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AMENDMENT NUMBER FOUR  
TO THE ENERGY FACILITY SITE CERTIFICATE  
FOR THE NORTHWEST NATURAL GAS  
MIST UNDERGROUND NATURAL GAS STORAGE FACILITY

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This amendment number four to the Energy Facility Site Certificate for the Northwest Natural Gas Mist Underground Natural Gas Storage Facility is issued and executed pursuant to the Order in the Matter of the Application for Amendment by Northwest Natural Gas Co. for Amendment No. 4 to its site certificate for the Mist Underground Natural Gas Storage Facility between the State of Oregon (State) acting by and through the Energy Facility Siting Council (EFSC or "the Council") and Northwest Natural Gas Co.(NNG), an Oregon corporation.

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The amendment enlarges the site boundary and authorizes NNG to develop related and supporting surface facilities associated with new underground storage reservoirs in the Calvin Creek Storage Area, and upgrade related and supporting surface facilities at NNG's Miller Station. The amendment also authorizes NNG to develop and operate new pipelines connecting the storage facilities at Calvin Creek to the Miller Station. It adds new site certificate conditions relating to the development of new related and supporting facilities associated with the Calvin Creek Storage area and Miller Station improvements.

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The findings of fact, reasoning and conclusions of law underlying the terms and conditions of this amendment are set forth in the Council's Final Order for Amendment No 4 which was issued on July 21, 1997 and which by this reference is incorporated herein.

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Throughout this amendment, we refer collectively to NNG's proposed changes to the existing underground gas storage operation as the "Project".

**I. DESCRIPTION OF THE AMENDMENT**

**A. Description of Permitted Facilities**

NNG may develop new underground gas storage capacity in the Calvin Creek area, and expand the existing Miller Station facility so that an additional 45 million cubic feet per day (Mmcf) of storage gas can be delivered into the Portland load center on a design day. This expansion would increase the combined total Mist storage peak day delivery capability to 145 Mmcf from the current maximum capability of 100 Mmcf. The expansion would require the development of a new storage reservoir with high capacity injection/withdrawal wells, the installation of new 16 inch pipelines from Miller Station to the Calvin Creek well locations and the upgrading of processing and compression equipment at Miller Station.

1 The Calvin Creek Storage area is located two and one-half miles south of the Miller Station.  
2 Exhibit 6 of NNG's Application contains a map showing the facility location. NNG proposes to  
3 drill new injection/withdrawal wells in up to four locations.  
4

5 Additions to the gathering system will consist of two parallel 16-inch pipelines from Miller  
6 Station to a pipeline transition point in the Calvin Creek Storage Area. At that point, the 16-inch  
7 pipelines will join eight inch and six-inch twin gathering lines connecting them to the individual  
8 wellheads in the area. The pipeline will be located in a 200 foot wide corridor. Exhibit 7 of  
9 NNG's Application shows the location of these pipeline corridors. The parallel pipelines will be  
10 installed in the same right-of-way and spaced approximately 10 feet apart. Each pipeline is  
11 designed to transport up to 100 Mmcf/d.  
12

13 The pipeline corridor will travel under approximately three and one-half miles of pasture land,  
14 clear cuts and reforested timberlands. It will cross under the Nehalem River and State Highway  
15 202. The anticipated right-of-way involves 5 landowners. The construction right-of way  
16 requirements will not exceed 80 feet in width. NNG will maintain a permanent right-of-way  
17 approximately 40 feet in width in the area above the pipeline for maintenance and safety.  
18

19 NNG also may upgrade the compressors at Miller Station. NNG will replace the two 550  
20 horsepower compressors with a single natural gas fired, turbine driven centrifugal compressor  
21 rated at 5035 BHP. The two remaining 1,350 BHP units will be operated such that the total  
22 compression available will not exceed 6,650 BHP (2,850 BHP more than the existing site  
23 certificate allowance of 3,800 BHP). The two older compressors proposed for removal have no  
24 emission controls. The new compressor will have state of the art emission control. Therefore,  
25 NNG projects a net reduction in NOx emissions. Other design modifications to Miller Station  
26 include upgrades to the gas dehydration system, station piping, controls and auxiliary systems so  
27 that in the future the station can be further upgraded to approximately 300 Mmcf/d if future  
28 storage projects prove to be viable.  
29

30 A legal description of the Project site is attached as Exhibit A.  
31

32 In the event of a conflict between the descriptions of the Facility in this Site Certificate and the  
33 Council's Final Order, this Site Certificate shall control.  
34

## 35 **II. CONDITIONS REQUIRED FOR AMENDMENT**

### 36 A. General Conditions

37  
38  
39 (1) NNG shall submit to the department a legal description of the Project site to be appended to  
40 the Site Certificate prior to construction.  
41

