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WHITEHALL EXPLORATION
CORPORATION

Wellsite Geological Consulting & Complete Well Logging

GEOLOGICAL ANALYSIS & WELL REPORT

Conley P. Smith Operating CO.

ACRES NO. 21-5,(Coldwater South Prospect)
APOLLO PROGRAM

3300' FSL & 4080' FEL
Section 21 - Township 32 South - Range 18 West
Comanche County, Kansas

15-033-20914

August 21, 1996

87 DeFrance Way . Golden, Colorado 80401 . (303) 279-6894

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ORIGINAL

GENERAL WELL INFORMATION

15-033-20914

Operator:	Conley P. Smith Operating Company, 1125 17th St., #2360, Denver, CO 80202 Company Geologist: Larry Goessman, Ken Roberts
Well Name:	Acres No. 21-5(Coldwater South Prospect) Apollo Program
Elevation:	K.B. 2124' G.L. 2119'
Field:	Wildcat
Contractor:	Abercrombie Drilling Inc., Rig No. 5 Toolpusher Bill Craig
Surface Casing:	14 joints of 8 5/8", 24Lbs/ft., set at 583' with 250 sacks ALW, 3%cc, 2%gel, 1/4Lb flo-seal and 100 class A, 3%cc, 2%gel. Cement did circulate. Plug down 9:30 AM 8/7/96.
Production Casing:	5 1/2" set at TD
Total Depth:	LTD 6212' RTD 6218', Arbuckle Formation
Wellsite Supervision:	4000' to 6218' RTD
Wellsite Geologist:	Peter Debenham, Whitehall Exploration Corp., 87 DeFrance Way, Golden, Colorado 80401 303/279-6894
Drilling Consultant:	Art Lebolo - DRW Operating Co. - Denver, CO
Mudlogging Trailer:	MBC Logging and Leasing - Meade, Kansas
Drillstem Testing:	Trilobite Testing LLC., Engineer Gary Pevoteaux DST No. 1(5647' - 5672'), Viola Formation DST No. 2(5678' - 5694'), Viola Formation
Mud Program:	Mud Co., Inc - Engineer Gary Talbott, Displaced 4045' Type: Chemical Gel/LCM

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Electric Logs:	Schlumberger, Engineer Damir Bertovic Array Induction Imager/Gr - Surface to TD Compensated Neutron/Litho-Density - 4200 to TD BHC Sonic, Microlog
Samples:	One set dry cut to KGS Sample Log Library-Wichita
Production:	5 1/2" production casing run 8/21/96 for Gas and/or Oil production from the Viola Fm.(5652' - 5692').

DAILY DRILLING CHRONOLOGY

DATE	7:00 AM DEPTH	24 HOUR FOOTAGE	7:00 A.M. OPERATION: 24 HOUR ACTIVITY
8/6	0'		Load out and rig up rotary tools. Mix spud mud. Drill ratehole and mousehole. Check collars and drill 12 1/4" surface hole.
8/7	584'	584'	Drill to 584' and circulate. Dig out cellars. Drop survey(3/4°) and trip for surface casing. Run 14 joints of 8 5/8" casing set at 583'. Cement and wait on cement. Nipple up and pressure test BOP. Work on pump. Drill plug and cement and drill to 1340'.
8/8	1340'	756'	Drill to 2546'. Service rig and jet pits. Severe downpore.
8/9	2546'	1206'	Drill to 2546'. Continue rainfall. Drilling ahead.
8/10	3147'	601'	To 3147.
8/11	3864'	717'	Drill to 4000'. Drop survey(1°) and trip for Bit No. 2. Ream 30' to bottom and drill to 4185'. Jet pits and displace mud system at 4088'. Drag mudlogging trailer onto location with cat-extremely muddy. Start Geological supervision.
8/12	4185'	321'	Service mud pump. Trip for hole in pipe and service rig. Drill to 4185' Drilling ahead.

