



00333430

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RESUME

OPERATOR: Conoco, Inc.

WELL NAME & NUMBER: State 16 #1

LOCATION: NW, NW, Section 16, Township 36 South,
Range 56 West

AREA: Big Beaver Field

COUNTY: Washington

STATE: Colorado

ELEVATION: 4695' GL and 4705' KB (estimate)

ENGINEER: Manuel Trevino

GEOLOGIST: Clyde Cody

SPUD DATE: March 4, 1985

COMPLETION DATE: March 26, 1985

HOLE SIZE: 12 1/2" to 597', 7 7/8" 597' to TD

CASING: 9 5/8" to 597'

CEMENTING: Halliburton

CONTRACTOR: Exeter Drilling Company

EQUIPMENT: Rig #22

TOOLPUSHER: Gordon Rammage

DRILLERS: Poos, Leghman, Padilla, Robertson

DRAWWORKS: 6-15

DERRICK: Lee C. Moore

PUMP: Continental Emsco D-500 & D-300

DRILL COLLARS: 18-2 1/4" ID, 6 1/4" OD 556'

DRILL PIPE: 4 1/2" 16-60

DRILLING MUD: Dresser Magobar

MUD TYPE: Clear water to 4104', Lightly dispersed
chemical mud to TD

MUD ENGINEER: Rudy Swingle

RESUME cont'd.

MUDLOGGING:	Columbine Logging, Inc.
TYPE UNIT:	Baseline FID total gas analyzer and chromatograph
ENGINEERS:	J. Daniel Brookshire and Cecilia Garland
ELECTRIC LOGS:	Schlumberger
TYPE LOGS:	DLL-MLL-GR w/caliper surface casing to TD, BHC-AL-GR w/caliper surface casing to TD and CDL-CNL-GR w/caliper 4500' to TD
TOTAL DEPTH:	8663'
DRILLING TIME:	22 days
BOTTOM FORMATION:	PreCambrian
WELL STATUS:	Plugged and Abandoned

SUMMARY AND CONCLUSIONS

The Conoco Inc. 16 #1 State was drilled off spacing in the Big Beaver Field to a total depth of 8663'. Its purpose was to evaluate the Permian Lyons sandstone, Pennsylvanian and Mississippian formations for hydrocarbon production, with the intent to drill to Basal Precambrian.

The first shows were encountered in the Lower J sandstone. The sands had traces of black oil stain with a weak crushed cut. The gas kick in the zone had higher C_3 readings than C_2 , which can indicate a water flushed zone. The Lower J sandstone is the major producing zone of the Big Beaver Field.

A gas kick was encountered at 6020' with the gas coming up immediately following a bit trip. During the kick the samples were 98% cavings from the Niobrara. Since there was no sample show and the drill rate indicates shale and silt, the gas is believed to be from washouts in the Niobrara and not from actual formation being drilled.

The major zone of interest was the Lyons sandstone which was believed to be structurally high due to Precambrian faulting. There is evidence of faulting in the field from sands in the Muddy J formation. Due to lack of other deep wells in the area, it is unknown at this time if the Lyons sandstone was actually structurally high on the 16 #1 State. The top of the Lyons sand was encountered at 6222' and was 62' low to prognosis. We drilled 38' of sand and the bottom became silty. There was no sample or gas show, but some very poor porosity was observed. Due to the lack of show it was decided not to test the Lyons sand. Electric logs showed much more sand than was encountered in the samples.

Oil and small gas shows were encountered in two thin limey sandstone stringers in the Virgil. The sands had weak residual ring cut and had a calcareous matrix with no visible porosity.

Abundant gas and oil shows were seen in the Missouri, Des Moines and Atoka formations. The shows were from very carbonaceous shales. These shales looked to be a very good source rock and the limestone above and below some of these shales, had very weak oil shows.

The Morrow formation, one of the principle objectives, was disappointing because of a lack of show but was significant because some sand was seen in the samples. The Morrow channel sands are very hard to see on seismic and are therefore important when found, especially on a wildcat well with no control.

The Mississippian formation showed little interest. All that was encountered were some porosity zones with little gas shows opposite them.

SUMMARY AND CONCLUSIONS cont'd.

