Department has found no compelling reason to consider that the Response Planning volumes in the plan have not been properly calculated or that the prevention credits have not been properly applied. The issues brought up by commentators regarding conditions on TAPS affecting the RPS calculations, such as the leak detection system, the mainline valves, and secondary containment at Pump Station 1, have been monitored, tested, repaired or constructed during the past plan approval period. If any of these conditions should change in a way to effect the calculations, the plan would be amended.

ISSUE #5 PROTECTING ENVIRONMENTALLY SENSITIVE AREAS

STATEMENT OF ISSUE

Does the plan ensure sufficient procedures and methods to exclude oil from environmentally sensitive areas and areas of public concern?

Does the plan ensure that sufficient resources are maintained, available and can be deployed to prevent discharged oil from entering an environmentally sensitive area or an area of public concern?

FINDINGS

The Department's finding is that the plan meets the regulatory requirements to contain sufficient procedures and methods as well as sufficient response equipment, personnel and other resources to prevent discharged oil from entering an environmentally sensitive area or an area of public concern.

REGULATORY AUTHORITY

The regulations under 18AAC75.425(e)(1)(F) require "Response Strategies – a description of the discharge containment, control, and cleanup actions to be taken, which clearly demonstrate the strategies and procedures adopted to conduct and maintain an effective response, this information must be presented in the form of a response scenario to a discharge of the applicable response planing standard volume and must be useable as a general guide for a discharge of any size; Subpart (v) requires that "for a stationary facility or operation...procedures and methods to exclude oil from environmentally sensitive areas and areas of public concern identified under (3)(J) of this subsection, including for a land-based facility, protection of ground water and public water supplies.

18 AAC 75.445(d) states "(d) Response strategies. The response strategies must take into account the type of product discharged and must demonstrate that...

(4) sufficient oil discharge response equipment, personnel, and other resources are maintained and available for the specific purpose of preventing discharged oil from entering an environmentally sensitive area or an area of public concern that would likely be impacted if a discharge occurs, and that this equipment and personnel will be deployed and maintained on a time schedule that will protect those areas before oil reaches them according to the predicted oil trajectories for an oil discharge of the volumes established under 18 AAC 75.430 - 18 AAC 75.442; areas identified in the plan must include areas added by the Department as a condition of plan approval;" (also see 18 AAC 75.425(e)(1)(F)(v))

RESPONSE TO COMMENTS:

Multiple comments were received regarding the protection of environmentally sensitive areas.

A commentator stated that the plan does not provide detailed descriptions of strategies, personnel and equipment necessary to implement tactics at each containment area. The commentator also recommended that each containment site is to be surveyed and diagramed. As a result of a condition of approval from the 1998 review, the plan under review now has site specific information for the 220 containment sites. Although not to the level of detail as suggested by the commentator, a response strategy has been developed for each containment site consisting of a site diagram with summer and winter tactics and equipment requirements.
(The public review copy of the plan did not contain all 220 sites as the remaining sites work was being conducted this summer.)

Several requests were made to develop Geographic Response Strategies (GRS's) and test them through exercises. Specific watersheds along the pipeline corridor were highlighted for increased protection. River drainage's in the southern portion of the pipeline, especially tributary rivers to the Copper and Lowe Rivers were mentioned. One commentor also expressed a desire to see site specific strategies developed for the Middle Fork of the Koyukuk. This commentator expressed a concern about adequate response between pipeline milepost 175 and 253 along the Dietrich and Koyukuk Rivers. These comments are being considered for potential exercises to better evaluate deployment and mobilization times in this area.

A reviewer commented that the Department should require regular testing of all site specific response strategies through exercises and that plan updates should be made to reflect lessons learned. During the last plan approval cycle, many site specific response strategies were tested and where appropriate, plan updates were made. The Department suggests it is possible to improve site specific protection through the exercise program described in the plan. The Department is requiring through a condition of approval that the TAPS Exercise Program Plan schedule for the next plan approval cycle be submitted to the Department by January 1, 2001 and that this plan be public reviewed.

A reviewer recommended that extra prevention measures should be taken to protect rivers in the Copper and Lowe River areas. Examples given included the construction of berms or identification of additional natural containment sites. The plan holder has proactively pursued this option in the Copper River area. A berm has already been completed on the Klutina River and on is under construction at the Tazlina. A berm is scheduled for completion on the Gulkana River for 2003. The Department is in agreement that extra prevention measures are helpful, but view this as a continuous improvement issue, beyond the regulatory requirements for plan approval.

