



Puget Sound Energy, Inc.
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Bellevue, WA 98009-0868

March 12, 2007

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WASH. UT. & TP. COMM

Carole J. Washburn, Secretary
Washington Utilities and Transportation Commission
PO Box 47250
Olympia, WA 98504-7250

Attn: Alan Rathbun, Pipeline Safety Director

RE: 16-inch Redmond Supply Main Phase 3 Pressure Authorization

Dear Mr. Rathbun:

Pursuant to WAC 480-93-020, Puget Sound Energy (PSE) requests approval to operate a proposed 16-inch pipeline at a pressure in excess of 250 psig. This pipeline will provide additional gas supply to the Redmond, Kirkland, and Bellevue areas ensuring reliability as growth increases.

The proposed pipeline is Phase 3 of a multi-phase project to replace the existing 8-inch Redmond Supply. The existing 8-inch main connects the Redmond Gate Station #1342 to the Redmond Limit Station #2387. It currently operates at a pressure of 300 psig in accordance with a 1996 authorization granted to Washington Natural Gas Company (UG-951278). Phase 1 of the 16-inch Redmond Supply Main was completed on December 17, 2002 (PG-020978), and Phase 2 was completed on September 4, 2003 (PG-030484).

The 16-inch Redmond Supply Main Phase 3 is scheduled to be installed in August 2007 and will be tested at a minimum of 750 psig. The minimum component rating will be 720 psig (ANSI 300) and the MAOP will be 500 psig. The attached exhibits provide additional information regarding the proposed facilities.

The proposed pipeline exceeds the minimum federal safety regulations in the following design, operation, and maintenance areas:

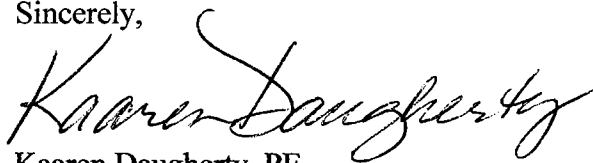
- **Class Location** – the design and construction specifications meet or exceed the requirements for Class 4 even though the area for Phase 3 of the project is in a Class 3 location. (192.5)
- **Design Factor** – The design factor of 0.20 exceeds the 0.40 factor for a Class 4 location. (192.111)

- **Valve Spacing** – The valves for this supply main will be spaced approximately 1 mile apart in accordance with PSE’s standards. This spacing exceeds the 2-1/2 mile requirement for transmission line valves in Class 4 locations. (192.179)
- **Nondestructive Testing** – PSE’s radiographic inspection plan on supply mains is identical to the Class 3 and Class 4 requirements for transmission lines. Thus PSE’s plan far exceeds the minimum federal safety regulations which do not require nondestructive testing of pipelines operating below 20% SMYS. (192.241 and 192.243)
- **Cover** – PSE’s standards require a minimum cover of 36” over high-pressure distribution mains, this exceeds the minimum federal requirements of 24”. (192.327(b)) For the Union Hill Road project the main is proposed to have a minimum cover of 48” wherever possible.

The existing 8-inch Redmond supply main was constructed of 8.625” diameter and 0.188” wall thickness API 5L Grade B wrapped steel pipe. The proposed 16-inch main will operate at a lower stress level (11.4% SMYS @ 300 psig) than the existing 8-inch main (19.7% SMYS @ 300 psig).

If you require any additional information, please call me at (425) 462-3748.

Sincerely,



Kaaren Daugherty, PE
Consulting Engineer - Standards and Compliance

Attachment

cc: Kimberly Harris
Karl Karzmar
Sue McLain
Duane Henderson
Jim Hogan

Exhibit A - GENERAL INFORMATION

Background:

The existing 8-inch Redmond Supply extends approximately 20,000 feet between the Redmond Gate Station #1342 (227 NE AV & Union Hill Rd) to the Redmond Limit Station #2387 (Avondale Way & Union Hill Rd). For several years, PSE's long-range plan included upsizing the existing 8-inch Redmond Supply main. The 16-inch pipeline will provide additional gas supply to the Redmond, Kirkland and Bellevue areas ensuring reliability as growth increases. By providing needed supply to these areas of significant growth, this pipeline will shift demand from the southern part of the system off of the Issaquah lateral and enable the lateral to supply the growing system demand further south.

Phase 1 was installed in 2002 and consisted of 5500 feet of pipe extending east from a location near the Redmond Limit Station (#2387). Phase 2 was installed in 2003 and consisted of 6600 feet of pipe extending west from the existing Redmond Gate Station (#1342). Phase 3 will be a 9000 foot section that ties in with phase 2 at the east end and ties into the 8-inch supply main on the west end prior to Evan's Creek. When Phase 4 is completed the new 16-inch supply main will connect the Redmond Gate Station (#1342) and the Redmond Limit Station (#2387) and will replace the existing 8-inch supply main.

Pipeline Route:

The 16-inch Redmond Supply main will parallel the existing 8-inch Redmond Supply main that begins at the Redmond Gate Station (#1342) and extends west approximately 20,000 feet along Union Hill Road to the Redmond Limit Station (#2387). Phase 3 of this project is approximately 9,000 feet in length and will parallel the existing 8-inch main along a different alignment.