The Lower Paleozoics were puzzling while being drilled. What was thought to be a reverse fault that repeated the Morrow, Mississippian and Cambrian formations, was actually a great thickening of section as compared to prognosis. There was evidence of faulting at 8340' to 8360'. This took the form of slicken sides on the shale surfaces and the kelley bounced while drilling. There was good porosity on logs in the Lakota sandstone, but this zone was also wet on logs. The State 16 #1 was plugged and abandoned according to state regulations.

FORMATION TOPS

<u>Formation</u>	<u>Electric Log Top</u>	<u>Sub Sea</u>	<u>Sample Top</u>	<u>Thickness fr. E-Logs</u>
Niobrara	4194'	+ 522'		
Carlile	4520'	+ 196'	4550'	133'
Greenhorn	4653'	+ 63'	4652'	
Graneros			4718'	303'
D-Sand	4956'	- 240'	4942'	20'
Huntsman	4976'	-2260'	4964'	30'
J-Sand	5006'	- 290'	4989'	76'
Lower J	5082'	- 366'		112'
Skull Creek	5194'	- 478'	5136'	76'
Lakota	5270'	- 554'	5256'	99'
Morrison	5369'	- 653'	5352'	443'
Permian	5812'	-1096'	5798'	323'
Blaine	6135'	-1419'	6184'	91'
Lyons	6226'	-1510'	6222'	148'
Stone Corral	6374'	-1658'	5070'	194'
Wolf Camp	6568'	-1852'	6556'	457'
Virgil	7025'	-2309'	7004'	275'
Missouri	7300'	-2584'	7230'	395'
Des Moines	7695'	-2979'	7484'	471'
Atoka	8166'	-3450'	7836'	153'
Morrow	8319'	-3603'	7960'	141'
Mississippian	8460'	-3744'	8150'	122'
Cambrian	8582'	-3866'		28'
Gran Wash	8610'	-3894'		49'
PreCambrian	8659'	-3943'		4'

FORMATION SUMMARY

<u>Formation</u>	<u>Mudlog Top</u>	<u>Interval Thickness</u>	<u>Average Drl. Rate</u>	<u>Description</u>
Carlile	4550'	133'	1-2 min/ft	Sh gy-dk gy, occ blk, sft-frm, sb plty-blky, sl-n calc, sm vf mica
Greenhorn	4652'	66'	1-2 min/ft	Sh m-dk gy, occ blk, sft, frm, sb plty-blky, occ bent
Graneros	4718'	224'	1-1½ min/ft	Sh aa, tr pyr, arag & bent, Sltst gy, sft-frm, mas, sl-n calc, v arg-aren, vf mica, tr pyr & bent
"D" Sand	4942'	20'	1½-2 min/ft	SS wh-clr, vf-occ f gr, sb ang-sb rd, m srted, sil cmt, pred cln, occ mica, occ cly fil, hd & brit, tr fri, tt, nscof
Huntsman	4964'	30'	1 min/ft	Sh m-dk gy, occ blk, sb plty-plty, sm fis, sl-n calc, rgh-slt, occ aren w/occ wh-clr SS, vf gr, hd, tt, mica SS
"J" Sand	4989'	76'	4-8 min/ft	SS wh-clr-lt gy, m-f gr, sb ang-sb rd, occ rd, sil cmt, occ cly fil, fri, sm hd & brit, tr Sh strng, tr intgran por, sl tr spty dk brn stn
Skull Creek	5136'	76'	2-4 min/ft	Sh lt-m gy, sft, plty-blky, slty, calc-dolic, tr pyr, vf mica
Lakota	5256'	99'	2-4 min/ft	SS clr-wh, vf-f gr, sb ang-sb rd, m-w srted, occ cly fil, sil cmt, pred hd, tt, fri inpt, v sl tr lt brn stn, p-fr por
Morrison	5352'	443'	2-5 min/ft	Sh vgt, lt-m gy, gy gn, red brn, plty-sb blky, sm fis, sl-n calc, sft, occ wxy, slty-aren bcming v aren, intbd w/vgt mas frm, crpxl-suc Ls & lt gy-gy gn, lmpy, sft v aren dolic Sltst

FORMATION SUMMARY cont'd.

