EXHIBIT NO. ___(SML-5)
DOCKET NO. UE-11___/UG-11___
2011 PSE GENERAL RATE CASE
WITNESS: SUSAN MCLAIN

BEFORE THE
WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION, **Complainant,** **v.** **PUGET SOUND ENERGY, INC.,** **Respondent.**	**Docket No. UE-11____** **Docket No. UG-11____**

FOURTH EXHIBIT (NONCONFIDENTIAL) TO THE PREFILED DIRECT TESTIMONY OF SUSAN MCLAIN ON BEHALF OF PUGET SOUND ENERGY, INC.

JUNE 13, 2011

Cost Impacts Due to Municipal, County, and Other Requirements

1. Changes in Road Restoration Construction Practices

1.1 *Figures 4-1*, *4-2*, and *4-3* demonstrate how costs vary both with the location of the pipeline construction in the roadway and changing road restoration requirements.

1.1.1 For example, in *Figure 4-1*, PSE was able to use the road shoulder area to replace the existing pipeline because municipal infrastructure facilities (e.g., stormwater drainage) either were not present in the shoulder area or their location did not conflict with PSE's placement of its pipeline. Thus, *Figure 4-1* shows an installation that required an approximately three-foot strip of asphalt on a roadway shoulder.

1.1.2 In contrast, *Figures 4-2* and *4-3* show the installation of a new natural gas supply pipeline where the shoulder area was not available due to existing municipal infrastructure conflicts. As the Company installs or replaces more pipe in urban areas, it often finds that the existing municipal infrastructure or anticipated municipal infrastructure plans preclude PSE from installing in the shoulder and require that construction be in the roadway.

1.1.3 *Figure 4-2* shows the installation of an approximately five-foot temporary strip of asphalt patch on a four-lane roadway that subsequently required a full roadway (curb-to-curb) asphalt overlay (*Figure 4-3*) in some locations and partial overlays in other locations.

1.1.4 The paving costs associated with the project shown in the photograph in *Figure 4-1* were roughly $300,000 per linear mile as compared to the costs of over $900,000 per linear mile for the project shown in the photographs in *Figures 4-2* and *4-3*.

1.2 *Figure 4-4* displays the replacement of roadbed soils with materials that meet specific compaction requirements that are often mandated by the municipality or county construction permit.

1.2.1 When specific soil materials are mandated, the removal and disposal of native roadbed soils is also required.

1.2.2 These directives result in increased roadbed restoration costs as compared to the restoration costs that were previously required.

1.3 Another construction requirement being placed on the Company by some municipalities and counties is an increase in the depth at which natural gas facilities must be installed.

1.3.1 *Figure 4-5* shows a three-foot-deep installation, while *Figure 4-6* shows a seven-foot-deep installation.

1.3.2 For worker safety purposes, the seven-foot installation depth requires the use and continual movement of shoring and the incremental associated labor and equipment needed to periodically relocate the shoring as the project progresses.

1.4 More complex traffic control plans and additional workers often become necessary when there is additional equipment at the construction site or if PSE is required to perform work during nighttime hours. This can include off-duty law enforcement personnel or traffic control cameras and equipment that allow the municipality to manage traffic lights remotely.

1.4.1 *Figure 4-7* shows the traffic control cameras that PSE was required to install and then remove upon project completion and demonstrates another factor that creates higher costs in the present day. In this project, traffic control camera installation and removal were required in order to secure the construction permit, and the costs were approximately $300,000. This practice is becoming a more common requirement in urban areas.

1.5 Construction permits may also require traffic mitigation in the form of dictating the times during which construction may take place. Municipal requirements are often influenced by requests from the community in which construction is taking place (e.g., keeping businesses open and accessible, minimizing construction noise, keeping traffic flowing).

1.5.1 *Figure 4-8* shows a project in which performing the work at night was a condition of the construction permit. Working at night can increase worker wage rates, and usually requires additional personnel and lighting equipment.

1.6 Finally, *Figure 4-9* reflects an example of the type of actions that may be required for environmental protection in water quality and runoff shielding. In the past, an acceptable practice was to naturally filter water by discharge through a grass field or hillside. More recent regulations require a water quality treatment and monitoring system as is shown in *Figure 4-9*.

1.7 This series of comparative photographs illustrates the changes in road restoration construction practices that are often now required by some municipalities and counties where PSE constructs natural gas system projects.

1.7.1 *Figure 4-1* represents an example of a project where PSE was able to work in the shoulder where restoration was minimal and less expensive.

Figure 4-1: Orting Phase I Project, 8-Inch Diameter Supply Pipeline, In-Service 2007

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1.7.2 *Figure 4-2* shows an example of a project where PSE was required to work in the roadway and installed a temporary patch. PSE incurred approximately $2.5 million in costs to install this patch that is approximately five feet wide over a five mile length of roadway.

Historically, this patch would have been an acceptable final restoration practice. More recently and more frequently, as in this project, the Company was required to return to add roadway asphalt overlay which varied from one lane to five lanes, plus shoulders. This was at an additional cost of $2 million (yielding a total cost of $4.5 million for paving restoration).

Figure 4-2: Kent Black Diamond Phase II Project, 16-Inch Diameter Supply Pipeline, In-Service October 2009

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1.7.3 *Figure 4-3* depicts the required full roadway asphalt overlay on a section of the project where the road is a four-lane road. The photo was taken after the required full roadway overlay was completed, but before line striping.