A comment was received that "TAPS ROW drainage structures, such as culverts and low water crossings that would be "control points in the event of a spill" have deteriorated, reducing their ability to function.

The Department agrees that culverts and low water crossing have deteriorated, but not to the extent of not being useable as an oil spill control point. Steps to correct this problem began in 1999, and is ongoing as part of the ROW renewal efforts. A maintenance standard has now been established and documented for addressing this problem.

Commentators expressed a concern that access to the pipeline in winter could be hindered since access roads are allowed to be snowed over, in contrast to the past when they were cleared of snow year round. A discussion of deployment strategies, including plans for alternative methods in adverse weather conditions is a regulatory requirement of the plan (18 AAC 75.425 (e)(1)(E)). Section 1.6.2.4 of the plan is a discussion of transport during adverse weather conditions such as when access roads are snow covered. Past and current practice is to remove snow on a case by case basis to allow wheeled vehicle access. Alyeska has over 30 tracked vehicles (Tucker snow cats or Bombardiers) in their spill response inventory. If heavy equipment is needed at the spill site, snow will be removed using equipment from the spill response inventory. Dozers ranging form Caterpillar D-3 to D8/D9 and 966] Many access roads and bridges were constructed or upgraded as a result of the Implementation Plan developed in 1991. An effort associated with the TAPS ROW renewal includes maintenance on these structures.

Commentators raised the issue of the adequacy of responders and equipment. In particular, a comparison was made between the amounts of resources in 1994 with today's levels, primarily due to the closures of Pump Stations 2,6,8, and 10.

One assertion was that the number of first line responders has decreased by as much as 50%. The Department cannot validate this statement. The 1991 Implementation Plan recommended two P&CM supervisors and 3 baseline team members. The 1994 version of the CPlan did not give any requirement for a certain number of initial response team numbers. Rather, the plan stated that the maintenance and operator technicians would make up the Initial Response Teams. It was not until the 1998 plan revision that a numerical commitment was made actually giving minimal numbers of response team members with corresponding training requirements. Although the closure the pump stations may represent a diminishment of "bodies" along the pipeline, the Department does not agree that this represents a diminishment of "front line" responders since not all of the "bodies" present were committed for oil spill response.

A primary focus of the 1998 plan review was to compensate for any changes in response capability due to the closures of the pump stations and the resultant changes to staff. To compensate for the closure of Pump Station 2, Alyeska contracts with a Prudhoe Bay team from Alaska Clean Seas (ACS). A three person baseline crew and a Maintenance Coordinator were required to remain at Pump Station 6 after it went off-line. Conditions of the 1998 approval required that a seven person response team in Fairbanks be formed to compensate for the closure of Pump Station 8. A Glennallen team of two, three person crews working week-on, week-off was formed to maintain response capability when Pump Station 10 was taken offline. In addition to the initial response teams, Pipeline Maintenance Team (PMT) technicians receive oil spill training and are available for response.

A request was made to increase Pump Station 11 winter staffing to seven days a week, ten hours a day. Pump Station 11 is staffed by local residents who can be quickly contacted in an emergency. After hours mobilization requirements for this staff is for five people within three hours of notification and nine people within six hours.

Another assertion was that equipment available for spill response has been reduced and spread too far to provide effective protection. A comparison of the equipment lists since the 1994 plan and the present plan indicates only very minor changes or substitutions of equipment. During this period, improvements in the equipment inventory have occurred such as the substitution of outdated gas powered pumps with hydraulic pumps and the replacement of older technology skimmers with newer, more efficient skimmers. The comment that equipment is now "spread too far out" can not be substantiated. While some equipment has been moved from off-line to the adjacent active pump stations, such as moving equipment from Pump Station 2 to Pump Stations 1 and 3, in areas where resources were deemed to be too sparsely distributed, the oil spill equipment remained, such as at Pump Station 6. A condition of approval of the 1998 plan required plan edits that provided for the restriction of the allowable movements of response equipment.

A request was made to station a twin engine helicopter and fuel storage in the Copper River Basin. The issue of twin verses single engine helicopters was addressed during the 1998 plan review. The lifting capacity of a single engine helicopter is on the order of 15 to 30% less than that of a twin engine helicopter, depending on fuel load. What this means is that the single engine helicopter may require more trips to carry the same load. Over a longer period, however, any advantage in fuel economy for the single engine helicopter will reduce the difference in the number of trips and could confer an advantage to the single engine helicopter. At any rate, the agencies did not find the single engine helicopters inadequate for purposes of supporting a spill response.