The attached map (Exhibit B) illustrates the proposed route and location for these facilities.

Proximity Survey:

A tax parcel review of the area within 100 feet of the proposed pipeline was conducted and is shown in Exhibit C. There are no well-defined outside areas that are occupied by 20 or more people, sixty days in any twelve month period. The zoning for the pipeline route is rural. Information on tax parcels and buildings intended for human occupancy within 100 feet of the pipeline route is presented in Exhibit C. This route is classified as a Class 3 Location.

MAOP:

The 16-inch Redmond Supply Main Phase 3 will be designed and tested for a MAOP of 500 psig.

Pipe and Fitting Specifications:

The proposed pipeline will be constructed from 16" diameter and 0.375" wall thickness API 5L-X60 steel pipe with a fusion bonded epoxy (FBE) coating. The pipe and fitting specifications with the corresponding percentage of specified minimum yield strength at MAOP and normal operating pressure for the supply main is shown in the table below.

Supply Main:

Material Specification	% SMYS @ MAOP (500 psig)	% SMYS @ Normal Operating Pressure (300 psig)
16" x 0.375" w.t. API 5L-X60 wrapped pipe	17.78	10.67
16" x 0.375" w.t. WPHY-56 fittings	19.05	11.43

All other pipeline components will have a working pressure rating of at least 500 psig.

Damage Prevention:

Pipeline markers will be installed and monitored in accordance with PSE Gas Operating Standards 2525.2500 and 2575.1100. PSE is an active member in the local One-Call System and works closely with the local municipalities and permitting agencies prior to any construction starting in the vicinity of its facilities. Additionally, it is PSE standard practice to monitor construction work taking place in the vicinity of its high pressure systems.

Construction Details:

All construction shall conform to Class 4 Standards.

Cover -All buried mains will be installed with a minimum of 36" of cover. 48" of cover will be achieved wherever possible.

Backfill - All shading and bedding material will be free of sharp rocks with a maximum particle size of 1/2" unless an approved rock shield material is utilized. When rock shield material is used, the backfill material shall be free from sharp objects and large clods that could damage the pipe.

Clearance - At least 36" of separation will be maintained between the pipeline and other underground facilities. If 36" separation is not possible, the maximum possible clearance shall be attained. If at least 12" of clearance is not possible the pipeline will be protected from damage caused by proximity to the other structure, by using a bare steel casing, a split PVC or PE pipe or a fiberglass shield.

Cathodic Protection:

The corrosion control program will be designed and installed in accordance with the requirements of section 2600 of the PSE Gas Operating Standards. The following standards are applicable to the supply main:

2600.1000	Cathodic Protection Requirements
2600.1100	Field Coatings for Pipe and Fittings
2600.1200	Test Stations Requirements
2600.1300	Designing and Installing Cathodic Protection Systems
2600.1400	Electrical Isolation and Grounding Requirements
2600.1500	Monitoring Cathodic Protection
2600.1700	Monitoring and Remedial Measures for Internal Corrosion
2600.1900	Remedial Measures for Corrosion Control

2600.2000 Galvanic Anode Installation Requirements

Coating:

As outlined in Operating Standard 2600.1100 an external protective coating shall be applied to the pipeline. Any field joints and fittings not supplied with protective coatings will have field applied coating. All above-ground piping will be painted in accordance with written specifications. Field applied coatings will meet the requirements of Operating Standard 2600.1100, Field Coatings for Pipe and Fittings.

All coating specifications will be included in the notice of proposed construction.

Testing:

The test medium will be water and the test pressure will be at least 750 psig. The elevation changes approximately 330 feet over the route of the supply main. Therefore, the test pressure at the lowest elevation will be at least 895 psig to ensure 750 psig is obtained at the highest point on the pipeline. All testing will be done in accordance with PSE Gas Operating Standard 2525.3300 and in accordance with an approved procedure.

Welding:

All welding and welding inspection will conform to the following PSE Gas Operating Standards:

2525.2700	Installation Requirements for Steel Pipe and Fittings
2700.1100	Welder Qualification Requirements
2700.1200	Weld Inspection and Repair
2700.1300	Weld Inspector Qualification Requirements
2700.1400	Welder Qualification Test Requirements

In addition, PSE has a comprehensive set of welding procedures that are included in the Gas Field Procedures Manual. All welding to be done on this project will be governed by these procedures. If any new procedures are required for the welding on this project, they will be qualified in accordance with PSE Gas Operating Standards and added to the Gas Field Procedures Manual. The 16-inch supply main welds will be performed using Gas Field Procedure 4900.1330 which is attached for reference.

A minimum of 90 percent of the welds will be x-rayed.

Pressure Monitoring:

The pressure in this system will be monitored by remote telemetry units (RTUs). The RTUs will poll system pressure every 3 seconds. These pressures will be monitored 24 hours a day in PSE's 24 Hour Operations Center.

