

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 | Northwest Natural Gas Company |
| Mailing Address | 220 NW 2 nd Avenue |
| City/State/Zip | Portland OR 97209 |
| Telephone | 503 226-4211 ext 4683 |
| Fax | |
| Email | 9-12-03 |
| Prepared by | Dawn Marshall - |
| On Site Contact | transferred info |
| Phone (day) | from orig. documents |
| Phone (night) | to this current app. |
| Other | form. <i>DM</i> |

(2) Well Information

| | |
|--|--|
| County | Columbia |
| Lease | |
| Well No. | IW 24H-15-65 |
| Location | 1/4 NW S 22 T 6N R 5W |
| Wildcat or Field Name | Mist |
| Surveyed SHL Coordinates. For directional wells Include BHL. | Surface Location: 2350' E and 355' S of the NW corner of S22 T6N R5W. Top of C&W Sandstone Location: 540' N and 750' W of surface (SE 1/4 of SW 1/4 of S15 T6N R5W). Bottom Hole Location: 680' N and 1390' W of surface (SW 1/4 of SW 1/4 of S 15 T6N R5W). |
| Geologic Objective | Clark and Wilson Sandstone |
| Proposed Depth | 2800 |

True

Signature _____ Title _____ Date _____

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

| | Lessor (mineral owner) | Surface Owner | Lessee |
|-----------------|---------------------------------|---------------------------------|-------------------------------|
| Name | Fred W. & Phyllis R. Busch, Jr. | Fred W. & Phyllis R. Busch, Jr. | Northwest Natural Gas Company |
| Mailing Address | 13163 Busch Lane | 13163 Busch Lane | 220 NW 2 nd Avenue |
| City/State/Zip | Mist OR 97016 | Mist OR 97016 | Portland OR 97209 |
| Telephone | | | |
| Fax | | | |
| Email | | | |

(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 |
|--------------|----------------|--------------------------|------------|-------|---|
| 17.5" | 13.375" | 54.5 | H-40 | 400' | Type 3 @ 300 sx <i>28.28</i> bbls. <i>28.28</i> |
| 12.25" | 8.625" | 32 | J-55 | 2200' | Type 3 @ 800 sx <i>70</i> bbls. <i>70</i> |
| | | | | | bbls. <i>91</i> |
| | | | | | bbls. <i>EXC</i> |

(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 | 218 ft. | 40 ft. | 0 bbls. | 14.2 ppg. | Tail | 500 ft. | 40 ft. | 0 bbls. | 14.8 ppg. |
| Lead | 182 ft. | 0 ft. | 45 bbls. | 13.7 ppg. | Lead | 1700 ft. | 0 ft. | 21 bbls. | 13.7 ppg. |

Lead brought to surface 4-11

Lead brought to surface 7-11

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

| | | |
|---|-------------|---|
| Assumed fracture gradient of rock vs. depth | 1 | at |
| Pore gradient of rock vs. depth (if known) | .441 psi/ft | For all depths down to and through the Clark and Wilson Sandstone |

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