While helicopters may be very useful in a spill response, the CPlan is based primarily on a ground response. If a helicopter is needed in the Copper Basin, it can be dispatched out of Valdez, Anchorage, or Pump Station #9 (Delta). While Thompson Pass, Isabelle Pass or Chickaloon Pass may be closed by weather, it is less likely that all would be closed simultaneously. Helicopter fuel in the Copper Basin is located at Pump Station 12, which has three fifty-five gallon drums with pump and at the Gulkana Airport. Air logistics can arrange for a fuel truck out of Glennallen, Valdez, Anchorage, or Fairbanks for sustained operations from a staging area.

A comment was made that there is currently 25% less warm storage on TAPS than there was in the mid-nineties and that new mobile field vans do not compensate for the reduced storage space. In addition to the field vans, oil spill equipment warm storage buildings have been built at Pump Stations since the 1991 Implementation Plan recommendations, with many completed these past two summers at Pump Stations 3, 4, 5, 6, 12 and the Nordale Yard. This new construction represents a total of over 30,000 square feet of storage.

While the Department is unable to obtain the exact amount of storage space that existed before the construction era buildings had to be removed, it is more important to note that the 1998 plan required spill response equipment storage procedures. The plan gives a minimum recommended listing of major pieces of equipment that is required to be indoors, outside plugged in or outside cold storage. This listing enables Department to verify warm equipment storage via inspections.

BASIS FOR DECISION:

After careful consideration of public comments, and an extensive review of the plan contents, the Department finds that the plan meets the regulatory requirements to contain sufficient procedures and methods as well as sufficient response equipment, personnel and other resources to prevent discharged oil from entering an environmentally sensitive area or an area of public concern.

The Department finds that response strategies are presented in sufficient detail to meet the regulatory requirements. Although comments referred to additional detail needed for the containment sites and the request to develop Geographical Response Strategies for specific watersheds along the pipeline corridor, the Department considers this beyond the detail required in the regulations. These comments, however, will be considered for potential exercises during the next plan review cycle to better evaluate strategies in certain areas.

The Department could not conclude that personnel or equipment are insufficient based on the public comments since levels have remained substantially the same as those recommended in the 1991 implementation plan conclusions. This was based upon an extensive review that recommended increased personnel and equipment which was implemented during the following years. Equipment tables in the 1994, 1998 and 2001 reflect substantially steady quantities of equipment and a pattern of improving technology. Personnel numbers are better defined in the 1998 plan and substantially unchanged in the 2001 plan.

The Department, the associated agencies of the Joint Pipeline Office, and the plan holder continue to pursue a course of continuous improvement, with additional procedures and methods such as new response technology. However, this is not viewed as an approval issue at this time. Through the plan implementation process, such as through monitoring oil spill exercises, conducting inspections, or observing real spills, the Department may identify insufficiencies that can be addressed in future plan amendments.

ISSUE #6 LEAK DETECTION FOR CRUDE OIL PIPELINES

STATEMENT OF ISSUE

For a remote pipeline not otherwise accessible, does the plan holder provide for adequate aerial surveillance in regard to frequency and effectiveness?

FINDINGS

It is the Department's finding that the plan holder meets the regulatory requirement of weekly aerial surveillance for a remote pipeline. Measures have been taken to improve the effectiveness of the over flights.

REGULATORY AUTHORITY

18 AAC 75.055(a)(3) requires that "(3) for a remote pipeline not otherwise directly accessible, weekly aerial surveillance, unless precluded by safety or weather conditions."

A case by case analysis and review for Best Available Technology is required under 18 AAC 75.425(e)(4)(A)(iv) which states "for a crude oil transmission pipeline contingency plan: leak detection, monitoring, and operating requirements for crude oil pipelines that include prompt leak detection as required by 18 AAC 75.055(a)."

RESPONSE TO COMMENTS:

Comments on the topic of aerial surveillance having to do with the Mile Post 400 spill are not addressed in this section since they are being considered under Issue #1.

