

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 42dH-10-65							
Location	1/4	NE	S	10	T	6N	R	5W
Wildcat or Field Name	Mist Storage							
Surveyed SHL Coordinates. For directional wells Include BHL.	SHL: 80' East and 250' North from the West ¼ corner section 11; T6N; R5W BHL: 565' West and 85' North from the West ¼ corner section 11; TN6; R5W							
Geologic Objective	Clark and Wilson Sand							
Proposed Depth	3111' MD							

  
Signature

Project Manager  
Title

May 13, 2005  
Date

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

	Lessors (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 ½"	13 3/8"	48	H-40	480	Premium Plus	81 bbls.
12 ¼"	9 5/8"	36	J-55	2424	Premium Plus	175 bbls.
						bbls.
						bbls.

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

String 1	Annulus height	HT. left in casing	Excess	Density
Tail	206 ft.	40 ft.	6 bbls.	14.0 ppg.
Lead	274 ft.	0 ft.	8 bbls.	13.5 ppg.

String 2	Annulus height	HT. left in casing	Excess	Density
Tail	1433 ft.	40 ft.	24 bbls.	14.8 ppg.
Lead	991 ft.	0 ft.	9 bbls.	13.0 ppg.

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#544

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

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

	2	at
	0.86 psi/ft	990 ft.
	psi/ft	ft.

	3	at
	psi/ft	ft.
	psi/ft	ft.