10. OPERATIONS AND MAINTENANCE

O&M of the ASAP encompasses all activities after completion of construction activities, including startup; day-to-day activities necessary for the pipeline to function; and maintenance of equipment, systems, facilities, and pipe. Maintenance includes both preventative maintenance to make sure equipment and systems continue working efficiently, and corrective maintenance to fix or replace equipment and systems that are not working.

10.1 OPERATIONS AND MAINTENANCE PLAN

The pipeline operator will prepare an O&M Plan in accordance with 49 CFR 192.605. The O&M Plan will provide written procedures for conducting O&M activities. Because ASAP is a transmission line, the O&M Plan will also include procedures for handling abnormal operations. The O&M Plan will be prepared before pipeline operations commence and will be updated at least once every calendar year.

The O&M Plan must include procedures to provide safety during O&M, including procedures for the following situations:

- Operating, maintaining, and repairing the pipeline in accordance with applicable requirements
- Controlling corrosion
- Maintaining construction records, maps, and operating history, and making these documents available to the appropriate Operations personnel
- Gathering data needed for reporting incidents in a timely and effective manner
- Starting up and shutting down any part of the pipeline in a manner designed to assure operation within the pipeline's MAOP limits, plus the build-up allowed for operation of pressure-limiting and control devices
- Periodically reviewing the work done by Operations personnel to determine the effectiveness and adequacy of the procedures used in normal O&M, and modifying the procedures when deficiencies are found
- Taking adequate precautions in excavated trenches to protect personnel from the hazards of unsafe accumulations of vapor or gas, and making emergency rescue equipment available when needed, including a breathing apparatus and a rescue harness and line
- Responding promptly to a report of a gas odor inside or near a building
- Implementing the applicable control room management procedures

In addition, the O&M Plan must include safety procedures for exceedances of operating design limits (that is, during abnormal operations), including procedures for the following situations:

- Responding to, investigating, and correcting the cause of the following:
  - Unintended closure of valves or shutdowns
  - Increase or decrease in pressure or flow rate outside normal operating limits
  - Loss of communications
  - Operation of any safety device
  - Any other foreseeable malfunction of a component, deviation from normal operation, or personnel error that may result in a hazard to persons or property
- Checking variations from normal operation after abnormal operation has ended to determine continued integrity and safe operation of the pipeline
- Notifying responsible Operations personnel when notice of an abnormal operation is received
- Periodically reviewing the response of Operations personnel to determine the effectiveness of the procedures controlling abnormal operation, and taking corrective action where deficiencies are found

Operations and Maintenance Facilities

Three MRBs are planned for ASAP, one at the GCF at Prudhoe Bay, one in Fairbanks, and one near Big Lake. Each location will include office facilities, a maintenance garage, and both warm and cold warehouse space. The Fairbanks O&M facility will also house the backup pipeline control room. Each pipeline O&M facility will be accessible via road and will have sufficient parking for staff, visitors, and maintenance vehicles and equipment.

10.2 NEW OR EXPANDED ACCESS FOR OPERATIONS AND MAINTENANCE

Major facilities will be accessible via the road. In addition, a number of roads will provide access to the ASAP operational ROW. Attachment 5 includes a list of existing and new permanent roads that will be used to access facilities or the ROW.

10.3 INSPECTION AND TESTING OF PIPELINE

10.3.1 Cleaning, Hydrostatic Testing, and Drying

After completion of the pipeline, it will be hydrostatically tested to verify the pipeline has the strength necessary to meet design conditions and that the pipeline is leak-free. Water for hydrostatic testing will be withdrawn only from designated, permitted, surface water sources with the capacity to supply the desired volumes without adverse effects on aquatic habitat and associated biota (particularly overwintering fish).

Hydrostatic testing will most likely be done using untreated, heated water approximately 36 to 38°F under most conditions. In winter, water will be freeze-protected as necessary. Test water releases will be confined to designated, permitted upland locations and will be diverted to settling basins as necessary to comply with discharge permit limitations.