The Department received comments recommending the increased frequency of helicopter aerial surveillance flights, which at present, are conducted weekly (twice as many as in the mid-nineties), if not more frequently due to new security measures. Although more frequent flights would provide a level of greater assurance for visual leak detection, the Department does not have the regulatory authority to require more frequent flights.

Comments were made regarding the effectiveness of the aerial surveillance. Commentators stated that there are now only four dedicated helicopters where once there were six. Alyeska contracts five helicopters from Air logistics. These helicopters are located at Pump Station 4, Pump Station 5, Fairbanks, Pump Station 9 (Delta), Pump Station 12 and Valdez. In addition, a helicopter is available at Prude Bay through a contract with Alaska Clean Seas (ACS), an oil spill coop of which Alyeska is a member. The 1991 implementation plan indicated that there were to be five helicopters with one on-call back up helicopter in Fairbanks.

These commentators also expressed a concern regarding the training of those conducting the flights. They cited the example of the discovery in May 2000 of tripped anchors and displaced shoes on an above ground portion of the pipeline near Mile Post 170. The Department cannot ascertain that "dedicated, trained observers" have been replaced. Documentation from the 1991 Implementation Plan for Enhancements shows the aerial surveillance program conducted by the P&CM, the equivalent position conducting surveillance's today. There are now an increased number of Maintenance Coordinators who are flying more frequently than in the mid-nineties, when aerial surveillance frequency was only twice a month. Since the mid-nineties, Alyeska has developed a programmatic approach to conducting the weekly aerial surveillance flights as well as the documentation of observations gathered during the flights. These procedures and requirements are given in "Surveillance and Monitoring Manual MS 31". In response to the pipe movement at MP 170, instructions for aerial surveillance of this section of the pipeline have been modified in the manual.

One commentator inquired if the requirements of Best Available Technology for leak detection had been met. The BAT review under Section 4.2.13 of the plan lists the combination of on line leak detection and visual observations, which include regularly scheduled aerial surveillance. As a result of the 1998 plan approval, the Department required that the plan holder purchase or contract aircraft-based infra-red technology to fulfill the requirement of BAT for oil discharge tracking. The results of this requirement were that Alyeska purchased a forward-looking infra-red (FLIR) camera system that could be mounted on their helicopters. This system has been in use to conduct periodic aerial surveillance's of the aboveground pipeline vertical support member (VSM) heat dissipation radiators during winter conditions. However, it is not used regularly as a means of leak detection.

A comment requesting improvements in check valve monitoring, specifically, to monitor the check valves each week, was received. The regulations under 18 AAC 75.080 (f) require that above ground piping and valves must be visually checked for leaks or damage during routine operations or at least monthly. The check valves are monitored through the weekly aerial surveillance. Valves are inspected at least four times per year during ground surveillance and receive preventative maintenance at least annually. Since 1997, soil gas vapor readings have been taken annually for all buried valves not enclosed in vaults.

Comments about leak detection regarding the Mile Post 400 Spill were received. However, they are not addressed here since an analysis of leak detection in regards to the spill is still underway.

BASIS FOR DECISION:

Based on the plan holder's schedule, it is the Department's finding that the plan holder meets the regulatory requirement of weekly aerial surveillance for a remote pipeline. The Department is in agreement with commentators that more frequent aerial surveillance would improve leak detection, but it does not have the authority to make this a requirement of plan approval.

Measures have been taken to improve the effectiveness of the over flights. Aerial surveillance procedures to more readily detect abnormal conditions such as that at Mile Post 170 have been modified to correct for the lack of detection of pipe movement. In 1999 Alyeska purchased a forward-looking infra-red (FLIR) camera system that could be mounted on their helicopters. This system has been in use to conduct periodic aerial surveillance's of the aboveground pipeline vertical support member (VSM) heat dissipation radiators during winter conditions. However, it is not used regularly as a means of leak detection.

ISSUE #7 RISK ANALYSIS

STATEMENT OF ISSUE:

Has Aleskya met the spill prevention requirements by identifying any conditions that might increase the risk of a spill, and any measures that have been taken to reduce the spill risk related to that condition?

FINDINGS:

The Department finds that Alyeska has identified conditions that might increase the risk of an oil spill and that there are measures in place to reduce those risks. The Department finds that Alyeska's Slope Stability Monitoring Program is adequate to identify slope stability problems in a timely manner. Also, the Department finds that the on-going seismic design basis evaluation and corrective action plans, required and overseen by the JPO, are adequate to identify technical and operational changes necessary to mitigate seismic risks in a timely manner.