42 (2) The Project shall be designed, constructed, operated and retired:  
43

1 (a) Substantially as described in the amended Site Certificate;  
2

3 (b) In compliance with the requirements of ORS Chapter 469, applicable Council rules,  
4 and applicable state and local laws, rules and ordinances in effect at the time Amendment  
5 No 4 to the Site Certificate is issued; and  
6

7 (c) In compliance with all applicable permit requirements of other state agencies.  
8

9 (3) Construction of the Project shall begin not later than December 31, 1997 and be completed  
10 not later than November 30, 1998.  
11

12 (4) No construction, including clearing of a right of way, except for the initial survey, may  
13 commence on any part of the facility until the certificate holder has adequate control, or has the  
14 statutory authority to gain control, of the lands on which clearing or construction will occur.  
15

16 (5) NNG shall prevent any condition over which NNG has control from developing on the  
17 Project site that would preclude restoration of the site to a useful condition.  
18

19 (6) NNG shall restore vegetation to the extent practicable and shall landscape portions of the  
20 area disturbed by Project construction in a manner compatible with its surroundings and/or  
21 proposed future use. Upon completion of Project construction, NNG shall dispose of all  
22 temporary structures not required for future use and all timber, brush, refuse and flammable  
23 materials or combustible material resulting from the clearing of land or from construction of the  
24 facility.  
25

26 (7) NNG shall install a new turbine compressor, rated at a maximum of 5,035 BHP at 59  
27 degrees F. NNG shall remove two existing 550 BHP units and operate the remaining two 1,350  
28 BHP units so as to achieve a maximum compression BHP of 6,650  
29

30 B. Conditions related to EFSC Standards  
31

32 *Structural and Soils Standards*  
33

34 (1) The pipeline corridor shall be substantially as shown on Figure G-1 of Exhibit 10 of the  
35 Application for Amendment. Significant changes in pipeline corridor shall require prior Council  
36 approval.  
37

38 (2) NNG shall construct modifications to Miller Station substantially in accordance with the  
39 recommendations in Exhibit 11, Section 7 of the Application for Amendment. In the vicinity of  
40 the new compressor building, the adjacent equipment, in the dehydration area and in areas where  
41 there will be heavy loads and traffic, all fill will be classed as "structural fill." This fill will  
42 utilize imported soil and will be compacted as specified in Section 7.1.3 of Exhibit 11 of the  
43 Application for Amendment. For trench backfill in unimproved areas (no surface traffic), the

1 backfill above pipe will consist of removed soil placed with nominal compaction, as specified in  
2 Section 7.1.3 of Exhibit 11 of the Application for Amendment.

3  
4 (3) NNG shall design and construct pipelines substantially in accordance with the  
5 recommendations in Section 8 of Exhibit 11 of the Application for Amendment.

6  
7 *Fish and Wildlife Habitat*

8  
9 (4) NNG shall utilize directional drilling for the pipeline installation at the Nehalem River.  
10 Drilling shall begin at points no closer than 300 feet from the river bank and shall place the  
11 pipeline at least 20 feet below the river bed.

12  
13 (5) NNG shall minimize impacts for the Category 2 wetland north of highway 202 by taking  
14 steps including but not limited to:

15 (a) using a single trench for dual pipelines and keeping the installation as narrow as  
16 possible while remaining consistent with safety and practical installation requirements.

17  
18 (b) timing construction for the dry time of year, not to extend beyond November 15,  
19 1997.

20  
21 (c) separating and returning topsoil to the trench backfill surface for pipelines and  
22 installing clay barriers at each end of the wetland crossing.

23  
24 (d) avoiding the rest of the wetland during construction by use of the existing road  
25 through the wetland for construction equipment.

26  
27 (6) NNG shall restore habitat in the Category 2 wetland to the north of highway 202 to  
28 preconstruction conditions within two growing seasons.

29  
30 (7) NNG shall minimize the loss of habitat in forested areas and clear cuts by allowing  
31 vegetation to grow back in the construction corridor except for the 40 foot area directly over the  
32 pipeline. NNG shall restore surface vegetation in farmed areas.

33  
34 (8) NNG shall time the crossing of any small tributaries or creeks during the dry period, and  
35 shall restore the stream bed and stream banks before the rainy season, not to extend beyond  
36 November 15, 1997.

37  
38 (9) NNG shall minimize impact to wetlands by separating the upper foot of topsoil from the  
39 rest of the trench spoils and replacing it on the top of the trench.

40  
41 (10) NNG shall filter any water pumped from the trench during construction to remove  
42 sediments before it is returned to the wetland.

1 (11) NNG shall complete pipeline construction through the wetland by November 15, 1997.