Leakage Surveys:

Leakage surveys will be conducted in accordance with PSE Gas Operating Standard 2625.1100 (Leakage Survey Program). This Operating Standard requires leak surveys to be conducted annually for supply mains operating above 250 psig.

Exhibit B – Pipeline Route

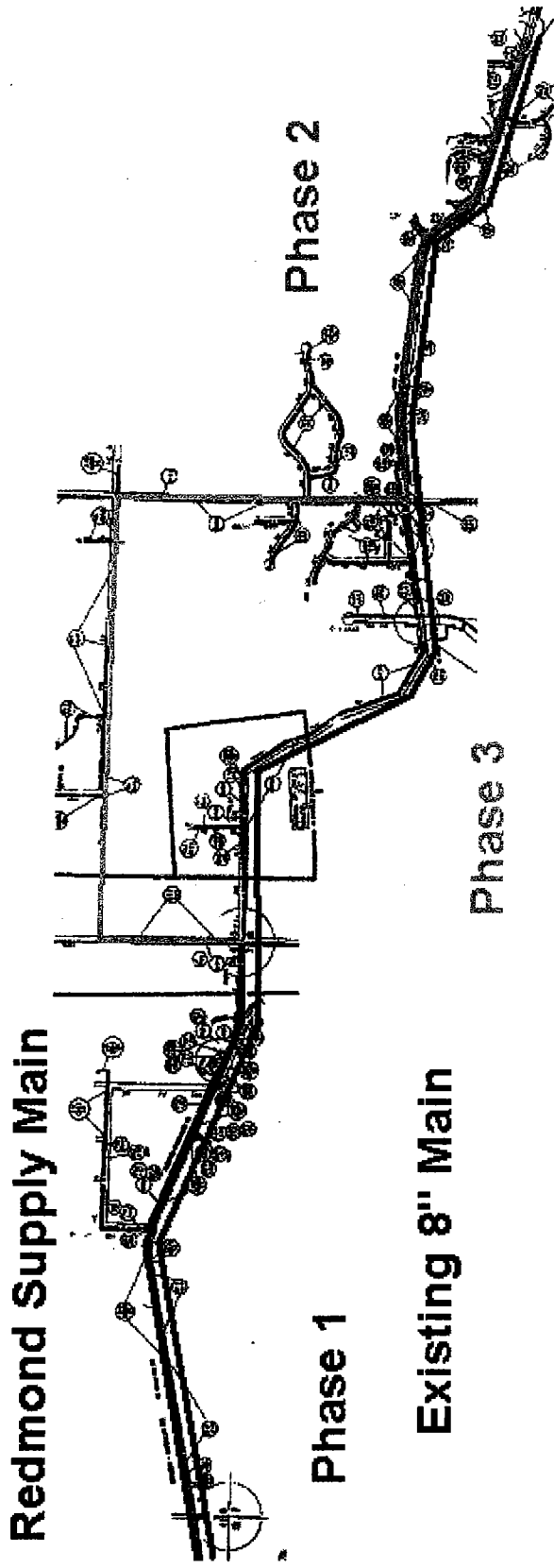


Exhibit C – Structures in Proximity of the Pipeline

PUGET SOUND ENERGY 16-inch Redmond Supply Main Phase 3 Structures in Proximity of the Pipeline				
Distance (feet) of Structure Stationing from Preliminary Alignment	Side of the Route	Route	Address	Land Use
92	LT	31+24	8335 196th Ave NE Redmond, Wa 98053	Residential/House
88	RT	34+67	8340 196th Ave NE Redmond, Wa 98053	Residential/House
86	LT	32+78	8503 196th Ave NE Redmond, Wa 98053	Residential/House
90	RT	48+73	20015 NE 85th St Redmond, Wa 98053	Residential/House
56	RT	55+91	20329 NE 85th St Redmond, Wa 98053	Cell tower
77	RT	60+92	20329 NE 85th St Redmond, Wa 98053	Residential/House
39	RT	63+61	8079 208th Ave NE Redmond, Wa 98053	Residential/House
92	LT	68+13	20606 NE 85th St Redmond, Wa 98053	Residential/House
96	LT	74+75	8416 208th Ave NE Redmond, Wa 98053	Residential/House
62	LT	76+73	8334 208th Ave NE Redmond, Wa 98053	Residential/House
75	RT	86+87	7928 207th PL NE Redmond, Wa 98053	Residential/Shed
82	LT	89+70	7904 207th PL NE Redmond, Wa 98053	Residential/House
67	LT	90+23	80810 NE 78th St Redmond, Wa 98053	Residential/House
56	RT	91+27	20709 NE 79th St Redmond, Wa 98053	Residential/House
89	RT	95+18	20636 NE 76th PL Redmond, Wa 98053	Residential/House
64	RT	96+65	20645 NE 76th PL Redmond, Wa 98053	Residential/House
96	RT	98+14	20636 NE 75th PL Redmond, Wa 98053	Residential/House
52	RT	97+68	20810 NE Union Hill Rd Redmond, Wa 98053	Church