COBALT ENERGY
OIL & NATURAL GAS

GEOLOGICAL REPORT
DRILLING TIME & SAMPLE LOG

REPORT PREPARED BY FRANK S. MIZE/GEOLOGIST

API#: 15-053-21,278

FRANK S. MIZE LICENSED GEOLOGIST 365 KANSAS

COMPANY: Cobalt Energy, LLC
LEASE: Toman Unit "A" #1-36
FIELD: Wildcat
LOCATION: 2,306 FNL & 2,296' FWL
SEC: 36 TWSP: 15S RGE: 9W
COUNTY: Ellsworth STATE: Kansas
CONTRACTOR: Southwind Drilling Rig #4
SPUD: 10-8-12 COMP: 10-13-12
SAMPLES SAVED FROM: 2300' TO: RTD

ELEVATION
K.B.: 1683
D.F.:
G.L.: 1676

DEPTH MEASURED FROM KB
Drilling Log ✓

CASING
Surface: 8 5/8" @ 250' w/150sx
Production: NONE

Electric Logs: RAG

FORMATION	SAMPLE	E LOG	DATUM	A. ELOG	B. ELOG	C. DT
Neva				+4	+10	
Wood Siding				-209	-205	
Grand Haven				-285	-279	
Severy Sh				-635	-634	
Topeka	2339	2336	-653	-669	-666	
Heebner	2600	2597	-914	-921	-922	
Douglas	2629	2626	-943	-951	-952	
Brown	2713	2710	-1027	-1030	-1032	
Lansing	2729	2725	-1042	-1045	-1047	
35' Porosity	2763	2760	-1143	-1076	-1074	
90' Porosity	2831	2826	-1144	-1144	-1150	
RTD	2950	2946	-1263	-1492	-1458	

REFERENCE WELLS
A. C W/2 NW SE 35-15S-9W, Trans Pacific Oil Corp, Janzen A #1
B. C NE NW 35-15S-9W Ilus Industries, Heil #1
C.

SHALE
SANDSTONE
LIMESTONE
DOLOMITE
HALITE
ANHYDRITE/GYPSUM

Limestone: gray to beige, medium crystalline, dense, some fair to good intercrystalline porosity, no show, much dark gray shale

Shale: gray to dark gray

Shale: gray to dark gray

Shale: gray to dark gray

Topeka 2339 -656

Limestone: gray, medium crystalline, dense, little visible porosity, no show
samples above this point questionable

Limestone: beige to gray, medium crystalliine, poor to fair intercrystalline porosity, trace black spotted gilsonitic staine, no show free oil, no odor, no fluorescence

Limestone: gray to beige, medium to coarsely crystalline, dense, little visible porosity, no show

Limestone: off white to beige, medium crystalline, poor intercrystalline porosity, no show

Limestone: gray to beige, fine to medium crystalline, poor to fair intercrystalline porosity, no show, fair amount gray chert

Limestone: gray to beige, fine to medium crystalline, poor to fair intercrystalline porosity, no show, fair amount gray chert, trace pyrite

Limestone: gray to beige to light brown, medium to coarsely crystalline, very poor intercrystalline porosity, no show, fair amount gray chert, trace pyrite

Limestone: gray to beige to light brown, medium to coarsely crystalline, very poor intercrystalline porosity, no show, fair amount gray chert, trace pyrite

Limestone: off white to light brown, slightly chalky, little visible prososity, no show, fossiliferous w/spirifers.

King Hill 2432 -749

Shale: black, carbonaceous, with calcareous inclusions
Limestone: beige to tan, coarsely crystalline, dense, no porosity, no show

Shale: dark gray
Limestone: light brown, medium crystalline, little visible porosity, no show, fossiliferous w/fusulinids

Shale: dark gray

Limestone: off white to beige to light brown, medium to coarsely crystalline, poor intercrystalline porosity, fossiliferous w/fusulinids

Limestone: off white to beige to light brown, medium to coarsely crystalline, poor intercrystalline porosity, fossiliferous w/fusulinids, much gray chert

Limestone: beige to gray, coarsely crystalline, dense, no porosity, no show, fossiliferous
Meekella sp.