2  
3 *Historic, Archeological and Cultural*  
4

5 (12) A qualified archeologist shall monitor all grading and excavation activities associated with  
6 boring operations. If any artifacts or other cultural materials that might qualify as "archeological  
7 objects" as defined at ORS 358.905(1)(c) are identified, ground disturbing activities will cease  
8 until the archeologist can evaluate their potential significance. If the material is likely to be  
9 eligible for listing on the National Register of Historic Places or to qualify as archeological  
10 objects or sites, as defined at ORS 358.905(1)(c), NNG shall consult with the State Historic  
11 Preservation Office ("SHPO") and will comply with the archeological permit requirement  
12 administered by the SHPO as set forth in OAR 736 Division 51.  
13

14 *Socio Economic Impact*  
15

16 (13) NNG shall provide the Mist Birkenfield Rural Fire Protection District with an annual tour  
17 of the Miller Station to familiarize personnel with the facility in case of an emergency.  
18

19 *Waste Minimization*  
20

21 (14) NNG shall transport construction waste materials to an appropriate recycling facility or to  
22 an approved sanitary landfill for nonrecyclable goods. NNG shall collect scrap steel and welding  
23 rod for transportation to a recycling facility. Silt fence and straw bales shall be transported to an  
24 approved landfill.  
25

26 (15) Nonhazardous wastes associated with the Project such as crankcase oil, triethylene glycol  
27 and oil/water separator oils shall be collected, transported and recycled by a vendor as bunker  
28 fuel. Oily rags and oil filters shall be incinerated off site by a permitted disposal facility.  
29 Granular activated carbon will be collected and sent to a permitted facility for regeneration.  
30 NNG may use alternate methods of disposal if approved by the Office of Energy.  
31

32 (16) Water used for pressure testing shall be disposed of in a manner consistent with approved  
33 permits.  
34

35 *Retirement*  
36

37 (17) Prior to termination of the Site Certificate, NNG shall retire the Project site sufficiently to  
38 restore it to a useful condition. Site restoration shall include, but not be limited to, steps to:  
39

40 (a) Remove any hazardous material stored in buildings or located in process equipment  
41 and dispose of them following applicable state hazardous materials statutes and rules,  
42

43 (b) Disassemble the buildings and steel structures, break up the concrete slabs, and

1 dispose of these materials either as scrap or at an appropriate landfill,

2  
3 (c) Remove above ground portions of all gathering lines and pipelines,

4  
5 (d) If necessary, revegetate the area, including pipeline right of ways, to prevent erosion  
6 and encourage habitat development,

7  
8 (e) Inspect all pipelines and remove any hazardous materials found, and dispose of  
9 hazardous materials generated from cleaning the pipelines in accordance with applicable  
10 state hazardous materials statutes and rules.

11  
12 C. Conditions Related to Public Health and Safety Standards at OAR 345 Division 24

13  
14 Under ORS 469.401(2), EFSC must impose conditions in the site certificate for the protection of  
15 public health and safety. Throughout this order are conditions related to other decisional criteria  
16 that are ultimately intended to protect public health and safety. The following conditions protect  
17 public health and safety specifically with regard to EFSC standards for surface facilities related  
18 to underground natural gas storage and natural gas pipelines.

19  
20 (1) NNG shall design, construct, operate and retire the Project in accordance with applicable  
21 statutes, rules and ordinances.

22  
23 (2) NNG shall construct all pipelines in accordance with the requirements of the U.S.  
24 Department of Transportation as set forth in Title 49, Code of Federal Regulations Part 192.

25  
26 (3) Isolation valves shall be located at both ends of the 16 inch gathering lines terminating at  
27 Miller Station and at both ends of the eight inch and six inch gathering lines connecting the well  
28 sites with the sixteen inch line.

29  
30 (4) NNG shall maintain a program to monitor the proposed pipeline to ensure protection of the  
31 public health and safety, including but not limited to:

32  
33 (a) Pressure sensing devices positioned at Miller Station and near the wellheads to relay  
34 critical information to both Miller station and Portland gas control centers,

35  
36 (b) high and low pressure alarms monitored on a 24 hour per day basis to detect and  
37 locate areas where pressure variations may indicate abnormal conditions, and

38  
39 (c) emergency response personnel on duty 24 hours per day, at Miller Station or in  
40 Portland, trained to respond to situations that require immediate attention.

41  
42 (5) Within two months of initial startup of the new compressor, NNG shall conduct noise  
43 surveys at the two locations previously tested on February 20 and 21, 1997 to demonstrate

1 compliance with DEQ Noise regulations at OAR 340-35-035. Sound measurements shall be  
2 made with all compressors running at within 5% of horsepower permitted by this Site Certificate.  
3 Measurements shall be made at each location during atmospheric conditions best for sound  
4 propagation. Sound monitoring shall not be conducted when winds are in excess of 5 mph.  
5

6 D. Conditions for DSL Removal Fill Permit  
7

8 Construction of the Project will require a Removal\Fill permit from the Division of State Lands  
9 (DSL). The Council, in consultation with DSL, approves the activities associated with the  
10 Removal\Fill permit, subject to the following conditions:  
11

12 (1) NNG shall minimize impacts for the Category 2 wetland north of highway 202 by taking  
13 steps including but not limited to:

14 (a) using a single trench for dual pipelines and keeping the installation as narrow as  
15 possible while remaining consistent with safety and practical installation requirements.  
16