REGULATORY AUTHORITY:

18 AAC 75.425 (e) (2), the prevention plan "must include, at a minimum, the following information....(D) a description of any conditions specific to the facility or operation that might increase the risk of a discharge, including physical or navigation hazards, traffic patterns, or other site-specific factors, and any measures that have been taken to reduce the risk of a discharge attributable to these conditions;...."

RESPONSE TO COMMENTS:

Three comments reflected concern regarding risks of oil spills due to slope stability problems and outdated seismic integrity evaluation of the pipeline. One commentator stated that they understood Alyeska has recently conducted an investigation into soil stability in Regions 4 & 5 and requested that the Department require this study be peer reviewed. One commentator expressed concern about whether Alyeska's earthquake monitoring program had been reduced over the years and cited concern over a November 2000 earthquake in interior Alaska that did not trigger immediate inspection of the pipeline. Comments were also received concerning vibrations in the pipeline at Thompson Pass.

BASIS FOR DECISION:

Section 3.4 of the plan lists a summary of the conditions that might increase the risk of a discharge and mitigating measures. Both earthquakes and settlement (slope stability) are included in this list. The mitigating measures identified for earthquakes include a statement that the original design criteria factored in the seismic zones along the pipeline route. The mitigating measure for settlement include the use of curvature pig surveys, the installation of settlement monitoring rods, and monitoring above and below ground pipe.

The Department is affiliated with the Federal/State Joint Pipeline Office (JPO), which is comprised of numerous agencies each with some individual oversight responsibility of the TransAlaska Pipeline System (TAPS). The seismic and soil stability topics addressed in this section of the Department's findings are topics which other JPO agencies have significant oversight responsibilities. Under the federal and state right of way agreements for TAPS, the Bureau of Land Management and the Alaska Department of Natural Resources have clear responsibilities for assuring the safe operation and maintenance of the pipeline. You will note reference to JPO projects, analyses and decisions in the following discussion. For these issues, the Department works in a collaborative and team approach with other JPO agencies. In so doing the Department does not delegate or waive its duties to implement laws enacted by the Alaska Legislature. Rather the approach reflected below is to rely on the combined work efforts of JPO on topical issues where there is common authority and where there is not a multi-agency authority to describe how the Department is implementing regulations or laws unique to DEC oversight.

A significant amount of work was done by the JPO in 1998 through 2000 to review and verify the design basis for TAPS operation in relation to seismic design of below and above ground systems for the pipeline, Pump Stations, and Valdez Marine Terminal. JPO Engineering Report 00-E-017 (May 15, 2000) found that since original design and construction "...reviews of the adequacy of TAPS criteria have confirmed that the specified earthquake magnitude and design ground motions are adequate in the most seismically active region along the pipeline route, i.e., Valdez, and quite conservative for other areas along the route."[1] The report contained some recommendations for modifications to the Design Basis Update Manual, however, and the Department will work with JPO to follow up on those modifications. The Department finds that the on-going seismic design basis evaluation and corrective action plans, required and overseen by JPO, are adequate to identify technical and operational changes necessary to mitigate seismic risks in a timely manner.

The Department will continue to work collaboratively with JPO to review and follow-up on continuing modifications made to the Design Basis Update to reflect new seismic technology and strategies that improve Alyeska's ability to mitigate potential oil spill risks associated with earthquakes.

The Departments' findings for the 1998 Pipeline C-plan review noted several on-going slope stability reviews that would be concluded in 1999. Alyeska, with JPO oversight, conducts surveillance and monitors 47 slopes along the pipeline route for stability concerns. The slopes are examined by Alyeska at least every other year and some as frequently as every six months. In 1998 the Department noted that four slopes along the pipeline route had been identified as having stability concerns: Treasure Creek, Squirrel Creek, Pump Station 11 Hill and Klutina Hill. A review of Alyeska's slope stability assessments conducted in 1998 led JPO to conclude that Treasure Creek and Klutina Hill slopes remained frozen and that the pipeline is safe on them in both static and dynamic conditions. Pump Station 11 and Squirrel Creek slopes were both found to have partially thawed and the factors of safety for these slopes did not meet design basis requirements.

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[1] Engineering Report 00-E-017, APSC Manual DB-180 Design Basis Update, Vic Manikian, P. E. Engineering Consultant, May 15, 2000, p. 1.