<u>Formation</u>	<u>Mudlog Top</u>	<u>Interval Thickness</u>	<u>Average Drl. Rate</u>	<u>Description</u>
Permian	5798'	323'	5-7 min/ft	Sh red brn-orng-lt orng, sb plty-mas, sl-n calc, slty grdg to orng mas arg Sltst, abndt intbd wh-pk, frm-hd, sm sft, xln-suc, mas-blky, v arg inpt Anhy (Day Creek at 6040' recognizable by intbd Anhy aa & vgt, hd-frm, crpxl, aren Dol)
Blaine	6184'	91'	4-7 min/ft	Anhy wh-pk, xln-suc, sft-frm w/Sltst aa, Sh aa
Lyons	6222'	342'	6-9 min/ft	Hem stn Anhy aa w/intbd Sltst aa w/occ v aren orng-lt orng-red brn, gyp Anhy Sh, Ss pred v-vf gr uncons qtz gr, sb ang-sb rd, clr-wh, w srtd, fri
Wolfcamp	6556'	457'	2-6 min/ft	Dol lt pk-frm-wh-bf, frm-hd, blky, lmy inpt, crpxl-sl suc, occ gran, cln-v arg inpt, tr vp suc por w/tr Sh aa & Sltst aa, Anhy wh, sft, mas, occ hd, xln-suc, Ls wh crm-bf, hd, sb plty-blky, crpxl-micxl, chky, dns, cln-v arg, tr fos frag
Virgil	7004'	275'	3-5 min/ft	Ls crm-tn, bf-lt gy, hd, sb blky-blky, micxl-crpxl, arg inpt, occ aren, ool, tr fos frag, SS wh-lt brn, lt gy, vf gr, rd, w srtd, calc cmt w/calc mtx, n vis por, occ pk-wh-bf Dol & lt-dk gy Sh
Missouri	7300'	395'	3-5 min/ft	Ls crm-tn-wh, hd-frm, crpxl-micxl, chky inpt, occ <u>cht ool</u> , arg inpt w/intbd gy-dk gy, sft-frm, plty-sb plty, slty Sh & wh-crm, sb blky, crpxl-suc Dol
Des Moines	7695'	471'	4-7 min/ft	Ls tn-bf-crm, mot, lt-dk brn, tr rsns, sb plty-blky, frm-hd, occ abndt ool micxl-occ crpxl, tr intxl por w/intbd gy-dk gy-blk carb calc, sb plty-blky, sft-frm Sh

FORMATION SUMMARY cont'd.

<u>Formation</u>	<u>Mudlog Top</u>	<u>Interval Thickness</u>	<u>Average Drl. Rate</u>	<u>Description</u>
Atoka	8166'	153'	7-10 min/ft	Ls crm-tn-brn, tr gy, sb plty-blky, sft-frm, micxl-crpxl, mas, sft wh-gy clyst, Sh dk gy & vgt, fis-mas, sft, mic mica
Morrow	8319'	141'	7-10 min/ft	Sh dk gy-blk, sb plty-sb blk, fis, frm, n-sl calc, occ v carb-occ coal w/occ tr yel resid ring, tr SS clr-lt gy, gy-wh, sm grn, f-m gr, ang-sb ang, p srt, abndt glau, occ mica, v arg, n vis por, nscof
Mississippian	8460'	122'	4-6 min/ft	Dol bf-crm-wh, lt gy-brn, hd, sm frm, suc, chky, occ micxl-crpxl, pred cln, occ arg, aren inpt, occ dull yel flor, n cut w/occ gd suc por, occ Sh gy-gy brn, sft-frm, plty-fis, tab, sl calc, occ vf mica
Cambrian	8582'	28'	2½-3½min/ft	SS pred cir, m-c gr, ang-occ rd, p srt, sil cmt, tt, brit w/abndt uncons qtz gr
Gran. Wash	8610'	49'	7-8 min/ft	SS wh-lt gy, f-m gr, sm v & crs gr, hd, brit, sil cmt w/abndt biotite, hornblende, occ feldspar
PreCambrian	8659'	4'	10-15min/ft	Gran pk-w/wh-lt gy, w/biotite, hornblende qtz feldspar intgrth