17 (b) timing construction for the dry time of year, not to extend beyond November 15.  
18

19 (c) separating and returning topsoil to the trench backfill surface for pipelines and  
20 installing clay barriers at each end of the wetland crossing.  
21

22 (d) avoiding the rest of the wetland during construction by use of the existing road  
23 through the wetland for construction equipment.  
24

25 (2) NNG shall restore habitat in the Category 2 wetland to the north of highway 202 to  
26 preconstruction conditions within two growing seasons.  
27

28 (3) NNG shall minimize impact to wetlands by separating the upper foot of topsoil from the  
29 rest of the trench spoils and replacing it on the top of the trench.  
30

31 (4) NNG shall filter any water pumped from the trench during construction to remove  
32 sediments before it is returned to the wetland.  
33

34 (5) NNG shall complete pipeline construction through the wetland by November 15, 1997.  
35

36 (6) Turbidity shall not exceed 10% above natural stream turbidities as a result of the project  
37 except that the Department of Environmental Quality allows that the 10% limit may be exceeded  
38 for a limited duration, provided all practicable erosion control measures have been implemented,  
39 including but not limited to:

40 (a) use of filter bags, sediment fences, catch basins or other means to prevent off site  
41 movement of soil  
42  
43

- 1 (b.) use of impervious covers for stockpiles left unattended or during a rain event,  
2  
3 (c.) waste materials and spoils shall be placed on uplands, such that the material  
4 cannot reenter a waterway or wetland, and  
5  
6 (d.) all areas of soil disturbance shall be seeded or otherwise revegetated with native  
7 species upon completion of construction to prevent subsequent erosion.  
8

9 E. Conditions Related to Limited Water Use Permit

10  
11 Construction of the Project will require a one-time use of approximately 300,000 gallons of  
12 water for pipeline testing. This use will require a Limited Water Use permit from the Water  
13 Resources Department. The water would be withdrawn from the Nehalem River. The Council  
14 approves this use, subject to the following conditions and in consultation with the Water  
15 Resources Department:  
16

17 (1) The licensee shall install, maintain and operate fish screening and by-pass devices as  
18 required by the Oregon Department of Fish and Wildlife to prevent fish from entering the  
19 proposed diversion. The required screens and by-pass devices are to be in place, functional and  
20 approved by an Oregon Department of Fish and Wildlife representative prior to diversion of any  
21 water.  
22

23 (2) The use shall be allowed only at times when the Watermaster has determined the flows of the  
24 source stream, namely the Nehalem River, are sufficient to satisfy instream water rights.  
25

26 (3) The licensee shall give notice to the Watermaster not less than 15 days or more than 60 days  
27 in advance of using the water. The notice shall include the location of the diversion and place of  
28 use, the quantity of water to be diverted and the intended use.  
29

30 (4) The licensee shall maintain a record of use, including the total number of hours of pumping,  
31 an estimate of the total quantity pumped, and the categories of beneficial use to which the water  
32 is applied. The record of use shall be submitted to the Watermaster upon request.  
33

34 (5) The limited license is effective for use between September 1, 1997 and November 15, 1997  
35

36 F. Conditions Related to DEQ WPCF permit

37  
38 Construction of the Project will require a one-time discharge of the water used for pipeline  
39 testing. The water will be discharged by land application to a pasture located near the Nehalem  
40 River and in the vicinity of the directional drilling site. This discharge requires a Water Pollution  
41 Control Facilities (WPCF) permit from the Department of Environmental Quality (DEQ). The  
42 Council approves this activity, subject to the following conditions and in consultation with DEQ:  
43