Plans for hydrostatic testing will be developed in accordance with applicable legal requirements and will follow BMPs. Specific information regarding hydrostatic testing will be developed by the construction contractor and operator of the pipeline. Analysis of each spread must be conducted to determine test sections. Once test sections are determined, a test manual will be prepared for use by the testing contractor; final tests will be in compliance with the federal safety regulations.

10.3.2 Corrosion Control

In general, the entire pipeline will be externally coated with FBE and internally coated with a two-part epoxy coating. The pipeline will be coated with an additional abrasion-resistant coating for HDD crossings and where the pipeline will be placed in rocky ground or stream crossings where concrete coating is not used due to buoyancy concerns.

A cathodic protection system was preliminarily designed to protect the pipeline from corrosion. The cathodic protection is a partially redundant system, where both sacrificial anodes and impressed current will be used. Between Prudhoe Bay and Healy, both systems will be used due to permafrost soils. Based upon the boundary of permafrost soils, beginning near Healy and continuing south, only the impressed current system will be employed. The power supply for the impressed-current cathodic protection system will come from existing electrical grids where available. Where grid power is not available, power will come from natural gas-fired power generators or batteries.

The GCF will have a separate cathodic protection system.

The cathodic protection test stations will be within the footprint of the pipeline trench excavation. Land impacts associated with the test stations were accounted for in the TCE, permanent ROW, and permanent workspace requirements for the other proposed project facilities.

10.3.3 Leak Detection and Emergency Response

A Supervisory Control and Data Acquisition (SCADA) system will be implemented to collect measurements and data along the pipeline, including flow rate through the pipeline, operational status, pressure, and temperature readings. This information may all be used to assess the status of the pipeline. The SCADA system will provide pipeline personnel with real-time information about equipment malfunctions, leaks, or any other unusual activity along the pipeline.

There will be fire alarm detection or suppression systems at facilities in accordance with all applicable codes and regulations.

The pipeline operator will develop and implement an Emergency Response Plan in accordance with 49 CFR 192.615 to minimize the hazards resulting from a pipeline emergency, including a leak. The Emergency Response Plan will, at a minimum, include:

- Procedures for receiving, identifying, and classifying notices of events that require immediate response by the operator
- Procedures for notifying fire, police, and other public officials as necessary; establishing and maintaining adequate means of communication with appropriate officials; and coordinating responses in the event of an emergency
- Procedures for the prompt and effective response to a notice of emergency events, including gas detection inside or near a building, fire near or involving the pipeline or related facilities, explosions near or involving the pipeline or related facilities, or a natural disaster
- Availability of personnel, equipment, tools, and materials needed at the scene of an emergency
- Procedures for emergency shutdown and pressure reduction in any section of the pipeline system as necessary to minimize hazards to life or property
- Procedures for protecting life and property in the event of an emergency

10.4 REMOVAL OR ADDITION OF PIPES AND PUMPS FOR PIPELINE MAINTENANCE

In general, removal or addition of equipment or pipe for maintenance is expected to occur at major facilities where the pipeline is aboveground. It is possible that removal or addition of equipment or pipe may take place at other locations (for example, MLVs). All procedures for these activities will be detailed in the O&M Plan. Procedures will be developed and carried out in accordance with applicable regulations and will follow BMPs.

10.5 RIGHT-OF-WAY MAINTENANCE SCHEDULES

In general, it is expected that limited maintenance will be required on the ROW. A schedule for maintenance will be developed in accordance with legal requirements and will follow BMPs.

10.6 SAFETY

The ASAP will be designed, constructed, operated, and maintained in accordance the requirements of the PHMSA within the USDOT. These requirements are included in 49 CFR Subtitle B and are intended to provide adequate protection for the public from natural gas pipeline failures. The ASAP will meet or exceed these requirements. These requirements address:

- Pipeline safety programs and rulemaking procedures (49 CFR Part 190)
- Annual reports, incident reports, and safety-related condition reports for natural gas pipelines (49 CFR Part 191)
- Minimum federal safety standards for transportation of natural gas by pipeline (49 CFR Part 192)

An O&M Plan will be developed as discussed in Section 10.1, and a Safety Plan will be developed as discussed in Section 7.10. O&M will be performed in a manner that is protective of personal health and safety and the environment.