Based on these findings and at JPO's request Alyeska agreed to conduct risk assessments for the two slopes. In August 1999 JPO required Alyeska to provide a corrective action plan for slope stability and above ground pipeline maintenance on Squirrel Creek slopes. Alyeska requested a design basis variance for Squirrel Creek, and in January 2001 JPO approved the variance provided Alyeska implemented the monitoring, surveillance and maintenance activities outlined in their corrective action plan.

Currently, Alyeska is conducting a reliability centered maintenance analyses of above ground pipe and soil stability conditions from Pump Station 12 to Pipeline Milepost 736. JPO has requested technical information obtained from that effort, and expects to receive it in January 2002, and Alyeska will brief JPO on their corrective action plan in April 2002. The Department will continue to work with JPO to track the progress of slope stability analyses along the pipeline route and to follow-up on corrective actions required to address seismic and slope stability concerns.

The Department finds that the slope stability monitoring program is adequate to identify slope stability problems in a timely manner. DEC, in cooperation with JPO, will track the continuation of the slope stability monitoring program and appropriate follow-up actions. In order to enhance the description of mitigating measures, the Department will require a plan edit to include a description of Alyeska's slope stability monitoring program in the text of Section 3.3.

JPO's 1998 evaluation of Alyeska's Earthquake Monitoring System (EMS) found that it was capable of providing information to the Operations Control Center in Valdez should a major seismic event occur, and JPO verified that Alyeska was conducting the surveys and surveillances required by their monitoring programs[2]. Further, in response to public concerns regarding the November 29, 2000 5.7 Richter scale earthquake in Interior Alaska, JPO engineers evaluated whether Alyeska's EMS should have detected the earthquake and if the earthquake would have had the potential to damage the pipeline. JPO determined that the acceleration level of the November 2000 earthquake was much lower than the threshold alarm level and that the EMS responded appropriately to that earthquake.

Vibrations in the pipeline south of Thompson Pass were caused when the pipeline backpressure control system was damaged in January 2000. JPO required Alyeska to report the effect of the vibrations on pipeline integrity. Alyeska's report demonstrated the need for keeping the backpressure control system online in order to support pipeline integrity. The system was brought back online in February 2000. After participating in a causal factor analysis, JPO was satisfied that Alyeska had taken adequate steps to prevent the incident from repeating. JPO is currently evaluating TAPS maintenance and useful life requirements as part of comprehensive reliability centered maintenance (RCM) analyses of critical TAPS systems. The Department will continue to work collaboratively with JPO to review and follow-up on the findings of the RCM analysis of the backpressure control system.

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[2] Joint Pipeline Office Comprehensive Monitoring Program Report, Evaluation of Alyeska Pipeline Service Company's Operation of the Trans-Alaska Pipeline System, February 1999, p. 33

ISSUE#8 OTHER COMMENTS

Several groups and individuals recommended actions to be taken by the Department. These commentators felt that the best way to assure the plan holder's preparedness was through unannounced exercises and inspections, since this could be the best test of equipment, and personnel training needs. The Department has the authority through the regulation (18 AAC 75.485) to conduct two announced or unannounced exercises per year at a facility. Last year, the Department and the associated agencies of the Joint Pipeline Office conducted three unannounced exercises on TAPS and intends to conduct additional exercises this year. Associated agencies of the JPO such as BLM and EPA have the authority to conduct unannounced exercises and inspections.

Several commentators expressed frustration with the level of stakeholder participation in the process of reviewing CPlans and in participating in evaluating CPlan implementation such as in observing oil spill exercises. The Department regulations address public participation in the review and approval process of the CPlans (18 AAC 75.455), but do not address authority for the Department to require the plan holder to allow citizen participation in oil spill exercises. Per 18 AAC 75.455, the Department directed the planholder to send additional copies of the plan stakeholder groups, issued an extended public comment period and held public hearings. The Department has at many levels tried to include stakeholders whenever possible through extended public process including formal public hearings or meeting informally with individuals or stakeholder groups. After the 1998 plan review process, the Department and the associated agencies of the Joint Pipeline Office began a series of stakeholder meetings with the goal of discussing CPlan issues between plan approval cycles. Different formats for these meetings were attempted, with the Department attempting to present agenda items as suggested by stakeholders. However, these meetings were discontinued due to low attendance and generally negative feedback. The Department values public involvement and remains responsive to suggestions from the public.