

STATE OF OREGON
DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES
910 State Office Building Portland, OR 97201

HISTORY OF OIL OR GAS WELL
(In compliance with rules and regulations pursuant to ORS 520)

Northwest Natural Gas Co. (Company or Operator)	Northwest Natural Gas Co. (Lease)	IW 23d-3 (Well No.)
Sec. 3 T6N 5W Surveyed Coordinate (if directional, BHL & SHL):		
Surface: 299' S & 2475' E from the West 1/4 corner Sec. 11, T6N; R5W BHL: 572'S & 42' W at 3079'		
Wilcat: _____ (or Field Name): <u>Mist Storage</u>		County: <u>Columbia</u>
Date: _____	16-Jan-92	Signature: <u>[Signature]</u> Position: <u>Senior Operations Superintendent</u>

Use this form in reporting the daily operations at the well. (Operator may use his own forms, but heading of this form must also be completed and submitted.) Please submit a complete history of the well. Include such information as bit sizes, mud weights, casing sizes and depths set, amount of cement used, drilling depths, fishing, logging, perforating, and plugging procedures, and anything else pertinent to the operation. Do not include lithology.

Date	
10/7/91	Spud well with 17 1/2" bit. Drilling 17 1/2" hole to 285'. Circulate and survey. 0 45'. Drilling to 485. Slight loss of circulation. Spud mud.
10/8/91	Drilling to 497'. Wipe hole to surface. Drilling to 540'. Lost circulation at 520'. Drilling to 697'. Circulate and survey. 0 45'. Wiper trip to surface. Run 18 jts of 13 3/8", 54.5#, K-55 casing to 684'. Cement with lead slurry of: 230 sx class "G" mixed with 3% CaCl + 6% Gel + 1/4# Flocele and tail slurry of: 300 sx class G mixed with 3% CaCl + 1/4# Flocele. No cement returns. WOC.
10/9/91	WOC. Run in annulus with 1" to 130'. Pump 100 sx class "G" cement mixed with 6% gel + 3% CaCl. Cement returns to surface. Cut off conductor and weld on wellhead and test to 1500 psi. Nipple up BOPE and test blind rams. RIH.
10/10/91	Test pipe rams and Hydril with state rep witnessing. Drill out plug, float, cement, and shoe. Drilling 12 1/4" hole to 734'. POH. Pick up mudmotor and RIH. Rotate to 755'. Circulate and survey. 1 15' S28E. Drilling and survey 755'-1198'. Surveys @ 901'=7 00' S4W, 1084'=13 45' S3E, 1146'=14 30' South. Mud weight=9.1
10/11/91	POH and lay down mudmotor. Pick up new BHA and RIH. Ream as needed to bottom. Drilling 1198'-1301'. Wipe hole to shoe. Drilling to 1484'. Circulate and survey. 13 00' S5W. Drilling 1484'-1607'. 6 std wiper trip. Survey @ 1607. 13 00' S5W. Drilling to 1640'. Mud weight=9.4
10/12/91	Drill to 1792'. Circulate and survey. No good. POH to change BHA. Ream 60' to bottom. Drilling to 2171'. Circulate and survey. 13 00' S4W. Drilling to 2133'. Circulate and survey. 15 00' S3W. POH and change BHA. RIH and ream from 1850' Mud weight=9.5
10/13/91	Drilling 2133'-2286'. Circulate sweep. Survey. 16 45' S6W. 11 stand wiper trip.