**EXHIBIT A**

**NORTHWEST NATURAL GAS COMPANY SITE CERTIFICATE**

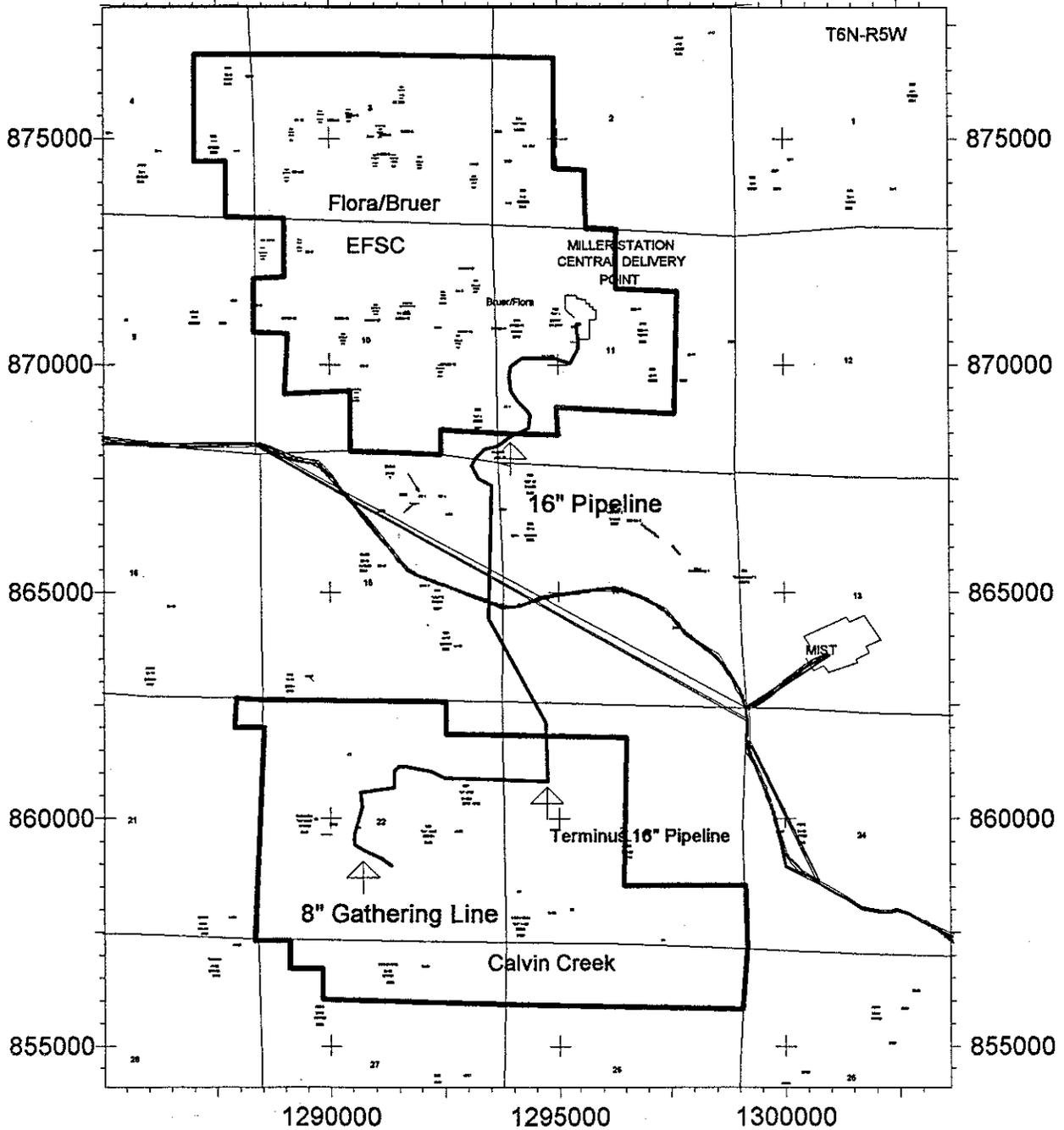
**AMENDMENT NO. 4**

X/Y:

1290000

1295000

1300000



Northwest Natural Gas Co
Exhibit "A" Site Certificate
Amendment No. 4

## LEGAL DESCRIPTION OF PROJECT SITE

### BRUER/FLORA STORAGE AREA, COLUMBIA COUNTY, OR - TOWNSHIP 6N RANGE 5W

Section 2

SW1/4 of NW1/4;  
W1/2 of SW1/4;  
W1/2 of SE1/4 of SW1/4

Section 3

S1/2;  
S1/2 of NW1/4;  
S1/2 of NE1/4

Section 4

SE1/4 of NE1/4;  
NE1/4 of SE1/4;  
E1/2 of SE1/4 of SE1/4

Section 10

NE1/4;  
E1/2 of NW1/4;  
SW1/4 of NW1/4;  
E1/2 of NW1/4 of NW1/4;  
NE1/4 of SW1/4;  
E1/2 of NW1/4 of SW1/4;  
E1/2 of SE1/4 of SW1/4;  
N1/2 of SE1/4;  
SW 1/4 of SE1/4;  
N1/2 of SE1/4 of SE1/4

Section 11

NW1/4;  
N1/2 of SW1/4;  
N1/2 of SW1/4 of SW1/4;  
NW1/4 of SE1/4  
SW1/4 of NE1/4

### CALVIN CREEK STORAGE AREA, COLUMBIA COUNTY, OR - TOWNSHIP 6 N, RANGE 5 W

Section 21

NE1/4 of NE1/4 of NE1/4

Section 22

W1/2;  
SE1/4;  
NW1/4 of NE1/4;  
SW1/4 of NE1/4;  
SE1/4 of NE1/4;  
S1/2 of NE1/4 of NE1/4

Section 23

SW1/4;  
S1/2 of SE1/4;  
S1/2 of NW1/4;  
S1/2 of NW1/4 of NW1/4

Section 26

N1/2 of N1/2

Section 27

N1/2 of NE1/4  
NE1/4 of NW1/4  
NE1/4 of NW1/4 of NW1/4

EXHIBIT "A"  
GAS UTILITY EASEMENT

GRANTOR: LONGVIEW FIBRE CO.