LITHOLOGY

- 4500' - 4570' Ls wh-crm, hd, sb plty-blky, crpxl, chky, brit inpt, arg inpt, cln tt, nscof, SH gy-dk gy, blk, sft-frm, sb plty-blky, occ mas, rgh, sl-n calc, sm vf mica
- 4570' - 4840' Sh m-dk gy, occ lt gy & blk, sft-frm, occ hd, sb plty-fis, occ blk, rgh, n-sl calc, mic mica, occ aren, tr pyr, arag & bent
- 4840' - 4950' Sh aa, Sltst gy, sft-frm, mas, sl-n calc, v arg-occ v aren, vf mica, tr pyr
- 4950' - 5020' Sh aa, SS w-clr, vf-occ f gr, sb ang-sb rd, m srtd, sil cmt, pred cln, occ mica, occ cly fil, hd & brit, tr fri, tt, nscof
- 5020' - 5170' Sh m-dk gy, occ blk, sb plty-plty, fis, sl-n calc, rgh-slt, occ aren, tr pyr, mic mica, SS clr-wh-lt gy, sb rd, m-w srtd, vf gr, fri inpt, intgran por, v sl tr spty blk o stn, occ yel-wh flor, v wk crush strmg cut, gd yel resid cut
- 5170' - 5200' SS aa, nscof, Sh aa
- 5200' - 5256' Sh lt-m gy, sft, plty-blky, slty, calc-dolic, tr pyr, vf mica, occ wh-clr, hd tt SS
- 5256' - 5352' Sh aa, SS clr-wh, vf gr, m-w srtd, sb ang-sb rd, hd & tt inpt, fri & fr por inpt, v sl tr spty brn o stn, nscof
- 5352' - 5630' Sh red brn, gn, occ lt-dk gy, sft-frm, sl-n calc, sb plty-plty, sm fis & blk, slty-aren inpt, occ wxy/wh-crm, frm, sb plty, brit, v aren Clyst, SS clr-wh-lt gy, f-m gr, sm vf gr, sb ang-sb rd, m-w srtd sil cmt, occ uncons qtz gr, vp por, v slty grdg to Sltst, nscof, occ Sltst gy-gy gn, sm red brn, mas, sft-occ fri, sl-n calc, arg-aren, occ mic mica, tr pyr
- 5630' - 5750' Sh aa, Sltst aa, Ls crm-bf, mas, frm, blk, crpxl-suc inpt, sl dolic, dns, arg
- 5750' - 5780' Ls aa, Dol gy-bf-crm, hd, blk, crpxl, v lmy Dol, SS wh lt gy, m-f gr, sb ang-sb rd, sil cmt, occ sl calc cmt, brit, tr fri, n vis por, nscof
- 5780' - 5798' Sh lt-m gy-gy gn, occ red brn, v qt col, sb plty-mas, sm blk, sl-n calc, mic mica grdg to Sltst
- 5798' - 5840' Anhy wh-pk, sft, mas, sm blk, frm-hd, xln-suc, Sh pred gy gn, occ gy, red brn, orng, sft-sl frm, sb plty-mas, occ aren, sl-n calc
- 5840' - 5880' Sltst orng-red brn, sft, mas-lmpy, calc inpt, occ aren, Sh orng-lt orng, occ gy-dk gy, gn-gy gn, sb plty-plty, occ mas, sl-n calc, mic mica, slty, gyp Anhy

LITHOLOGY cont'd.