10.6.1 Damage Prevention

A Damage Prevention Program, as identified in 49 CFR 192.614, will be implemented to prevent damage from excavation activities, including excavation, blasting, boring, tunneling, backfilling, the removal of aboveground structures by either explosive or mechanical means, and other earth-moving operations. As part of the Damage Prevention Program, the pipeline operator will participate in the state one-call system for excavators to call for utility locates before excavation activities begin, as required by 49 CFR 192.614.

Participation in the one-call system may not be necessary if access to the pipeline is physically controlled by the operator.

10.6.2 Public Awareness

The operator of the ASAP will develop a public education program that follows the API's Recommended Practice (RP) 1162 (API, 2010). The education program will include provisions on the one-call notification system (utility locate), hazards associated with an unintended release and indications that a release has occurred, and reporting procedures and steps to be taken if a release occurs.

10.7 INSPECTION AND MAINTENANCE SCHEDULE

A Continuing Pipeline Surveillance Plan for ASAP will be developed in accordance with 49 CFR 192.613. This plan will detail procedures for continuing surveillance of the pipeline and associated facilities so that appropriate action may be taken in the event of equipment failures, leakages, corrosion, substantial changes in cathodic protection, or other unusual O&M conditions. The plan will adhere to all pertinent regulations and will follow BMPs.

10.7.1 Aircraft

Aerial patrols may be used to identify any areas of concern regarding the ASAP. In particular, aerial patrols can identify threats to pipeline integrity from erosion or water undermining the pipeline (for example after storm events or ice damming), after seismic events, and during construction activities or unauthorized digging in the vicinity of the pipeline. Procedures for aerial patrols will be described in the Continuing Pipeline Surveillance Plan.

10.7.2 Ground Inspection

Ground inspection will be performed when aerial patrols identify any areas of concern, in the event of excavation near the pipeline (during or immediately after the activity) and on a periodic basis. Procedures and frequency of ground patrols will be described in the Continuing Pipeline Surveillance Plan.

10.8 PERSONNEL AND WORK SCHEDULES

Information about O&M staffing requirements and work schedules are based upon early planning and estimates of Full-time Equivalents (FTEs). Additional information regarding the number of personnel required for long-term O&M will be developed as the project progresses.

Preliminary projections for O&M staffing are 138 FTE positions working a 2 weeks on and 2 weeks off rotation at the GCF, Prudhoe Bay MRB, and the GCF operations camp; 22 FTEs working a standard work week schedule in Fairbanks at the MRB; and 14 FTEs working a standard work week schedule in Big Lake for the MRB. The Anchorage Headquarters will include a corporate staffing of approximately 66 FTEs working a standard work week schedule. Housing for GCF workers will be provided at the onsite GCF operations camp. Personnel located in Fairbanks, Big Lake, and Anchorage will be responsible for providing their own housing within local communities.

10.9 FIRE CONTROL

Fire control systems will be in place at all major facilities. More detailed information will be developed as the ASAP design progresses. Fire control systems will be developed in accordance with all pertinent regulations and will follow BMPs. In the event of a fire, the Emergency Response Plan will be followed, as described in Section 10.2.3.

10.10 CONTINGENCY PLANNING

Contingency planning will be performed on an ongoing basis to identify specific HSSE scenarios and develop procedures to address these scenarios. Contingency planning will focus on the most likely events, but will also consider events that have a low likelihood of occurring but would have major impacts (for example, a terrorist attack). The objective of contingency planning is to develop mechanisms and procedures so that ASAP personnel can respond in a timely manner to an unexpected event.