GRANTEE: NORTHWEST NATURAL GAS CO.

A 40 foot wide gas utility easement being 20 feet on each side of the following described centerline located in Sections 11, 14 and 15, Township 6 North, Range 5 West, Willamette Meridian, Columbia County, Oregon:

Beginning at a point on the North line of the Southwest quarter of Section 11, Township 6 North, Range 5 West, Willamette Meridian, Columbia County, Oregon which is North  $85^{\circ}51'30''$  West 728.68 feet from the Northeast corner thereof; thence South  $25^{\circ}11'53''$  West, a distance of 267.79 feet; thence along the arc of a 326.68 foot radius curve to the right (the long chord bears South  $70^{\circ}35'28''$  West, 465.16 feet) a distance of 517.64 feet; thence North  $64^{\circ}00'56''$  West, a distance of 101.87 feet; thence along the arc of a 354.92 foot radius curve to the left, (the long chord bears North  $78^{\circ}16'15''$  West, 174.79 feet) a distance of 176.61 feet; thence South  $87^{\circ}28'27''$  West, a distance of 159.27 feet; thence along the arc of a 579.90 foot radius curve to the left, (the long chord bears South  $44^{\circ}27'18''$  West, 791.27 feet) a distance of 870.81 feet; thence South  $01^{\circ}26'09''$  West, a distance of 286.26 feet; thence South  $09^{\circ}14'53''$  East, a distance of 313.60 feet; thence South  $32^{\circ}29'15''$  East, a distance of 127.26 feet; thence South  $57^{\circ}12'38''$  West, a distance of 51.03 feet; thence South  $30^{\circ}19'01''$  East, a distance of 108.61 feet; thence along the arc of a 441.44 foot radius curve to the right, (the long chord bears South  $06^{\circ}02'40''$  West, 523.44 feet) a distance of 560.30 feet; thence South  $42^{\circ}24'21''$  West, a distance of 359.07 feet to a point on the South line of said Section 11 which is South  $85^{\circ}40'24''$  East 319.51 feet from the Southwest corner of said Section 11; thence South  $42^{\circ}24'21''$  West, a distance of 479.98 feet to a point on the West line of Section 14, Township 6 North, Range 5 West, Willamette Meridian, Columbia County, Oregon which is South  $00^{\circ}46'17''$  West, 378.55 feet from the Northwest corner of said Section 14; thence South  $42^{\circ}24'21''$  West, a distance of 64.68 feet; thence South  $70^{\circ}00'08''$  West, a distance of 319.27 feet; thence along the arc of a 370.00 foot radius curve to the left, (the long chord bears South  $14^{\circ}30'08''$  West, 609.85

feet) a distance of 716.81 feet; thence South  $40^{\circ}59'52''$  East, a distance of 151.84 feet; thence along the arc of a 86.72 foot radius curve to the right, (the long chord bears South  $27^{\circ}16'56''$  East, 41.18 feet) a distance of 41.52 feet to a point on the South line of the Northeast quarter of the Northeast quarter of Section 15, Township 6 North, Range 5 West, Willamette Meridian, Columbia County, Oregon which is North  $84^{\circ}27'02''$  West, 367.04 feet from the Southeast corner of said Northeast quarter of the Northeast quarter of Section 15 and the end of said easement.

Being 5,674.23 feet in length.

May 27, 1997

N97-12AAG

EXHIBIT "B"  
GAS UTILITY EASEMENT

GRANTOR: LONGVIEW FIBRE CO.

GRANTEE: NORTHWEST NATURAL GAS

A 40 foot wide gas utility easement being 20 feet on each side of the following described centerline located in Section 22, Township 6 North, Range 5 West, Willamette Meridian, Columbia County, Oregon:

Beginning at a point on the North line of the Southwest quarter of Section 22, Township 6 North, Range 5 West, Willamette Meridian, Columbia County, Oregon which is North  $87^{\circ}00'29''$  West, 682.87 feet from the center of said Section 22; thence South  $04^{\circ}29'40''$  West, a distance of 73.93 feet; thence South  $24^{\circ}05'10''$  West, a distance of 339.80 feet to the end of said easement, said ending point being South  $67^{\circ}08'53''$  West, 896.80 feet from the center of said Section 22.

Being 413.73 feet in length.

June 18, 1997

N97-12KAGA

EXHIBIT "C"  
GAS UTILITY EASEMENT

GRANTOR: LONGVIEW FIBRE COMPANY

GRANTEE: NORTHWEST NATURAL GAS CO.

