PUGET SOUND ENERGY
The Energy To Do Great Things

June 3, 2011

David Danner, Executive Director
Washington Utilities and Transportation Commission
PO Box 47250
Olympia, WA 98504-7250

Attn: David Lykken, Pipeline Safety Director

RE: Chehalis Supply Main Phases 1 and 2 Pressure Authorization Request

Dear Mr. Lykken:

Pursuant to WAC 480-93-020, Puget Sound Energy (PSE) requests approval to operate segments of the Chehalis supply main at a pressure in excess of 250 psig. In a two-phase construction project, these 8-inch segments have replaced (phase 1) or will replace (phase 2) a section of 4-inch main that is near capacity and provide additional gas supply to the Chehalis area ensuring reliability. The 4-inch main has an MAOP of 280 psig and currently operates at a pressure of 270 psig.

Phase 1 which consists of 5,900 feet of 8-inch pipe was constructed in September 2007. It extends approximately from East of the intersection of Coal Creek Rd and Martle View Lane along the Coal Creek Rd to a point near the intersection of Coal Creek Rd and National Ave in Chehalis (see exhibit D). This line runs parallel to the original 4-inch main which now operates at intermediate pressure less than 60 psig.

PSE did not seek pressure authorization in accordance with 480-93-020 due to a belief that the 8-inch was in kind replacement of the 4-inch and thus the previous authorization covered the work. The pipeline has been operating at a pressure in excess of 250 psig since installation. The installation of the 8-inch line did not increase the proximity considerations that existed with the 4-inch in 2007.

The main was installed using open cut installation within the public right-of-way. The minimum component rating is 720 psig (ANSI 300) and the MAOP is 280 psig. A small portion of the 4-inch line at Coal creek crossing remains and is connected to the 8-inch main. This portion will be replaced when public improvement projects in the area are performed.

Following its construction in 2007, the new 8-inch line was tested in two sections. The strength and leak tests were performed using 479 psig and 476 psig of Nitrogen. Test charts showed no measurable leakage over periods of 12 and 16 hours.

Phase 2 consists of installing approximately 4,600 feet of 8-inch main. It originates at the beginning of phase 1 and ties back into the existing 4-inch main located in Coal Creek Rd (see exhibit A). The new 8-inch main will be located in a dedicated easement that avoids the tight curves in the existing public right-of-way. Installation will be by a combination of horizontal directional drill (HDD) and open cut methods. The HDD section consists approximately of 2000 feet of main.

PSE's geotechnical and environmental consultant Golder Associates evaluated several alternatives for phase 2 pipeline installation within the public right-of-way and on private properties. The proposed alignment, entry and exit locations, and method of installation were recommended to minimize impact to the environment by avoiding a local stream, area wetlands and tree removal for construction activities and staging area.

Phase 2 is scheduled to start construction in the middle of June 2011 and be completed as early as September, 2011. The 8-inch main will be tested at a minimum of 450 psig. The minimum component rating will be 720 psig (ANSI 300) and the MAOP will be 280 psig.

There are 28 structures in proximity of the phase 1 segment (see Exhibit E) and 8 structures in proximity of the proposed phase 2 segment (see Exhibit C).

PSE requests approval to operate the Chehalis Supply main phases 1 and 2 at a pressure up to 280 psig.

The existing and proposed 8" pipelines both exceed 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 a Class 4 location even though the area is situated in a Class 2 location (192.5).

- **Design Factor** – PSE's design factor of 0.20 exceeds the 0.40 factor for Class 4 locations (192.111).

- **Valve Spacing** – Three (4-inch) and four (8-inch dead-end) valves were installed on Phase 1 and one (4-inch) and one (8-inch dead-end) valves will be installed on Phase 2 keeping valve spacing much less than 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). There are no specific valve spacing requirements for high-pressure distribution systems (192.181).

- **Nondestructive Testing** – For phase 2, PSE will perform radiographic inspection of all welds unless impractical, in which case at least 90% of the welds will be inspected. During phase 1, PSE radiographically inspected 100% of the welds.

  PSE's radiographic inspection requirements are identical to the Class 3 and Class 4 requirements for transmission lines. Thus PSE's requirements far exceed 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)).
  Phase 1 was installed with a minimum of 36" of cover.
  Phase 2 will be installed with a minimum of 36"of cover.

The existing (phase 1) and proposed (phase 2) 8-inch main will operate below 20% SMYS (8.9 % SMYS @ 280 psig).

Sincerely,

Catherine Koch,
Puget Sound Energy
Director Compliance
Enclosures:

cc: Jennifer Tada
Duane Henderson

Exhibit B - GENERAL INFORMATION

MAOP:
The Chehalis Supply (Phase 1) was designed, constructed, and tested for 300 psig.
The Chehalis Supply (Phase 2) will be designed and tested for 300 psig.