8/13	4805'	620'	Circulate for samples at 5044'. Jet pits and drill to 5254' drill ahead.
8/14	5254'	449'	Drop softline and check mudpump. Drill to 5590'.
8/15	5590'	336'	Drill to 5606'. drop survey(2°) and trip for Bit No. 3. Drill to 5672' and circulate for samples. Drill to 5590'.
8/16	5672'	82'	Drill to 5672' and circulate for samples. Drop survey (2°) and strap out for DST No.1(5647'-5672'), Viola Formation - no depth correction. Run test - gas to surface in 2 minutes. Trip out for test tool and lay down same. Trip to bottom with Bit No. 4 and circulate trip gas and clean hole. Drill to 5694' and circulate for samples.
8/17	5694'	22'	Circulate and condition hole. Trip out for DST No.2(5678-5694'), Viola Formation. Run test. Trip in and circulate hole clean and drill to 5814'. Jet cellar and work on drawworks.
8/18	5814'	130'	Circulate for samples at 5860. Drill to 5882' and lost circulation(80 bbls). Pull up, build volume and mix LCM. Drill to 5964' and circulate for samples. Trip for Bit No. 5.
8/19	5964'	150'	Trip for Bit. Work on elevators and circulate out trip gas. Drill to 6064' and circulate for samples. Drill to 6218' TD and circulate for samples. Intense rainfall(2 1/2" in 3 hours) and flooded location and mudpits. Wrecked mud properties. Jet pits and build volume. Loggers on location 7 AM-released and put on standby.
8/20	6218' TD	254'	Jet pits and mix mud and build volume for E-Logs. Drop survey(1°) and strap out for logs - 2' uphole correcion. Rig up loggers and run E-Logs. Wait on orders. Trip in hole and circulate.
8/21	TD		Trip out and run 5 1/2" production casing and cement. Rig down.

MUD PROPERTIES

DATE	DEPTH	WT	VIS	YP	WL	PH	CL	LCM#/bbl
8/10	3224'	9.0	35	12	48.0	7.5	9000	-
8/11	3875'	9.3	33	10	72.0	7.0	28000	-
8/12	4290'	9.0	44	15	15.2	9.5	7000	-
8/13	4910'	9.2	51	27	20.8	9.5	9000	-
8/14	5260'	8.9	54	20	9.6	10.5	7500	1
8/15	5595'	9.2	61	30	12.8	9.0	8000	4
8/16	5675'	9.2	52	20	16.8	9.0	9500	3
8/17	5694'	9.1	48	17	10.4	9.5	10000	4
8/18	5860'	8.9	62	24	10.4	9.0	10000	5
8/19	5964'	8.6	120	30	12.8	9.0	12000	10
8/20	8218'	8.9	50	18	12.8	9.5	14000	6

BIT RECORD

NO.	SIZE	MAKE	TYPE	OUT	FOOTAGE	HOURS
1-A	12 1/4"	SM.	FDTC	583'	583'	4 3/4
1	7 7/8"	WM	51-F	4000'	3417'	81 1/4
2	7 7/8"	WM	53 SF	5606'	1606'	162 1/2
3	7 7/8"	Sec.	CFS-88	5672'	86'	6
4	7 7/8"	WM-RR#2	53 SF	5964'	292'	19'
5	7 7/8"	WM	53-CF	6218'	254'	15 3/4
				Total Rotary Hours:		289 1/4
				Average:	30.59'/hour	

DEVIATION RECORD

584' 3/4°, 4000' 1°, 5606' 2°, 6218' 1°

DRILL STEM TEST DATA

DST NO. 1:(5647' - 5672'), Viola Formation
Type: Conventional Bottom Hole Times: 15-64-15-60

PERIOD	PSI
IH	2823
IF	674-756
ISI	1940
FF	692-771
FSI	1953
FH	2783

BHT 105° F
BLOWS: IF - Immediate strong blow. Gas to surface in 2 minutes.
FF - Screaming blow throughout.