A 40 foot wide gas utility easement, lying within the Longview Fibre Company tract in the South half of the Northwest quarter of Section 23, Township 6 North, Range 5 West, Willamette Meridian, Columbia County, Oregon, being 20 feet on each side of the following described centerline:

Beginning at a point in the centerline of said gas pipeline which is South  $88^{\circ}11'35''$  East, 363.52 feet from the Southwest corner of the Northwest quarter of the Northwest quarter of said Section 23; thence South  $74^{\circ}42'42''$  West, a distance of 159.67 feet; thence South  $75^{\circ}35'08''$  West, a distance of 218.82 feet to a point on the West line of said Section 23 which is South  $01^{\circ}23'16''$  West, 108.07 feet from the Southwest corner of the Northwest quarter of the Northwest quarter of said Section 23 and the end of said easement.

Being 378.49 feet in length.

May 27, 1997

N97-12HAG

EXHIBIT "D"  
GAS UTILITY EASEMENT

GRANTOR: LONGVIEW FIBRE COMPANY

GRANTEE: NORTHWEST NATURAL GAS CO.

A 40 foot wide gas easement being 20 feet on each side of the following described centerline located in Section 22, Township 6 North, Range 5 West, Willamette Meridian, Columbia County, Oregon:

Beginning at a point on the East line of Section 22, Township 6 North, Range 5 West, Willamette Meridian, Columbia County, Oregon which is South  $01^{\circ}23'16''$  West, 108.87 feet from the Southeast corner of the Northeast quarter of the Northeast quarter of said Section 22; thence South  $75^{\circ}35'08''$  West, a distance of 353.37 feet; thence South  $80^{\circ}51'37''$  West, a distance of 244.67 feet; thence North  $88^{\circ}39'14''$  West, a distance of 253.07 feet; thence North  $33^{\circ}19'31''$  West, a distance of 209.98 feet; thence North  $75^{\circ}49'54''$  West, a distance of 382.40 feet; thence South  $76^{\circ}58'03''$  West, a distance of 156.84 feet; thence South  $87^{\circ}07'11''$  West, a distance of 160.60 feet; thence South  $23^{\circ}46'58''$  West, a distance of 393.40 feet; thence South  $39^{\circ}40'53''$  West, a distance of 147.97 feet; thence North  $64^{\circ}07'33''$  West, a distance of 432.97 feet; thence South  $83^{\circ}26'35''$  West, a distance of 180.28 feet; thence South  $79^{\circ}55'26''$  West, a distance of 225.03 feet to a point on the West line of the Northeast quarter of said Section 22, which is South  $02^{\circ}11'23''$  West, 1813.49 feet from the North quarter corner of said Section 22 and the end of said easement.

Being 3,140.58 feet in length.

May 27, 1997

N97-12IAG

EXHIBIT "A"  
GAS UTILITY EASEMENT

GRANTOR: RANDALL C. and KARI H. HANSEN

GRANTEE: NORTHWEST NATURAL GAS CO.

Parcel 1: A 40 foot wide gas utility easement being 20 feet on each side of the following described centerline located in Section 15, Township 6 North, Range 5 West, Willamette Meridian, Columbia County, Oregon:

Beginning at a point on the North line of the Southeast quarter of the Southeast quarter of Section 15, Township 6 North, Range 5 West, Willamette Meridian, Columbia County, Oregon, which is North  $86^{\circ}55'26''$  West, 350.01 feet from the Northeast corner of said Southeast quarter of the Southeast quarter of Section 15; thence South  $02^{\circ}17'48''$  West, a distance of 676.633 feet; thence South  $55^{\circ}52'34''$  East, a distance of 411.91 feet to a point on the East line of said Section 15, which is North  $02^{\circ}17'48''$  East 431.59 feet from the Southeast corner of said Section 15 and the end of said easement.

Being 1,088.53 feet in length.

Parcel 2: A 40 foot wide gas utility easement being 20 feet on each side of the following described centerline located in Section 15, Township 6 North, Range 5 West, Willamette Meridian, Columbia County, Oregon:

Beginning at a point on the North line of the Southeast quarter of the Northeast quarter of Section 15, Township 6 North, Range 5 West, Willamette Meridian, Columbia County, Oregon which is North  $84^{\circ}27'02''$  West 367.04 feet from the Northeast corner of said Southeast quarter of the Northeast quarter of Section 15; thence along the arc of a 86.72 foot radius curve to the right, (the long chord bears South  $05^{\circ}45'49''$  West, 57.41 feet) a distance of 58.51 feet; thence along the arc of an 875.0 foot radius curve to the right (the long chord bears South  $37^{\circ}19'41''$  West, 370.87 feet) a distance of 373.71 feet; thence along the arc of a 676.75 foot radius curve to the left (the long chord bears South

38°48'56" West, 252.41 feet) a distance of 253.89 feet; thence South 28°04'05" West, a distance of 80.00 feet; thence along the arc of a 129.11 foot radius curve to the left, (the long chord bears South 22°25'55" East, 199.24 feet) a distance of 227.59 feet; thence South 72°55'55" East, a distance of 524.81 thence South 30°08'38" East a distance of 149.25 feet; thence South 14°14'462" West, a distance of 772.15 feet to a point on the Northerly right of way line of the Nehalem Highway No. 202, which is South 32°36'27" West, 578.05 feet from the East quarter corner of said Section 15 and the end of said easement.