Pipe and Fitting Specifications:
The existing pipeline (Phase 1) was constructed with 8" x 0.322", API 5L-X42 steel pipe with a fusion bonded epoxy (FBE) coating.
The proposed pipeline (Phase 2) will be constructed with 8" x 0.322", API 5L-X42 steel pipe with a fusion bonded epoxy (FBE) coating and 8" x 0.322", API 5L-X42 steel pipe with ARO coating for the HDD section. The HDD section comprises approximately 2,000 feet of main.
The pipe and fitting specifications with the corresponding percentage of specified minimum yield strength at MAOP and normal operating pressure for the supply main are shown in the table below.

Supply Main (Phases 1):

Material Specification	% SMYS @ MAOP (280 psig)	% SMYS @ Normal Operating Pressure (270 psig)
8" x 0.322" w.t. API 5L-X42 FBE	8.9	8.6
6" x 0.280" w.t. API 5L-X42 FBE	7.9	7.6
4" x 0.237" w.t. API 5L-X42 FBE	6.3	6.1
8" x 0.322" w.t. WPB fittings	10.7	10.3
6" x 0.280" w.t. WPB fittings	9.5	9.1
8" x 0.322" w.t. Y52 fittings	7.2	7.0
6" x 0.280" w.t. Y52 fittings	6.4	6.2
4" x 0.237" w.t. Y52 fittings	5.1	4.9

Supply Main (Phases 2):

Material Specification	% SMYS @ MAOP (280 psig)	% SMYS @ Normal Operating Pressure (270 psig)
8" x 0.322" w.t. API 5L-X42 FBE	8.9	8.6
8" x 0.322" w.t. WPB fittings	10.7	10.3
4" x 0.237" w.t. Y52 fittings	5.1	4.9

All other pipeline components will have a working pressure rating of at least 300 psig.

Damage Prevention:
Pipeline markers (Phase 2) will be installed and monitored in accordance with PSE Gas Operating Standard 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.

The construction of the 8-inch main (Phase 1) was performed in compliance with the proposed design and monitored in accordance with PSE Gas Operating Standard 2525.2500 and 2575.1100.

Construction Details:
All construction shall conform to Class 4 Standards.

Cover -The Chehalis Supply main (Phase 1) was installed with a minimum of three (3) feet of cover in accordance with PSE standards.

All buried mains (Phase 2) will be installed with a minimum of three (3) feet of cover with considerations to be given for providing 48 inches of cover in accordance with PSE standards.

Backfill

(Phase 1) – All bedding material was free of sharp rocks with a maximum particle size of 3/8". The trench restoration was performed in accordance with the permit conditions: crushed surfacing top course (CSTC) on top of the imported backfilled with the maximum particle size of 5/8".

(Phase 2) –The crushed surfacing top course (CSTC) will be used on top of controlled density fill (CDF). The CDF will be installed as a backfill. The initial backfill material with the maximum particle size of 3/8" will be installed under, around, and over the pipe as necessary to provide a minimum of 6 inches of separation between the pipeline and the CDF.

Clearance - At least 12 inches of separation will be maintained between the pipeline (Phase 2) and other underground facilities. If 12 inches separation is not possible, the pipeline will be protected from damage caused by proximity to the other structure, by using a fiberglass shield.

The analogous requirements were applied during the construction of Phase 1 project.

Cathodic Protection (Phases 1 and 2):
The corrosion control program was and 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 Station 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 coatings. All aboveground 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.

The Chehalis Phase 1 project was constructed in accordance with PSE Gas Operating Standard 2600.1100.

Testing:
The new 8-inch main (Phase 2) will be pneumatically tested and the test pressure will be at least 450 psig. All testing will be done in accordance with PSE Gas Operating Standard 2525.3300 and in accordance with an approved procedure.
The existing 8-inch main (Phase 1) was tested in accordance the PSE Gas Operating Standard 2525.3300 at minimum of 450 psig.

Welding:
All welding and welding inspection (Phase 2) 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 Operating Standards and added to the Gas Field Procedures Manual. The 8-inch supply main welds will be performed using Gas Field Procedure 4900.1330.

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

The analogous requirements were applied during the construction of Phase 1 project. 100 percent of the welds were x-rayed.

Pressure Monitoring:
The pressure in the entire Chehalis system is 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 (Phase 2) 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 (Once every calendar year not to exceed 15 months) for supply mains operating at or above 250 psig. Leakage surveys (Phase 1) were performed in 2007 – 2010. The last survey was performed on 12/2/2010. No leakage was detected at the time of completing the survey.

Exhibit E - Addresses, Land Use, and Distance of Structures from the existing Supply Main

Chehalis Phase 1, 8-inch Supply Main (existing)

Exhibit E is based on survey information provided by David Evans and Associates in 2007 and existence of the structures is compared with current Google aerial map.