Limestone: gray to beige, coarsely crystalline, dense no visible porosity, no show

Limestone: beige to gray, coarsely crystalline, dense, no visible porosity, no show

Queen Hill 2508 -825

Shale: black, carbonaceous

Limestone: light brown, coarsely crystalline, dense, no visible porosity, no show, fossiliferous w/fusulinids

Limestone: light brown, coarsely crystalline, little visible porosity, no show, fossiliferous w/fusulinids

Limestone: beige to off white, fine to medium crystalline, fair to good intercrystalline porosity, no show

Limestone: light beige, medium crystalline, fair oomoldic porosity, no show

Limestone: light brown to gray, medium crystalline, poor to fair intercrystallline porosity, no show

Limestone: beige, medium crystalline, fair oomoldic porosity, no show

Limestone: beige, medium crystalline, fair oomoldic porosity, no show

Limestone: gray, coarsely crystalline, dense, no visible porosity, no show

Limestone: beige, medium crystalline, fair to good oomoldic porosity, no show

Heebner 2600 -917

Shale: black, carbonaceous
Limestone: light brown, coarsely crystalline, dense, little visible porosity, no show

vis 47 wt 8.8 wl 8.8

Shale: dark gray

Toronto 2618 -935

Limestone: gray, coarsely crystalline, dense, no porosity, no show

Douglas 2629 -946

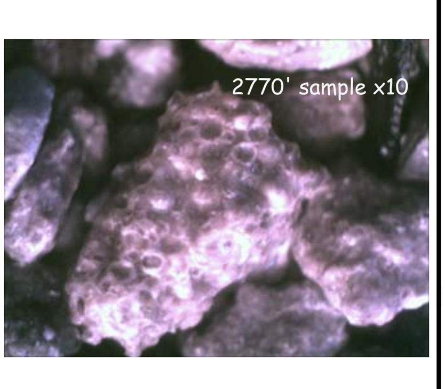
Shale: red to dark gray

Sandstone: light green, very fine grained, well sorted, fair calcareous cement, good intergranular porosity, no show, trace mica & much gray to green shale

Sandstone: light green, very fine grained, well sorted, fair calcareous cement, fair intergranular porosity, no show, trace mica & much gray to green shale

Shale: red to dark gray

Shale: greenish gray, arrenaceous, no show



Shale: greenish gray, arrenaceous, no show

Shale: dark gray

Brown Lime 2713 -1030

Limestone: light brown, micritic, little visible porosity, no show, fossiliferous w/fusulinids

Shale: dark gray

Lansing 2729 -1046

Limestone: beige to light brown, fine grained, soft, poor to fair intergranular porosity, no show

Shale: dark gray

Limestone: beige, coarsely crystalline, dense, no visible porosity, no show

Limestone: light brown to dark gray, coarsely crystalline, dense, no visible porosity, no show

35' zone porosity 2763 -1080

Limestone: light brown with oil stain, medium crystalline, densely oolitic, good oomoldic porosity, spotted show free oil, fair show free oil on break w/gas bubbles, pale yellow fluorescence in 85% of 2776' 30 minute sample, fair to good odor.

pipe strap 0.04' short to board
vis 59 wt 9.2 wl 9.2

Limestone: dark gray to dark brown, coarsely crystalline, dense, little visible porosity, no show

Limestone: beige to light brown, coarsely crystalline, dense, little visible porosity, no show

Limestone: off white to beige, medium crystalline, some chalky, soft, little visible porosity, no show, trace gray chert
Shale: dark gray

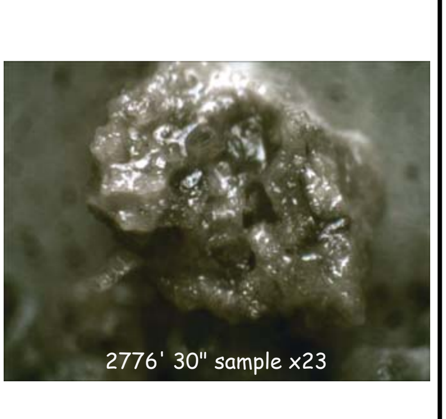
Limestone: gray to brown, coarsely crystalline, very dense, no porosity, no show

Limestone: gray, coarsely crystalline, densely oolitic, oolicastic, no visible porosity, no show, trace off white oolitic chert
Limestone: beige to gray, coarsely crystalline, dense no visible porosity, no show

90' zone porosity 2831 -1148

Limestone: light brown, medium crystalline, densely oolitic, good oomoldic porosity, very poor intercrystalline porosity, fair show light brown oil, fair to good odor, bright yellow fluorescence in 30% of 30" sample

Morning tour did not catch any samples after DST #2. Dailights caugt & continued samples from 2870 to RTD.