Being 2,440.68 feet in length.

Parcel 3: An easement for ingress and egress being 20 feet in width, over the West 20 feet of the East 20 rods of the Northeast quarter of the Southeast quarter of Section 15, Township 6 North, Range 5 West, Willamette Meridian, Columbia County, Oregon lying Southerly of the Southerly right of way line of the Nehalem Highway No. 202.

June 19, 1997

N97-12DEEA

EXHIBIT "A"  
GAS UTILITY EASEMENT

GRANTOR: SHALMON L. LIBEL

GRANTEE: NORTHWEST NATURAL GAS CO.

A 40 foot wide gas utility easement being 20 feet on each side of the following described centerline located in Section 15, Township 6 North, Range 5 West, Willamette Meridian, Columbia County, Oregon:

Beginning at a point on the Southerly right of way line of the Nehalem Highway No. 202, which is South  $34^{\circ}12'23''$  West, 662.11 feet from the East quarter corner of Section 15, Township 6 North, Range 2 West, Willamette Meridian, Columbia County, Oregon; thence South  $02^{\circ}17'48''$  West, a distance of 753.87 feet to a point on the South line of the Northeast quarter of the Southeast quarter of said Section 15 which is North  $86^{\circ}55'26''$  West 350.01 feet from the Southeast corner of said Northeast quarter of the Southeast quarter of Section 15 and the end of said easement.

Being 753.87 feet in length.

EXHIBIT "A"  
GAS UTILITY EASEMENT

GRANTOR: FORREST L. HEMEON and GERALDINE L. HEMEON  
GRANTEE: NORTHWEST NATURAL GAS CO.

A 40 foot wide gas utility easement being 20 feet on each side of the following described centerline located in Section 14, Township 6 North, Range 5 West, Willamette Meridian, Columbia County, Oregon:

Beginning at a point on the West line of the Southwest quarter of Section 14, Township 6 North, Range 5 West, Willamette Meridian, Columbia County, Oregon which is North  $02^{\circ}17'48''$  East, 431.59 feet from the Southwest corner of said Section 14; thence south  $55^{\circ}52'34''$  East, a distance of 444.62 feet; thence South  $40^{\circ}41'18''$  East, a distance of 245.37 feet to a point on the South line of said Southwest quarter of Section 14, which is South  $89^{\circ}33'19''$  East, 545.34 feet from the Southwest corner of said Section 14 and the end of said easement.

Being 676.96 feet in length.

EXHIBIT "A"  
GAS UTILITY EASEMENT

GRANTOR: FRED W. BUSCH and PHYLLIS R. BUSCH

GRANTEE: NORTHWEST NATURAL GAS CO.

A 40 foot wide gas utility easement being 20 feet on each side of the following described centerline located in Section 23, Township 6 North, Range 5 West, Willamette Meridian, Columbia County, Oregon:

Beginning at a point on the North line of Section 23, Township 6 North, Range 5 West, Willamette Meridian, Columbia County, Oregon which is South  $89^{\circ}33'19''$  East, 545.34 feet from the Northwest corner of said Section 23; thence South  $40^{\circ}41'18''$  East, a distance of 147.81 feet; thence South  $01^{\circ}53'47''$  West, a distance of 1172.12 feet; thence South  $88^{\circ}46'56''$  West, a distance of 109.36 feet; thence South  $74^{\circ}42'42''$  West, a distance of 168.12 feet to a point on the South line of the Northwest quarter of the Northwest quarter of said Section 23 which is South  $88^{\circ}11'35''$  East 363.52 feet from the Southwest corner of said Northwest quarter of the Northwest quarter of Section 23 and the end of said easement.

Being 1,597.41 feet in length.

May 27, 1997

N97-12GAG

EXHIBIT "B"  
GAS UTILITY EASEMENT

GRANTOR: FRED W. BUSCH JR. and PHYLIS R. BUSCH

GRANTEE: NORTHWEST NATURAL GAS CO.

A 40 foot wide gas utility easement being 20 feet on each side of the following described centerline located in Section 22, Township 6 North, Range 5 West, Willamette Meridian, Columbia County, Oregon:

Beginning at a point on the East line of the Northwest quarter of Section 22, Township 6 North, Range 5 West, Willamette Meridian, Columbia County, Oregon which is South  $02^{\circ}11'23''$  West, 1813.49 feet from the North quarter corner of said Section 22; thence South  $79^{\circ}55'26''$  West, a distance of 177.93 feet; thence South  $72^{\circ}30'00''$  West, a distance of 514.48 feet; thence South  $04^{\circ}29'37''$  West, a distance of 610.37 feet to a point on the South line of said Northwest quarter of Section 22, which is North  $87^{\circ}00'29''$  West, 682.87 feet from the center of said Section 22 and the end of said easement.

Being 1,302.78 feet in length.

May 27, 1997

N97-12JAG