Amoco Production Company

Surface Log

Name MISTY RIDGE SECTION
Area or Quad PORT MOLLER QUAD State ALASKA
Location LISTED TO RIGHT → Sec. ___ TWP ___ RGE ___
Measured by Williams, Brown, Smirnoff Date 7/77
Interval TOLSTOI & STEPOVAK - BEAVER BAY GRP. / HOODOO Post SANTONIAN
Remarks SECTION BEGINS AT LOWEST EXPOSURES in drainage on south side of ridge. Most of this section is measured along ridge line except where noted. Measured down the section - youngest to oldest. Section ends at the last visible outcrop in the Hoodoo Fm. near the crest of the anticline.
Location 53° 26' N 161° 19' W
Plotted by Williams Date 7/7/77
Brown

LOCATIONS:
Leg A Secs: 13,24,25-55S-79W
Leg B 13-55S-79W & 18-55S-78W
Leg C 18-55S-78W
Leg D 12&13-55S-79W
Leg E SEC 1, T55S, R79W; SEC 35 T54S R78W
Leg F SEC 25,36, T54S R79W
Leg G SEC 26,23, T54S R79W
Leg H SEC 23,14, T54S R79W

PERIODS
EPOCHS
GROUP or FM.
AGES (Stages)
FOSSILS
DEPTH
LITHOLOGY
POROSITY
SAMPLES
DESCRIPTION
TERTIARY
Paleocene thru Oligocene
Tolstoi - Stepovak Beaver Bay Group
CRETACEOUS
HOODOO FORMATION
Post Santonian
E-W 38S
N82W 33SW
N80E 32SE
N80E 36SE
N80W 55SW
N75E 43SE
N75E 43SE
N80E 45SE
N75E 40SE
N75E 40SE
N50E 30SE
N60E 20SE
N55W 17SW
N60W 22SW
N40W 18SW
N35W 18SW
N10W 15SW
N40W 16SW
N65E 20SE
N75W 26SW
N65E 35SE
N65E 29SE
Oscillation ripples
N35W
APEX DIRECTION OF TURRITELLA
N15E
N51E
N60E
N47E
N68E
N71E
N66W
(NOT CORRECTED FOR STRIKE + DIP)
x-beds
S40°E
S80°W
N80°E
N50E
x-beds
S50E
N35E
S70E
Recumbent Fold?
Highly Faulted
Ball + Pillow structure
5' AP 4071 PS, AP 4072 SR
116' AP 4073 G
254' AP 4074 PS
275' AP 4075 PS
305' AP 4076 PS, AP 4077 SR
340' AP 4078 PS
380' AP 4079 PS
430 AP 4080 PP
477' AP 4081 PS
550' AP 4082 PS, AP 4083 PP
583' AP 4084 PS, AP 4085 SR
648' AP 4086 PS
708' AP 4087 PS, AP 4088 SR
780' AP 4089 PS
812' AP 4090 PS
1152' AP 4091 PS
1215' AP 4092 PS
Thickness ??
1778' AP 4093 PS
Thickness ??
Leg A
Break in section
Leg B
Leg B
2430' AP 4099 PS, AP 4100 SR
Leg C
2495' AP 4101 PS
2532' AP 4098 PS
2547' AP 4097 PS
2578' AP 4096 PS
2613' AP 4095 PS
2655' AP 4094 PS
Leg C Break in section
Leg D Tie back to saddle on ridge
2960' AP 4102 PS
3133' AP 4103 PS
3178' AP 4105 PP
3194' AP 4104 PS
3255' AP 4106 PS, AP 4107 SR
3350' AP 4108 PS
3545' AP 4109 PS, AP 4110 E
3575' AP 4111 PP
3615' AP 4112 PS
3653' AP 4113 PS
3688' AP 4114 PS
3725' AP 4115 PS, AP 4116 SR
Top of ridge descending along dip bearing
3796' AP 4117 PS
3840' AP 4118 PS
3865' AP 4119 PP
4010' AP 4120 PP
4130 AP 4122 PP
4135 AP 4121 PS
4196 AP 4123 PS, AP 4124 SR
4278' AP 4125 PS
4323' AP 4126 PS
4390' AP 4127 PS, AP 4128 SR
4430' AP 4129 PS
4483' AP 4130 PS
4531' AP 4131 PS
4612' AP 4132 PS, AP 4133 SR
LEG D
LEG E
4665 APS107 PF
4676 APS108 PP
4730 APS109 PF
4765 APS110 PF
4835 APS111 PF
4875 APS112 PF
4915 APS113 PF
4985 APS114 PF, APS115 F
5010 APS116 PP
5030 APS117 PF
5080 APS168 F
5090 APS118 PF
5095 APS767 F
5130 APS119 PF
LEG E
LEG F
5190 APS120 PP
5270 APS121 PF
5285 APS122 SR
5305 APS124 PP
5310 APS123 PF
LEG F
LEG G
5360 APS125 PF
APS126 SR
5400 APS127 PF
5415 APS128 PF
5450 APS129 PF
5485 APS130 PF
5520 APS131 PF
5550 APS132 AP
5595 APS133 PF
APS134 SR
5625 APS135 PF
5665 APS136 PF
5710 APS137 PF
APS138 SR
5730 APS139 PP
5755 APS140 PF
5795 APS141 PP
5805 APS142 PF
5845 APS143 PF
APS144 SR
5885 APS145 PF
5925 APS146 PF
APS147 SR
5950 APS148 PF
5980 APS149 PF
6010 APS150 PF
APS151 SR
6105 APS152 PF
6150 APS153 PF
6160 APS154 PF
6185 APS155 PF
APS156 PF
6260 APS157 PF
6285 APS158 PF
APS159 SR
6310 APS160 PF
6350 APS161 PF
APS162 SR
6410 APS163 PF
6495 APS165 PF
6515 APS166 PF
6540 APS169 PF
APS170 SR
6565 APS171 PF
LEG G
LEG H
(6570)
6780 APS172 PF
6885 APS173 PF
APS174 SR
6905' APS175 PF
6955 APS176 PF
APS177 SR
7000'