5880' - 5900'	Sh aa
5900' - 6000'	Anhy pk-wh, sft, mas, xln-suc, Sltst orng, sft, mas, sl-n calc, arg-shy, fri, mic mica, Sh orng-lt orng, occ gy-dk gy, gn-gy gn, sb plty-plty, mas, lmpy, sl-n calc, slty, mic mica
6000' - 6042'	Sh pred red brn-orng, m-dk gy, tr lt gy & gy gn, occ v aren grdg to Sltst
6042' - 6090'	Anhy pk-orng, frm-hd, sm sft, pred xln, occ suc, arg, Dol wh-pk-crm, hd-frm, blk, crpxl, Anhy, occ v arg-aren, Sh aa
6090' - 6220'	Sltst orng-lt orng, sft-frm, sb plty-mas, sl-n calc, occ Anhy pk-wh, frm-hd, sm sft, mas-blk, xln-suc, occ v arg, Sh orng-red brn, lt-dk gy, tr gn, sb plty-mas, sft, sl-n calc, v Anhy
6220' - 6340'	SS v lt pk-wh-clr, sb ang-sb rd, vf-f gr, m-w srtd, pred cln, sm hem stn, occ fri, pred hd & brit, sil cmt, no vis por, nscof, Sltst arg & aren inpt, cont aa, Sh orng-lt orng, sft-frm, mas-sb blk, sl-n calc, occ gyp & Anhy slty grdg to Sltst, Anhy cont aa
6340' - 6550'	Sltst orng-lt orng, red brn, frm-hd, blk-mas, sl-n calc, fri inpt, arg, grdg to Sh, occ aren-v aren Anhy
6550' - 6600'	Dol lt pk-bf-crm-wh-lt gy, tr gy gn, frm-hd, blk, chky, lmy inpt, crpxl-occ gran & suc, cln-occ arg, nscof, occ wh-crm-bf, hd, sb plty-blk, crpxl-micxl, chky, dns, Sltst aa, Sh aa, Anhy pk-lt orng-wh, frm-hd, sm sft, blk-mas, xln-suc, arg inpt
6600' - 6610'	Ls wh-bf, crpxl, hd, blk-sb plty, sm micxl, cln, occ arg inpt, Sh orng-red brn, grdg occ to Sltst cont aa, Dol aa
6610' - 6670'	Dol lt pk-crm-wh-bf-lt gy, gy gn, frm-hd, blk, chky, lmy inpt, crpxl-sl suc inpt, Sltst lt orng-red brn, sb plty-mas, arg-v sdy, calc grdg to Sh, occ Anhy & Sh aa
6670' - 6690'	Ls wh-crm-bf, hd, sb plty-blk, crpxl-micxl, chky, dns, cln-occ arg, Anhy wh, sft, mas & Dol lt pk-crm, wh-bf, hd, chky, cont aa & Sh aa
6690' - 6720'	Dol lt pk, sme v lt pk-pk, hd, sb plty-blk, crpxl-occ gran, suc inpt, brit, cln-occ arg, occ lmy, Sh aa & Anhy wh, sft, mas
6720' - 6760'	Ls wh-crm, hd, blk-sb plty, crpxl-micxl, cln-tr arg, tr fos frag, brit, n vis por, nscof & Sh orng-red brn, sft-frm, sb plty-plty, sl calc-n calc, Anhy AA, Dol aa

LITHOLOGY cont'd.

- 6760' - 7010' Dol pk-wh-tn-bf, hd-brit, crpxl-micxl, occ gran-suc, tr lmy, arg in pt, sm chky, nscof, Sh pred red brn-orng, tr dk gy, frm, sb plty, n calc, Anhy pred wh-fros, sft, mas, sm xln-suc, hd
- 7010' - 7100' Ls crm-tn, bf-lt gy, hd, sb blkyl-blky, micxl-crpxl, arg inpt, occ aren, tr ool, nscof, Sh aa, Dol aa, Anhy aa
- 7100' - 7160' Ls crm-tn, bf-lt gy, hd, sb blkyl-blky, micxl-crpxl, arg inpt, occ aren, tr ool, brit, sm cln, tr fos frags, nscof, Sh lt-dk gy, sft-frm, sb plty-plty, sl-n calc, mic mica
- 7160' - 7180' SS wh-lt brn, lt gy, vf gr, rd, w srtd, calc cmt, calc mtg grdg to v aren Ls, n vis por, v wk, dull yel resid ring & ring cut, Sh aa, Ls aa
- 7180' - 7230' Ls crm-tn-bf-lt gy, hd-occ frm, brit, crpxl-micxl, occ v aren grdg to v lmy, SS occ Sh strng, tr ool, tr fos frag, Sh pred m-dk gy, cont aa
- 7230' - 7360' Ls wh-crm-sm bf, hd-frm, occ brit, crpxl-occ micxl, chky inpt, occ cht, tr ool, arg-slty-tr sdy, nscof, Sh lt-dk gy, sft-frm, sb plty-plty, sl-n calc, tr cht, tr vf gr, v lmy SS, Anhy wh-crm, mas, sft, arg
- 7360' - 7380' Dol crm-tn, blkyl-sb blkyl, hd, brit, crpxl-suc, pred cln, nscof, Ls aa, Sh aa
- 7380' - 7500' Ls wh-crm, hd-frm, sb blkyl-sb plty, mas, pred crpxl, occ chky, pred cln & dns, tr pk cht, tr fos frag, nscof, occ wh-crm, hd, sb blkyl-sb plty, crpxl-suc Dol, nscof Sh gy-gy gn, red brn, sft-frm, cont aa
- 7500' - 7606' Sh m-dk gy, blk, tr red brn, plty-mas, sm fis, sft-occ frm, v carb inpt, slty-sdy, sl-calc, tr vf mica, tr flor, v sl tr wk ring cut & resid ring, Ls sl tr dolie cont aa
- 7606' - 7660' Ls wh-tn-lt brn, vf xln-micxl-tr crpxl, sb plty-sb blkyl, frm-occ sft, sm gran-suc, v sl tr wk ring cut & yel resid ring, sl tr intxln por, Sh tr flor, n cut, tr dolie, cont aa w/abndt gy lmpy dolie, sft clyst
- 7660' - 7710' Sh gy-dk gy, blk, carb inpt, calc, sb plty-blkyl, sft-frm, nscof, Ls no vis por cont aa
- 7710' - 7730' Ls crm-tn, bf-lt gy, hd-frm, brit, sb plty-sb blkyl, micxl, occ crpxl, abndt ool, tr intgran por, nscof
- 7730' - 7750' Ls lt gy-tn-bf, hd, sb blkyl-sb plty, micxl, tr intgran por, nscof