Distance (feet) of Structure Stationing from Preliminary Alignment	Side of the Route	Route	Address	Parcel #	Land Use	Land Owner
29	LT	2+78	1605 (1595) N National Ave	5610005000	House / Office	O'neill Pine Coppany
29	RT	11+20	71 Coal Creek Rd, Chehalis	5537000000	Shed	Chrisman, Jimmie Lee
21	RT	11+80	71 Coal Creek Rd, Chehalis	5537000000	Garage	Chrisman, Jimmie Lee
40	RT	11+80	71 Coal Creek Rd, Chehalis	5537000000	Private / House	Chrisman, Jimmie Lee
72	RT	12+53	109 Coal Creek Rd, Chehalis	5538001000	Private House	Hankins, John Jr & Barbara K
36	RT	12+96	109 Coal Creek Rd, Chehalis	5538001000	Garage	Hankins, John Jr & Barbara K
45	RT	15+05	115 Coal Creek Rd, Chehalis	5543000000	Private House	Alger, Scott
52	RT	16+04	135 Coal Creek Rd, Chehalis	5544000000	Private House	Watkins, Boyd
30	RT	16+37	135 Coal Creek Rd, Chehalis	5544000000	Garage	Watkins, Boyd
30	RT	16+56	153 Coal Creek Rd, Chehalis	5545000000	Garage	Sand, Keith W & Jesika R
47	RT	16+87	153 Coal Creek Rd, Chehalis	5545000000	Private House	Sand, Keith W & Jesika R
54	RT	17+83	189 Coal Creek Rd, Chehalis	5547001000	Shed	Estep, Kathryn F
60	RT	18+52	189 Coal Creek Rd, Chehalis	5547001000	Private House	Estep, Kathryn F
64	RT	23+40	279 Coal Creek Rd, Chehalis	5623000000	Garage	Estep, Robert
62	RT	23+60	279 Coal Creek Rd, Chehalis	5623000000	Private House	Estep, Robert
49	LT	24+04	0 Coal Creek Rd, Chehalis	5621002000	Barn	Estep, Kathryn F
92	RT	28+46	310 Coal Creek Rd, Chehalis	10648000000	Private House	Kostick, Joseph
38	RT	30+65	310 Coal Creek Rd, Chehalis	10648000000	Barn	Kostick, Joseph
86	LT	45+44	369 Coal Creek Rd, Chehalis	10661005000	Private House	Christensen, Tommy C
23	LT	45+81	369 Coal Creek Rd, Chehalis	10661005000	Shed	Christensen, Tommy C
76	LT	53+10	397 Coal Creek Rd, Chehalis	10662003001	Private House	Cole, Brian
87	RT	56+25	410 Coal Creek Rd, Chehalis	10663000000	Garage	Carr, Fredrick G
67	RT	56+94	410 Coal Creek Rd, Chehalis	10663000000	Private House	Carr, Fredrick G
24	LT	56+30	415 Coal Creek Rd, Chehalis	10666002000	Private House w/Garage	Bunker, D Richard
35	RT	57+73	416 Coal Creek Rd, Chehalis	10664000000	Shed	Shumake, Jonathan P
82	RT	57+92	416 Coal Creek Rd, Chehalis	10664000000	Garage	Shumake, Jonathan P
58	RT	58+33	416 Coal Creek Rd, Chehalis	10664000000	Private House	Shumake, Jonathan P
72	RT	61+25	428 Coal Creek Rd, Chehalis	10670002000	Private House	Hewett, Joseph C

Exhibit C - Addresses, Land Use, and Distance of Structures from the proposed Supply Main

Chehalis Phase 2, 8-inch Supply Main

Exhibit C is based on survey information provided by Bracy & Thomas Land Surveyors in 2008 and David Evans and Associates in 2009 and existence of the structures is compared with current Google aerial map

Distance (feet) of Structure Stationing from Preliminary Alignment	Side of the Route	Route	Address	Parcel #	Land Use	Land Owner
85	RT	131+50	437 Coal Creek Rd, Chehalis	10673001002	Private House / 1 Story	Moyer, James M
38	LT	131+50	436 Coal Creek Rd, Chehalis	10674001003	Water Cabinet	Faith Baptist Church of Centralia
56	LT	130+50	436 Coal Creek Rd, Chehalis	10674001002	Church Building	Faith Baptist Church of Centralia
88	LT	129+25	436 Coal Creek Rd, Chehalis	10674001002	Shed	Faith Baptist Church of Centralia
66	LT	123+75	468 Coal Creek Rd, Chehalis	10678005000	Private House/ 2 Story	Sharp, W Dane & Carla J
93	LT	119+25	486 Coal Creek Rd, Chehalis	10679000000	Shed	Rife, Carl E & Sandra J
62	LT	118+75	486 Coal Creek Rd, Chehalis	10679000000	Private House/ 2 Story	Rife, Carl E & Sandra J
50	LT	118+00	486 Coal Creek Rd, Chehalis	10679000000	Shed	Rife, Carl E & Sandra J