	Gauged Gas Volume		
Minutes	PSI	Choke	MCF/D
IF 2		1 1/4"	GTS
5	50	1 1/4"	2,341
10	76	1 1/4"	3,280
15	82	1 1/4"	3,496
FF 5	100	1"	2,464
9	175	1"	4,000
14	195	1"	4,700

Recovery: 150' gas cut watery mud(5%gas, 27%water) Water Rw .14 Ohms at 75° F, 44,000 ppm Cl, (Mud pit Cl 9,500 ppm)
Sampler: .8 CFG, 75 PSI

DST NO 2:(5678' - 5694'), Viola Formation
Type: Conventional Bottom Hole Times: 15-60-60-120

PERIOD	PSI
IH	2814
IF	216-308
ISI	1975
FF	384-914
FSI	1962
FH	2790

BHT 137° F
BLOWS: IF - Strong. Gas to surface in 6 minutes. FF - Strong throughout.
Shut in periods - Blowback throughout.
Recovery: 110' gassy oil cut mud(15%gas, 15%oil), 462' clean gassy oil(15%gas), 1560' slightly oil and gas cut water(3%oil, 2%gas)
Sampler: 7.75 CFG, 1875 ml oil, 625 ml water, 115 PSI
Gravity oil 44° API at 84° F, corrected gravity 42° API
Water Rw .059 Ohms at 88 F, 122,000 ppm Cl

ELECTRIC LOG FORMATION TOPS - KB Elevation 2124'

FORMATION	DEPTH	DATUM
Stone Corral	1071'	+1053'
Wabaunsee	3464'	-1340'
Stotler	3594'	-1470'
Lecompton	3954'	-1830'
Elgin SS	4142'	-2018'
Heebner	4298'	-2174'
Toronto	4318'	-2194'
Lansing	4475'	-2351'
Drum	4692'	-2568'
Stark SH	4794'	-2670'
Swope	4808'	-2684'
BKC	4950'	-2826'
Marmaton	4961'	-2837'
Altamont	5002'	-2878'
Pawnee	5056'	-2932'
Ft. Scott	5088'	-2964'
Cherokee	5099'	-2975'
Mississippi	5152'	-3028'
Spergen	5164'	-3040'
Kinderhook	5570'	-3446'
Viola	5650'	-3526'
Up. Simpson(Bromide) Dol	5650'	-3526'
Upper Simpson Sandstone	5931'	-3807'
Simpson Shale	5954'	-3830'
Basal Simpson Sandstone	5992'	-3868'
Arbuckle	6022'	-3898'

STRUCTURAL CONSIDERATION - Datum Depths

FORMATION	ACRES NO. 25-5	*DALE "B" NO. 1	POSITION
Heebner	-2174'	-2195'	+21'
Lansing	-2351'	-2371'	+20'
Stark	-2670'	-2685'	+15'
BKC	-2826'	-2838'	+12'
Marmaton	-2837'	-2847'	+10'
Altamont	-2878'	-2892'	+14'
Pawnee	-2932'	-2946'	+14'
Ft. Scott	-2964'	-2977'	+13'
Cherokee	-2975'	-2987'	+12'

Mississippi	-3028'	-3039'	+11'
Kinderhook	-3446'	-3446'	0'
Viola	-3526'	-3531'	+5'
Upper Simpson Dolomite	-3718'	-3669'	-49'
Upper Simpson Sandstone	-3807'	-3706'	-101'

*J.M. Huber Corporation, Dale"B" No. 1, SW-NE, Section 21, T32S, R18W - App. 2000' to the East, KB Elevation 2135', TD at 5875' in the Simpson Shale

