

50-018-00500
 9/20/06

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

(2) Well Information

Name	NW Natural
Mailing Address	220 NW Second Ave.
City, State, Zip	Portland, OR 97209
Telephone	503-226-4211
Fax	503-220-2586
Email	Todd.Thomas@nwnatural.com
Prepared by	Todd Thomas
On Site Contact	Ed Lader
Phone (day)	780-712-2986
Phone (night)	

County	Columbia
Lease	Northwest Natural Gas
Well No.	IW 23ach-3-65
Location	1/4 SE S 3 T 6N R 5W
Wildcat or Field	Mist Storage
Elevation	1028 ft.
Surveyed SHL coordinates; include BHL for directional wells	Horizontal well, will be drilled from existing IW 3303-65 well pad, permit #374. Surface location: 1610 ft. N and 325 E of S 1/4 corner Sec. 3 T6N R5W. Top C&W Sandstone location: 875 ft. W and 565 ft. N of surface. BHL: 1480 ft W and 700 ft. N of surface.
Geologic Objective	Clark and Wilson (C&W) Sandstone
Proposed Depth	3697 ft

Signature: *Todd Thomas*

Title: *Project Manager*

Date: *9/20/06*

(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	503-220-2586	360-501-5016	503-220-2586
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	600	111	bbls.
12 1/4"	9 5/8"	32	J-55	3100	218	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.	1 ft.	13 bbls.	14.0 ppg.	Tail	1651 ft.	40 ft.	23 bbls	14.8 ppg.
Lead	394 ft.	1 ft.	24 bbls.	13.5 ppg.	Lead	1449 ft.	0 ft.	12 bbls	13.0 ppg.

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

	1	at	2	at	3	at
Assumed fracture gradient of rock vs. depth	.77	psi/ft	.86	psi/ft		
Pore gradient of rock vs. depth (if known)	.441	psi/ft	.441	psi/ft		

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