Thomas G. Pronold
Consulting Geologist

Operator	Herman Loeb LLC	**Property**	Charlos (Ernst) 3-21
Date	Spud:02/06/12 Comp:02/17/12	**Location**	1980 FEL 660 FSL Sec. 21 T27S R20W
Contractor	Sterling Rig 2	**API**	15-097-21716
Surveys	Triple Combo, MRIL	**Elevation**	2306
		Surf Pipe	8 5/8 @ 595 w/ 175 Sx in Ccm, 175 Sx common

ROP 1/1 min/ft 30 ROP

Lithology

Description

Total Gas 10.00 100.00

Limestone: lt gray, med grn, chalky, with shale, gray

Limestone: lt gray-white, med grain, chalky

Shale: gray, dark gray, limey

Limestone: lt-med gray, med grn, w/ shale, gray

Limestone: lt gray, med grain, dense

Limestone: lt tan, medium grain, foss, w/ chert, white, fresh

Limestone: lt tan, crs grain, foss, chalky

Shale: gray and dark gray

Limestone: lt gray-lt tan, med-crs grain, shaley, dense

Limestone: lt gray, med grain, foss, bryozoans

Limestone: as above with shale strgrs, grey-drk gray

Limestone: lt gray, fn-med grain, chalky

Limestone: wh-lt gray, med grain, foss

Limestone: white-light grey, fn grain, crystalline

Shale: gray, dark gray and black

Limestone: white-light grey, fn grain, shaley

Shale Black: black

Limestone: lt gray, fn-med grain, fn crstls, w/ sh, gray

Limestone: lt tn-white, fn grain, dense

Argillaceous Limestone: lt tn-Wh, fn-med grain, shaley, w/sh, gray

Limestone: med crs grn, shaley

Argillaceous Limestone: med-crs gm, shaley, w/ shale, gray

Argillaceous Limestone: gray-brown, fn sh, shaley, w/ shale, gray

Limestone: gy-brn, fn sh, shaley, w/ shale, gray

Limestone with shale interbeds: gry-brn, shly

Limestone: gry-brn, frsln, dense

Shale: drk gry

Limestone: brn and grey, crs crstln, dense, w/ sh, gry

Limestone with Shale Interbeds: brn and gry, crs sh, dense

Limestone: white, frsln, dense

Limestone and Shale Interbeds: as above with gry shale interbeds

Limestone: gry-lt gry, frsln, dense

Limestone and Shale Interbeds: wh, crsstn, w/ sh, gry, dk gry

Limestone with Shale Interbeds: wh & brn, lt grn, dns, w/sh, gry, dk gry

Shale and Limestone Interbeds: gry-dk gry, w/ Limestone, a/a

Limestone: tn, frsln, w/sh, gry

Limestone and Shale Interbeds: lt gry, frsln, chky, w/sh, gry

Limestone: wh-ly gry, frsln, dns

Limestone with Shale Interbeds: lt gry, tn, sh-med sh, dns, w/ sh, gry

Dolitic Limestone: tn, sh sh, ooc, no

Limestone and Shale Interbeds: wh-lt tn, shale, w/ sh, gy

Limestone: pink-lt tn and lt gray, vfn-med grn, dns, w/ lt, gy, dk gy

Limestone: wh, vcrs grn, dns, chky, w/sh, blk

Shale: dk gry

Limestone: v fn grn, dns

Shale: dk gry

Limestone: wh, v crs grn, dns, chky, w/sh, blk

Limestone: wh-lt gy-lt tn, vfgrn, w/ cht, wh, op

Shale Black: blk

Limestone: tn, vagrn, dns

Limestone: wh, fn sh, dns, w/ cht, wh, op

Limestone and Shale Interbeds: gry-tn tns, vfn-fn grn, w/ sh, gry

Shale and Limestone Interbeds: gry-sh w/ tns, gy-bn, fn grn

Limestone: wh, fn sh, vfn sh

Shale and Limestone Interbeds: gry-sh w/ tns, gy-bn, fn grn

Limestone: tn, bm, fn grn

Limestone: tn, vfn sh

Limestone and Shale Interbeds: wh, vfn sh, w/ sh, dk gry

Limestone: lt gry, vfn grn

Shaly Limestone: lt gry, chaky

Shale Black: blk, carb

Shaly Limestone: lt gry, chaky

Limestone: lt gry, vfn sh

Shale Black: blk, carb

Limestone with Shale Interbeds: lt, wh, vfsh, chky

Limestone with Shale Stringers: gry-tn-brn, vfn sh

Limestone with Shale Interbeds: brn-gry, vfn sh, w/ sh, gry, blk

Limestone and Shale Interbeds: gry-brn, frsln

Shale and Limestone Interbeds: gry-brn, frsl, w/ sh, gry, dk gry

Limestone: brn, vfnsh, dns

Dolomite: lt tn, med sh, suc

Shale and Limestone Interbeds: varic, red, grn, gry w/ tns; brn, fn sh, w/dolos, crs gr, pentrtal, glauc

Dolomite: lt gry, m-crs sh, dns

Siltaceous Shale: varic silt and sh, grn, gry w/ chk, gray wh, mottled

Dolomite: lt gry, fn-mal, poc, succsic

Calcareous Dolomite: lt gry, fl mstn, w/ chert, sch, op

Dolomitic Limestone: dk gry, v fn sh, dns

Limestone: Dolomitic; gry, fn-m sh, w/ cht, sch blu, op

Total Depth - Dstask Lasing

KB92:90651buhwa0ll0ssg05buhwa0ll0comp
Hesker9411:15-18153-9041045-1 79693-2
Lansing96248:-154259062485-1942050
BKCM6525-23460-40663.0-234809.4
Marmaton96735-23665-40660691.2 8639.1
Cherokee 947669-24680-4567843-247809-2
Mississippian 2513.0-5348569-2550093-2
Spongor 946645-25585-39863.0-251703-2
Warsaw 8648985-25525-6368539-2534093-8

SDT 1: 4833-4880 Spergen Mission

SDT 2: 4833-4880 Spergen 15-45-45-90
IF Wk bis, built to 4"
SI No blow
FF Weak to fair blow 1"-5 1/2"
Rec.11' GIP. 122' SOCM
IHP0214859HP0952224
FP0316-584859 FP864-658
SIP0314859SIP1754
BHT 120F

SDT 3: 4880-4929 Spergen/Warsaw 15-45-45-90
F Wk to fair blo, built to 7"
FF Weak to fair blow, inc to 9"-10"
No blow back either SI
Rec. 25' GIP, 100' SOCM, 127' MW w/ o specks
IHP0214859HP0952974
FP0316-764859FP0835-1254
SIP0314859SIP0955958
BHT 113'

SDT 4: 4880-4929 Spergen/Warsaw 15-45-45-90
F Wk to fair blo, built to 7"
FF Weak to fair blow, inc to 9"-10"
No blow back either SI
Rec. 27 GIP, 100' SOCM, 127' MW w/ o specks
IHP0214859HP0952974
FP0316-764859FP0835-1254
SIP0314859SIP0955958
BHT 113'