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10/14/91	Drilling to 2504'. Circulate sweep, survey. 18 00' S7W. Wipe hole 10 stds. Circulate and pack off. Wipe hole to shoe. Drilling to 2560'. Mud weight=9.6 Drilling to 2685'. Circulate and unplug flowline. Drilling to 2730'. 11 std wiper trip. Circulate and survey. 19 15' S4W. Wipe hole to shoe. Circulate and condition mud for logs. POH for logs. Rig up Atlas and run DIFL/Acoustic, GR/Neutron, Dipmeter. RIH. Mud weight=9.8	
10/15/91	Logging with Atlas. Unload and strap casing. RIH. Stage in and ream 90' to bottom. POH. Rig up to run casing and run and Hydrotest 67 jts (2725') of 8 5/8", 32#, K-55 casing to 2715'.	
10/16/91	Rig down and circulate casing. Rig up and cement casing with lead: 460 sx mixed v 1:1 perlite+2% Gel+2% CaCl+ .5% Halad 4 and tail: 385 sx mixed with 2% KCl+ 2% Microbond+1% Gasban. No cement returns to surface. Clean BOP stack and set slips. Nipple down BOP. Cut off casing and install tubing head and test to 1500 Nipple up BOP. WOC.	
10/17/91	WOC. Test blind rams. RIH and condition mud. Test BOPE with state representative witnessing. Can't circulate cement contaminated mud. POH to 1250 and break circulation. Circulate and stage in to 2634'. Drill out plugs, float and cement to 2711'. POH and pick up casing scraper. RIH with casing scraper and circulate. POH for logs. Rig up Atlas and run Vertilog and CBL. Mud weight=9.8	
10/18/91	Run Bond Log. Run Vertilog. Stuck tool at 666'. Wait on fishing tools.	
10/19/91	Wait on fishing tools. Rig up side door overshot and strip in over line and retrieve fish. POH with fish. RIH with casing scraper and circulate. POH. Rig up and run Vertilog. Clean mud pits. Make up new BHA, mix mud and RIH. Displace hole with HEC-10 polymer mud. Drilling 7 7/8" hole from 2730'-2811'. Mud weight=8.6	
10/20/91	Drilling from 2811'-3079' (Total Depth). Wipe hole to shoe. Circulate and survey. 19 30' S5W. Strap out of hole for logs. Rig up Atlas and run DIFL/Acoustic, GR/Neutron, Dipmeter. RIH with cement diverter. Mud weight=8.6	
10/21/91	RIH with cement diverter to 3073'. Lay cement plug from 3073'-2798'. POH 8 stds and circulate. POH, make up new BHA and RIH. WOC.	
10/22/91	WOC. Tag plug at 2760'. POH and strap pipe. RIH and polish to 2828'. POH and pick up under reamer. RIH and under ream to 15" from 2708'-2828'. POH and rig up Atlas and run caliper log.	
10/23/91	RIH with under reamer and ream hole from 2715'-2859'. Wait on liner.	
10/24/91	Wait on liner. Clean mud tanks and mix HEC-10. Displace hole with filtered mud. POH and lay down under reamer. Rig up and run 5 jts. (190' wire wrapped and 21' blank) of 5 1/2" liner.	
10/25/91	RIH with liner to 2859'. Gravel pack liner with 210 sx of 20/40 sand. Reverse out 3 sx. POH and lay down tools. Rig up Atlas and run Photon log. RIH and set lead seal at 2647'. POH. Make up packer assembly (Wireline guide, No-Go nipple, 4 1/2" pup jt, packer) RIH with wireline and set packer at 2634'. RIH with test overshot and test packer to 500 psi. POH.	

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10/26/91	Rig up and run tubing assembly (overshot, 1 jt of 4 1/2" tubing, sliding sleeve, 1 jt of 4 1/2" tubing, side pocket mandrel, 47 jts 4 1/2", 11.6#, K-55, LT&C tubing, 1-4 1/2" LTC X 4 1/2" EUE X-over). Total length=2617'. Land donut, and land tubing to 500 psi. Clean mud pits, mix corrosion inhibitor, displace hole, and test packer. Pressure test donut and packer to 250 psi. Nipple down BOPE. Install and test production tree to 3000 psi. Lay 2" line for displacement.	
10/27/92	Rig up Otis to complete well. RIH and open sliding sleeve. Displace approximately 1600' of fluid from tubing. Close sliding sleeve. RIH and remove plug from No-Go nipple. Blow well to atmosphere. Release Taylor Drilling Rig #5. Well ready for connection.	