Limestone: light gray, micritic, dense, poor intergranular porosity, no show, trace fine crystalline limestone w/slight show free oil, oomoldic limestone from above w/good oomoldic porosity & pale gold fluorescence (34' sample)

Limestone: gray, coarsely crystalline, dense, little visible porosity, no show, trace good oomoldic porosity w/no show, fair amount pyrite & dark gray shale

Muncie Creek 2881 -1198

Shale: black, carbonaceous

Limestone: off white to gray, medium to coarsely crystallilne, poor intercrystalline porosity, no show

Limestone: beige to gray, medium to coarsely crystalline, dense, little visible porosity, no show, much red to gray shale

Limestone: off white to gray, medium to coarsely crystallilne, poor intercrystalline porosity, no show

Limestone: off white, medium crystalline, poor to fair intercrystalline porosity, no show, much red to dark gray shale

vis 49 wt 8.8 wl 9.2

Limestone: off white to gray, medium crystalline, some oolitic, oolicastic, little visible porosity, no show

Limestone: off white to gray, medium crystalline, some oolitic, oolicastic, little visible porosity, some coarsely crystalline, no porosity, no show

RTD 2950 -1267

Cobalt Energy, LLC **1683 KB**
Toman Unit "A" #1-36
2,306 FNL & 2,296 FWL 36-15S-9W
Ellsworth County, Kansas

Comments:

DST #1

Interval: **2751.00 ft (KB) To 2776.00 ft (KB) (TVD)**
Total Depth: 2776.00 ft (KB) (TVD)
30-60-60-90

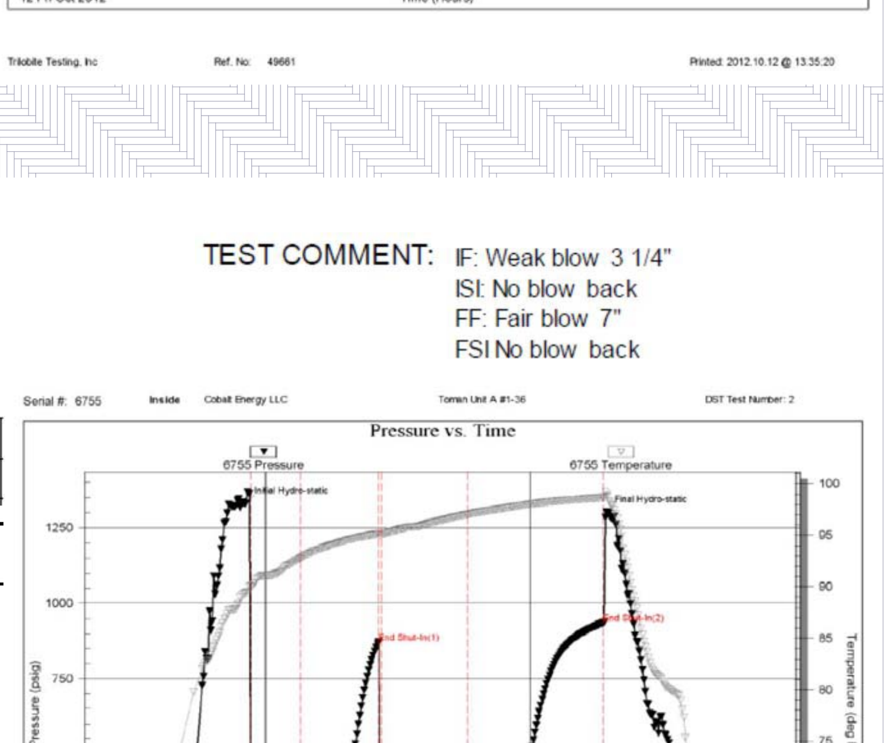
TEST COMMENT: IF: Strong blow BOB 15 min
ISI: no blow
FF: Strong blow BOB 25 min
FSI: No blow back

Recovery

Length (ft)	Description	Volume (bbl)
0.00	310' GIP	0.00
130.00	Mud w ith oil spots	0.78

PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1272.56	92.98	Initial Hydro-static
3	216.93	95.59	Open To Flow (1)
28	184.87	94.86	Shut-In(1)
94	825.76	95.24	End Shut-In(1)
96	138.20	95.67	Open To Flow (2)
153	117.75	96.69	Shut-In(2)
241	690.38	97.59	End Shut-In(2)
244	1244.56	97.33	Final Hydro-static



DST #2

Interval: **2827.00 ft (KB) To 2836.00 ft (KB) (TVD)**
Total Depth: 2836.00 ft (KB) (TVD)
30-60-60-90

TEST COMMENT: IF: Weak blow 3 1/4"
ISI: No blow back
FF: Fair blow 7"
FSI No blow back

Recovery

Length (ft)	Description	Volume (bbl)
60.00	M,W Oil Spots	0.30

PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1330.99	89.40	Initial Hydro-static
4	16.77	89.98	Open To Flow (1)
37	35.00	92.75	Shut-In(1)
90	870.42	95.10	End Shut-In(1)
92	20.63	95.08	Open To Flow (2)
151	35.84	97.01	Shut-In(2)
243	935.00	98.65	End Shut-In(2)
245	1302.63	98.93	Final Hydro-static

DST Results Provided By: TRILOBITE TESTING, INC