

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 13b-11 (Well No.)
Sec. 11 T: 6N R: 5W	Surveyed Coordinate (if directional, BHL & SHL):	
Surface: 272' N & 344'E from the West 1/4 corner Sec. 11, T6N; R5W BHL: 368'S & 101' W at 2214'		
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	
9/18/91	Spud well with 17 1/2" bit. Drilling 17 1/2" hole to 517'. Spud mud.
9/19/91	Drilling to 542'. Wipe hole to shoe. Survey 5 00'. Run 14 jts of 13 3/8", 54.5# K-55 casing to 530'. Cement with lead slurry of: 300 sx class "G" mixed with 3% CaCl + 6% Gel + 1/4# Flocele and tail slurry of: 185 sx class G mixed with 3% CaCl + 1/4# Flocele. Excellent cement returns. Float did not hold. Leave 500 psi on cementing head. WOC. Weld on wellhead. Nipple up BOPE.
9/20/91	Nipple up BOPE. Pressure test blind rams to 1000 psi. Run in hole and test pipe rams and Hydril with state rep witnessing. Drill out plug, float, cement, and shoe. Drilling 12 1/4" hole to 576'. Survey at 551', 371', 160'. Pick up mudmotor and RIH. Drilling to 841'. Circulate and survey. 3 45' S1W. Mud weight=8.9
9/21/91	Drilling 841'-993'. Wiper trip and survey. 8 30' S10W. Drilling 993'-1243'. Survey 15 00' S10W. POH and lay down mudmotor. Pick up new BHA and RIH. Ream as needed to bottom. Drilling 1243'-1388'. Circulate and survey. 25 00' S11W. Drilling 1388'-1418'. Mud weight=9.1
9/22/91	Circulate and Survey. POH and lay down near bit stab. RIH and drill to 1597'. Circulate and survey. 21 00' S13W. Wipe hole 8 stds. 15 feet of fill. Drilling to 1688'. Circulate and survey. 17 00' S14W. POH and rearrange BHA. RIH and ream 150' to bottom. Drilling 1688'-1696'. Circulate and condition mud. Drilling to 1800'. Mud weight=9.4
9/23/91	Drilling to 1857'. Circulate and survey. 17 00' S12W. Drilling 1857'-1940'. Wipe hole to shoe. Work through tight spots. RIH, unplug flowline. Drilling and unplugging flowline to 2131'. Wipe hole 10 stds, slick. Mud weight=9.3

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9/24/91	Circulate and condition mud. Drilling 2131'-2214'. Circulate for logger. Sweep hole with gel and nut shell. Survey. 15 00' S14W. Wipe hole to shoe. Circulate and condition mud. POH for logs. Rig up Atlas and run DIFL/Acoustic, GR/Neutron, Dipmeter. RIH. Mud weight=9.3	
9/25/91	Circulate and unload casing. Strap out of hole. Rig up to run casing and run and Hydrotest 54 jts (2212') of 8 5/8", 32#, K-55 casing to 2210'. Circulate casing. Rig up and cement casing with lead: 370 sx mixed with 1:1 perlite+2% Gel+2% CaCl+.5% Halad 4 and tail: 295 sx mixed with 2% KCl+2% Microbond+1% Gasban. Cement returns to surface. Clean BOP stack and set slips.	
9/26/91	WOC. Nipple down BOP. Cut off casing and install tubing head and test to 1500 psi. Nipple up BOP and test blind rams. RIH and condition mud. Test BOPE with state representative witnessing. Drill out plugs, float and cement to 2206'. 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=9.3	
9/27/91	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 to 2498'. Survey. 15 00' S14W Drilling to 2575'. Mud weight=9.2	
9/28/91	Drilling to 2905' (total depth). Wipe hole to shoe. Circulate and POH for logs. Rig up Atlas and run DIFL/Acoustic, GR/Neutron, Dipmeter.	
9/29/91	RIH with cement diverter to 2619'. Lay cement plug from 2619'-2310'. POH to shoe and circulate. POH, make up new BHA and RIH 2160'. WOC. Mud weight=9.1	
9/30/91	WOC. Tag plug at 2322'. Circulate and polish to 2335'. POH and pick up under reamer. RIH and under ream to 15" from 2210'-2335'. POH and rig up Atlas and run caliper log. RIH and change over mud.	
10/1/91	RIH and displace hole with filtered mud. POH and lay down under reamer. Rig up and run 4 jts. (146' wire wrapped and 21' blank) of 5 1/2" liner to 2333'. Gravel pack liner with 170 sx of 20/40 sand. Reverse out 3 sx. POH and lay down tools. Rig up Atlas and run Photon log. Mud weight=9.2	
10/2/91	RIH and set lead seal. POH. Make up packer assembly (Wireline guide, No-Go nipple, 4 1/2" pup jt, packer) RIH with wireline and set packer at 2155'. RIH with test overshot and test packer to 1000 psi. Displace hole with fresh water. 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=2150'. Clean mud pits and wait on tubing hanger x-over.	
10/3/92	Wait on x-over. Displace hole with corrosion inhibitor. Land tubing, pressure test donut and packer to 250 psi. Nipple down BOPE. Install and test production tree to 3000 psi. Released Taylor Drilling Rig #5	
10/22/92	Move in Otis and rig up to complete well. RIH and open sliding sleeve. Displace approximately 1200' of fluid from tubing. Close sliding sleeve. RIH and remove plug from No-Go nipple. Blow well to atmosphere. Well ready for connection.	