

**Puget Sound Energy
Redmond Supply Main-Phase 1
Safeguards**

Filings and Notices:

1. Notify the Commission 48 hours prior to the commencement of construction.
2. Submit a map of the pipe location and the final construction specifications to the Commission within 30 days of project completion.

Design and Construction:

1. The 16-inch diameter pipe will be constructed of American Petroleum Institute (API) 5L Grade X-56 steel pipe with a nominal wall thickness of 0.375 inches.
2. Provide a 24-hour Supervisory Control and Data Acquisition system to monitor the system operating pressures.
3. Install two mainline valves on the 16-inch pipeline. Valves will be located at the ends of the segment.
4. Radiographically examine 100 percent of the girth welds on the 16-inch diameter pipeline except welds that cannot practically be radiographed. PSE will provide written evidence where radiographs are impractical, including the certified radiographer's statement. All welds will be inspected and defects will be replaced or repaired in accordance with API Standard 1104 specification, 18th edition or company standard, whichever is more stringent. All repaired welds will be radiographed to ensure pipeline integrity and compliance with standards.
5. Provide cover of at least four feet atop of the pipeline. Cover of no less than three feet is allowed where four feet of cover is impractical.
6. The entire coating will be electrically tested for flaws ("jeeped") to insure coating integrity. Any flaws will be repaired.
7. PSE will have cathodic protection test locations at intervals sufficient to determine the adequate protection of the pipeline during surveys. The overall test point location plan shall be reviewed by PSE to ensure that the protection of the entire pipeline may be assessed by the test locations chosen.
8. Six inches of shading and backfill material will be used around the pipe to protect the pipe and coating. The material around the pipe will be free of sharp rocks

with a maximum particle size of ½ inch and containing a large percentage of fines. Rock shield is allowed in places where sand is not available and the backfill material shall be free from sharp objects and large clods that could damage the pipe and coating. If the trench material is not free from sharp or unusually rough surfaces, the trench shall be over-excavated six inches and refilled with select fill material free of sharp rocks with a maximum particle size of ½ inch and containing a large percentage of fines.

9. The 5,600-foot segment of pipe at Union Hill Road shall be designed to operate with a hoop stress less than 20 percent of the specified minimum yield strength of the pipe.

Testing:

Pressure test the 16-inch pipe segment at a minimum of 750 psig for a 24-hour period. All leaks and defects will be repaired or replaced and retested.

Operations and Maintenance:

1. Leak surveys will be conducted in accordance with PSE Operating Standard 11.2. The survey is to be conducted every three years.
2. The operating pressure of the pipeline will not exceed 300 psig without approval of the Commission.
3. Provide an emergency valve at the inlet and outlet of the pipeline span to allow valve operation during an emergency.
4. Install cathodic protection within 90 days after the pipeline is installed.