Figure 4-3: Kent Black Diamond Phase II Project, 16-Inch Diameter Supply Pipeline, In-Service October 2009

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1.7.4 *Figure 4-4* shows a project where a soil spreading machine was used to install select material that was hauled in to meet backfill compaction permit requirements. Since specific backfill material had to be hauled in, the existing soils that had been removed had to be hauled away.

Figure 4-4: Kent Black Diamond Phase II Project, 16-Inch Diameter Supply Pipeline, In-Service 2009

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1.7.5 *Figure 4-5* illustrates the trench depth for six-inch PE pipe in accordance with PSE standards that require three feet of cover.

Figure 4-5: 6501 Beacon Ave S, 6-Inch Bare Steel Main Replacement, In-Service Expected 2010

1.7.6 *Figure 4-6* shows the trench depth for 12-inch high pressure pipeline where the permit required seven feet of cover although PSE standards would have required three feet of cover. The seven-foot trench depth mandated the use of additional worker safety protections, such as shoring.

Figure 4-6: Lacey-Fones Road, 12-Inch Diameter Supply Pipeline, In-Service 2009

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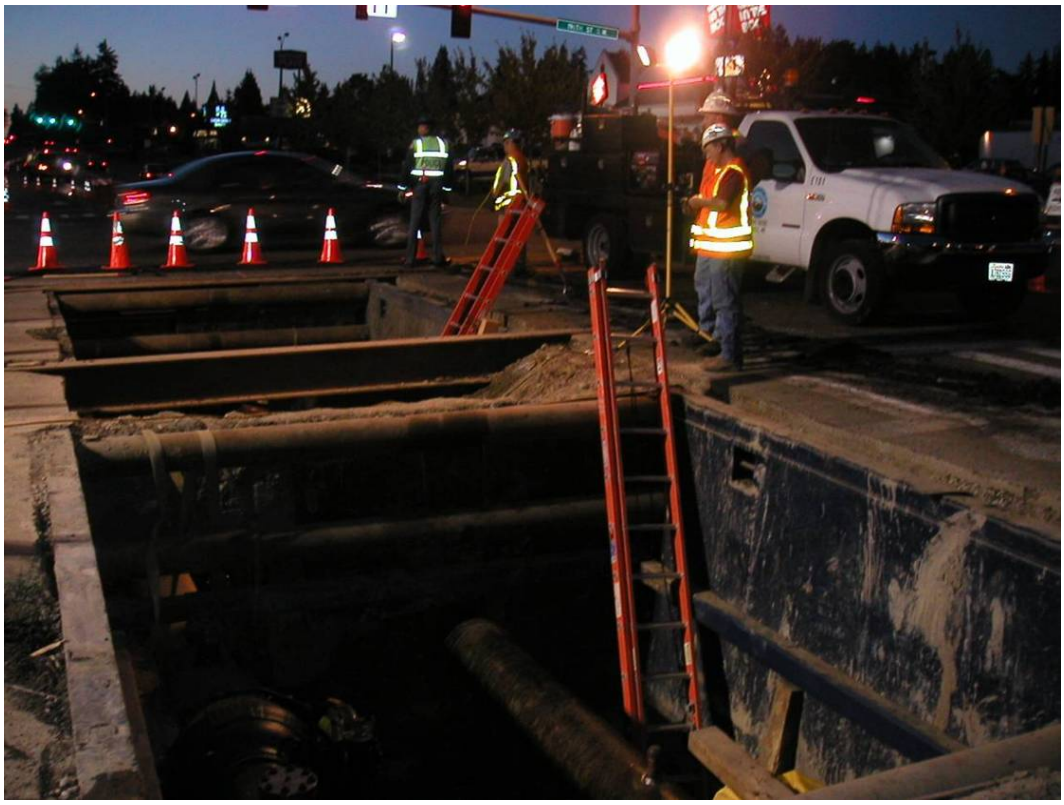
1.7.7 In *Figure 4-7*, the required traffic control cameras which allowed the City to perform automated traffic control were installed prior to initiating construction and removed upon project completion. PSE incurred camera installation and removal costs of approximately $300,000.

Figure 4-7: Bellevue Lake Hills 12- and 16-Inch-Diameter Supply Pipeline, In-Service 2009

1.7.8 *Figure 4-8* depicts work that had to be performed at night as a condition of the construction permit. This increased project costs for added traffic control (off-duty police), lighting, overtime or shift differential, and extended hours for concrete mixing batch plants to supply backfill material.

Figure 4-8: Lynnwood Valve Replacement, In-Service 2007



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1.7.9 In the past, an acceptable practice was to naturally filter water by discharge through a grass field or hillside. More recent regulations require a water quality treatment and monitoring system.

Figure 4-9 shows Clover Creek open cut crossing and the environmental protection steps that were required to preserve water quality and salmon migration. Geo-technical studies of soils indicated that conditions were not conducive to directional drill or traditional bore construction methods, therefore, PSE was required to open cut Clover Creek. Water that passed through the cut had to be filtered to meet water quality requirements. This was achieved by constructing upstream and downstream barriers – providing the water a place to settle before reentry to the creek.

Figure 4-9: Frederickson 16-Inch HP Supply Pipeline, In-Service 2008