ZONES OF INTEREST

FORMATION	LOG DEPTH	LITHOLOGIC & SHOW DESCRIPTIONS, REMARKS
Toronto	4364'-4370'	Limestone(Grainstone) - Medium to light brown, buff, micrite, finely crystalline, clean, subchalky, fossiliferous, sandy, trace intercrystalline porosity, no fluorescence, no stain or cut. A 180 Unit gas increase occured over a 30 Unit background. Electric logs indicate 20% porosity and with a slight gas effect crossover and some microlog seperation.
Lansing "Drum" Zone	4692'-4700'	Limestone - Medium brown, crypto to microcrystalline, very brittle, clean, very oolitic with excellent oomoldic porosity, poor visible intercrystalline porosity, no fluorescence, no stain or cut. A 150 Unit gas increase occured on the hotwire. E-Logs indicate 20% crossplot porosity with gas crossover, an Rt of 80 Ohms and SP development. The good log show is likely due to oomoldic porosity.
Lansing "Swope" Zone	4810'-4815'	Limestone - Medium to light brown, cryptocrystalline, brittle, excellent oomoldic porosity, no fluorescence, no stain or cut. An 80 Unit gas increase occured. Log parameters are similiar to the "Drum" interval.
Altamont	5014'-5022'	Limestone - Light brown, microcrystalline, microsucrosic to sucrosic, brittle, clean, oolitic and fossiliferous with moldic porosity, fair intercrystalline and vuggy porosity-some sparry calcite infill, bright yellow hydrocarbon

		fluorescence in 2% of the samples with a good streaming cut, trace light oil stain and trace live oil. A 140 Unit total gas increase occured. 17% porosity is noted on logs with 2% gas seperation.
Pawnee	5075'-5088'	Limestone - Light brown, microsucrosic to sucrosic, very brittle, clean, very fossiliferous with abundant Coral fossils and with fenestral porosity, good interparticle porosity and occasionally good intercrystalline porosity, bright yellow hydrocarbon fluorescence in 3% of the samples, slow streaming cut, trace oil stain. A relatively clean limestone with a maximum of 11% porosity and some gas crossover is noted on logs. A 250 Unit gas kick occured on the hotwire with mostly C1 and C2 noted.
Cherokee	5120'-5126'	Limestone - Light mottled brown, biomicrite, microcrystalline, microsucrosic in part, subchalky, clean, fossiliferous, trace intercrystalline and fine vuggy porosity, predomanitly tight, bright yellow hydrocarbon fluorescence in 25% of the samples with a good streaming cut, trace oil stain and trace live oil.
Mississippi	5156'-5218'	Dolomite - Medium to light brown, occasionally speckled green, microcrystalline, microsucrosic to sucrosic, clean, brittle, pyritic, sandy in part and slightly glauconitic, fossiliferous, good intercrystalline porosity, occasional fine vuggy porosity, mottled goldbrown hydrocarbon fluorescence in up to 25% of the samples, weak streaming cut, trace gas bubbles, trace light brown oil stain and trace live oil, interbedded with Limestone - Light to medium brown, buff, microcrystalline, clean, subchalky, fossiliferous, dolomitic with intercrystalline porosity, mottled goldbrown hydrocarbon fluorescence, fair cut, trace oil stain. Several gas increases between 75 Units to 110 Units were recorded over a 35 Unit background. Excellent porosities of up to 23% with no gas effect crossover and relatively low resistivities of 10-15 Ohms are noted on logs.

