

APPLICATION TO DRILL OIL OR GAS WELL

STATE OF OREGON • DEPT OF GEOLOGY & MINERAL INDUSTRIES • 229 BROADALBIN ST SW • ALBANY OR 97321  
(In compliance with rules and regulations pursuant to ORS 520.)

(1) Permittee Information

Name	NW Natural
Mailing Address	220 Northwest Second Ave.
City/State/Zip	Portland, OR 97209
Telephone	(503)226-4211
Fax	(503)220-2595
Email	Todd.thomas@nwnatural.com
Prepared by	Todd Thomas
On Site Contact	Ed Vader
Phone (day)	(780) 712-2986
Phone (night)	
Other	

(2) Well Information

County	Columbia
Lease	Northwest Natural Gas
Well No.	IW 32dc-10-65
Location	1/4 SW S <del>11</del> 10 T 6N R 5W
Wildcat or Field Name	Mist Storage
Surveyed SHL Coordinates. For directional wells Include BHL.	SHL: 1830' West and 290' North from the West 1/4 corner section 11; T6N; R5W BHL: 1675' West and 10' North from the West 1/4 corner section 11; TN6; R5W
Geologic Objective	Clark and Wilson Sand
Proposed Depth	2420' MD

*Todd Thomas*  
Signature

*Project Manager*  
Title

*May 13, 2005*  
Date

(3) Lease/Ownership (if other than applicant)

	Lessor (mineral owner)	Surface Owner	Lessee
Name	Northwest Natural Gas	Bascom C/O Forest Systems	Northwest Natural Gas
Mailing Address	220 NW Second Ave.	P.O. Box 2549	220 NW Second Ave.
City/State/Zip	Portland, OR 97209	Longview, WA 98632	Portland, OR 97209
Telephone	(503)226-4211	(360)501-5015	(503)226-4211
Fax	(503)220-2595	(360)501-5016	(503)220-2595
Email	Todd.thomas@nwnatural.com		Todd.thomas@nwnatural.com

(4) Proposed Well Design (use additional sheets if necessary)

Size of hole	Size of Casing	Weight (pounds per foot)	Grade/Type	Depth	Type and Amount of Cement
17 1/2"	13 3/8"	48	H-40	480	Premium Plus 81 bbls.
12 1/4"	9 5/8"	36	J-55	2157	Premium Plus 155 bbls.
					bbls.
					bbls.

(5) Slurry Design for each String (use additional sheets if necessary)

String 1	Annulus height	HT. left in casing	Excess	Density	String 2	Annulus height	HT. left in casing	Excess	Density
Tail	206 ft.	40 ft.	6 bbls.	14.0 ppg.	Tail	1942 ft.	40 ft.	24 bbls.	14.8 ppg.
Lead	274 ft.	0 ft.	9 bbls.	13.5 ppg.	Lead	993 ft.	0 ft.	4 bbls.	13.0 ppg.

RECEIVED

DRILLINGPERM.DOC  
REV. 08/05/03

MLRR

*24-004-00343*  
*#545*

*5-18-05*

(6) Geologic Information - if known (use additional sheets if necessary)

	1	at	2	at	3	at
Assumed fracture gradient of rock vs. depth	0.77 psi/ft	440 ft.	0.86 psi/ft	990 ft.	psi/ft	ft.
Pore gradient of rock vs. depth (if known)	.441 psi/ft	ft.	psi/ft	ft.	psi/ft	ft.