LITHOLOGY cont'd.

- 7750' - 7836' Sh m-dk gy, sm blk, sb plty-blky-mas, sft, v carb inpt w/abndt gy, sft, mas, calc Clyst, n flor, f crush ring cut & bri yel resid ring, Ls tn-bf-crm, mot, lt-dk grn, tr rsns, sb plty-blky, frm-hd, v sl tr ring cut & yel resid ring, micxl-occ crpxl, tr intxl por
- 7836' - 7960' Ls crm-tn-brn, tr gy-m gy, sb plty-blky, sft-frm, chky inpt, micxl-crpxl w/abndt wh-crm-gy, mas, sft, calc clyst, Sh lt-m gy, sm gy gn-brn, sft-mas-sb plty, sm fis, sl-clac, mic mica
- 7960' - 8150' Sh lt-m-dk gy, occ blk & gy gn, mot inpt, frm, fis-plty, sb wxy, calc, tr pyr w/occ Ls wh crm-tn, bf-lt gy, tr brn & dk gy, pred sft & mas, occ frm-hd & brit, chky inpt, micxl-sm crpxl, v arg inpt, nscof
- 8150' - 8188' Ls lt-dk brn, occ wh-crm, sb plty-blky, frm-hd, micxl-crpxl, suc inpt, chky, v sl tr intgran por, Sh aa
- 8188' - 8240' SS wh-clr, lt gy, f-m gr, occ vf & c gr, sb ang-tr rd, m srted, occ fri, otzic calc cmt, arg inpt, tr glau, v sl tr spty brn stn, p-fr por, occ slty c gr mica, nscof, Ls no vis por cont aa, Sh lt-dk gy, sm blk, fis blky, sft, sl-n calc, mic mica
- 8240' - 8280' Sh m-dk gy, sm lt gy & blk, fis-sb blky, frm, n-sl calc, v carb inpt, sm slty, tr calc strng, vf mica, v sl tr ring cut & resid ring, Ss cont aa
- 8280' - 8350' Ls tn-bf-lt gy, sft-frm, mas, sb plty-plty inpt, crpxl-micxl, v arg, tr ool, Sh lt-m-dk gy, sft-frm, sb plty-plty, fis, sl-n calc, occ pyr, occ vf mica
- 8350' - 8470' SS wh-clr, lt gy, sm gn, f-m gr, sm vf gr, ang-sb rd, p srted, calc cmt, abndt-occ glau, occ mica, hd & brit, tt w/tr vf intgran por, nscof
- 8470' - 8580' Dol bf-crm-wh, lt gy-brn, hd, sm frm, crpxl-micxl, suc, chky, pred cln, occ arg-aren, occ dull yel flor, n cut, occ gd suc por, Sh gy-gy gn, sm dk gy, sft-frm, plty-fis, tab, sl-n calc, occ vf mica, tr pyr w/occ Ls bf-tn crm, hd, sb plty-blky, crpxl, tr micxl, chky, occ arg, pred cln, occ v dolie, tt, nscof w/tr SS aa
- 8580' - 8658' Sh aa, Dol bf-tn-lt brn, cont aa, SS pred clr w/abndt uncons qtz, m-c gr, ang-occ rd, p srted, hd, tt, sil cmt, tt, nscof, pred basement-biot hornbd granite w/occ fld intgrth wh-lt gy, f-m gr, sm vf & crs gr, gran inpt, hd, brit