		This interval IPF for 7.8 mm/d on the Dale "B" No. 1 control well.
Viola	5652'-5672'	Dolomite - Light brown, microsucrosic, brittle, clean, sandy, glauconitic, fossiliferous, clean, trace intercrystalline and vuggy porosity, dark mottled goldbrown hydrocarbon fluorescence in 10% of the samples, slow light yellow streaming to bleeding cut, trace oil stain, light gas odor, with abundant Chert - milky brown to gray, white. Several gas peaks between 180 to 285 Units occured on the hotwire. A maximum crossplot porosity of 13% with a slight gas crossover and good microlog seperation is noted on logs. True porosity readings and gas effect are probably suppressed due to the sandy nature of the lithology. this interval was drillstem tested(5647'-5672') and recovered gas to surface in 2 minutes and guaged at 4,700 MCF/D, 195 psi on a 1" choke with good flowing and bottom hole pressures.
Viola	5672'-5692'	Dolomite - light to medium brown, very coarsely crystalline, brittle, granular to sucrosic, with excellent intercrystalline porosity, occasional coarse vuggy porosity with very coarse well formed Dolomite Rhombs, bright speckled yellow hydrocarbon fluorescence in 25% of the samples, excellent streaming cut, good oil odor, slight brown tint oil stain, Excellent show. A 580 Unit gas kick occured. 14% porosity is noted on logs with an Rt of 100 Ohms. this interval was drillstem tested(5678'-5694') and recovered gas to surface in 6 minutes, 110' gassy oil cut mud, 462' clean gassy oil, 1560' of slightly oil and gas cut water and with good flowing and bottom hole pressures. The water recovery probably came from an obviously wet zone just below this test interval.
Up. Simpson Dol.	5842'-5860'	Dolomite - Light to medium brown, fine to coarsely crystalline in part, sucrosic to slightly granular, brittle, clean, excellent intercrystalline

porosity, trace speckled yellow hydrocarbon fluorescence in 5% of the samples, slow weak cut, no stain or odor, poor sample quality due to lost circulation at 5882'.

WELL AND GEOLOGIC SUMMARY

GENERAL

The Conely P. Smith Operating Company, Acres No. 25-5(Apollo Program), was drilled as a wildcat based on seismic interpretaion and on subsurface well control to a total depth of 6218' in the Arbuckle Formation. It offset the J.M. Huber corporation, Dale "B" No.1 by 2000' to the West. This well was drilled in 1961 and gas productive(IPF 7.8 mm/d) from the Mississippi and with an unsuccesfull completion attempt in the Viola and lower Simpson Sandstone.

The Acres No. 25-5 ran 20' high relative to this offset at the Heebner and Lansing. Formation tops from the BKC to the Mississippi ran consistently 10' to 15' high. Thickening occured and the Kinderhook came in even while the Viola came in 5' high. Further thickening occured in the Viola and the Upper Simpson(Bromide) Dolomite and Upper Simpson Sandstone ran 49' low and 101' low respectively. The Dale "B" No. 1 did not drill to the Arbuckle.

The primary objective Viola Formation(5652'-5672') consists of a Dolomite - Light brown, microcrystalline, microsucrosic, brittle, clean, sandy, glauconitic, fossiliferous, clean, trace intercrystalline and vuggy porosity, dark mottled goldbrown hydrocarbon fluorescence in up to 10% of the samples, slow weak streaming to bleeding cut, light gas odor, with abundnt Chert. A maximum of 285 Units was recorded on the hotwire.

This interval was drillstem tested (5647'-5672') and recovered gas to surface in 2 minutes and gauged at 4,700 MCF/D with 195 PSI on a 1" choke and with still increasing flowing pressures and good bottom hole pressures.

An excellent oil show was documented from 5672' to 5692' and consists of a Dolomite - Light to medium brown, very coarsely crystalline, very brittle, sucrosic to granular with excellent intercrystalline porosity, very coarse vuggy porosity infilled with well formed Dolomite Rhombs, bright yellow hydrocarbon fluorescence in up to 25% of the samples with an excellent streaming cut, good oil odor, light brown tint oil stain. A 580 Unit gas kick occured.

This interval was drillstem tested(5678'-5694') and recovered GTS in 6 minutes, 110' gassy oil cut mud, 462' clean gassy oil, and 1560' slightly oil and gas cut water. The water recovery likely came from an obviously wet zone just below this test interval.

The only drilling problems that occured were due to lost circulation at 5880'(80 bbls) and remedied with a 8 #/bbl LCM mud system.

5 1/2" production casing was run on the Acres No. 21-5 on 8/21/96.

Appreciation goes to toolpusher Bill Craig and Abercrombie Rig no. 5 rig hands for their efficent mannor of operation during the drilling of this test.

Respectfully Submitted,

Peter Debenham
Whitehall Exploration Corporation