Shale, blk, silty, fissile
Ss, gry, mg, ps, sa, hd & tite

INTRUSIVE - DIORITE ? - phaneritic, dk green, gry.
SILL - both upper and lower contacts are generally conformable
Local contact metamorphism to 10'
Aphanitic texture on margins.
Highly weathered in places - grass like.

Siltstone, blk, blocky, hd, sli meta.
Interbedded Ss, tan-grn, fs, ms, sr-sa siltstone & silty mudstone, dk gry thinly bedded & carb.

Interbedded: Ss, tan-grn, f-mg, some cg, cong, carb, ang, lithic, volcaniclastic. Siltstone & blk mudstone hackly, conc, wood frags

Ss, gry-grn, f-mg, some cong. lenses, sa-sr, p-ms, thin bedded, ang, lithic, feld, carb. Scarce x-bedding
Siltstone, dk gry,

Ss, gry-grn, f-cg, ps, sa-sr, cong. lenses, few sandy siltstones, lithic, sli feld, carb. debris, poor φ, occ. 1" thick blk mudstones

Mudstone & siltstone, blk, hd, hackly poor exposures
Covered - probably silts

Covered - as above

Siltstones & mudstones, dk gry-blk, silty, sli fissile in streaks

Breccia - green, tuffaceous, volcanic angular, vps. - like Belkofski. Scattered siltstones, blk, dk gry, hackly to 4' thick

Breccia as above

Ss, grn, f-ms, p-ms, tuff, volc, lithic, poor φ.
Breccia as above

Tuffs - tan, brown to green, weathered very clayey.

As above - leaf imprints carb. highly weathered, poor exposures.

HORNBLENDE ANDESITE - Sill

Scattered breccia in float

Breccia, as above

ANDESITE - AS ABOVE
Forms exposed backbone of ridge and peak - no sediments visible to either side - only ANDESITE TALUS & float.

Ss, grn, mg, vps, sr, tuff, lithic volc frags, highly jointed weathered

ANDESITE
Ss - grn, f-mg, vps, sr, chl, tuff, volc. lithic, sli cong, thinly bedded, few gry sandy siltstones
Conglomerate - grading upward from boulders to pebbles.

Breccia, green, volcanic, pebble size, tuff matrix very clayey, highly weathered
Very similar to breccias in Belkofski.

Main exposure - break in section - climb peak to east along strike and work down north face.

Leg B - moved along cliff crest, then descended cliff face along easternmost principal chute to stream.

Cliff face exposures:
Breccia & Volcaniclastics - coarse pebble to cobble size - green, occ. purple, tuff matrix, scattered wood debris, highly jointed & weathered laced with ANDESITE dikes.
No fine grained rocks present!

Mudstone, brown-dk gry, silty, fissile to hackly, calc conc., few thin SS.

Ss, gry, grn, mg, sa-sr, ps, sli cong, ang, lithic, feld, very hd, tite
Shale - dk gry, silty, ironstained
Ss, gry, grn, f-cg, hard tite, lithic, cong.

Siltstone, blk, hard

Ss, grn, fs, ms, very hd tite, few interbeds of siltstone & shale, carb debris on bedding surfs.
Cong - gry - pebble ss, shale rip ups

Breccias - green, volcanic with occ. wood debris, very poor bedding
Numerous andesite dikes

Mudstone - dk brown gry - thin zone in breccias

Breccias as above

Mudstone, brown, gry, fissile

SS, gry, f-cg, w/ cong. lenses ¼" pebbles, p-ms, sa, sli ang, fld, lithic, lenses of calc cmt - very hd & tite, mod-thick bedded, highly jointed
Siltstone & mudstone - dk gry.
Breccia as above
Siltstone, blk, very hd, deformed
Andesite intrusive
Siltstone, blk, calc, hd, highly deformed

Andesite intrusives w/ scattered breccias.

Siltstone, blk-gry, very hd, tight, def. 4110 - concretion with macrofossils
Andesite dikes
Ss, tan-gry, f-ms, sa-sr, m-ps, lith, ang, feld, lithic, thin-med bedding, conc. bedding, poor φ
Ss & siltstone as above
Andesite dikes
Mudstone & siltstone, dk gry-blk, very carb, thinly bedded, few thin ss, ms, ps, hd, tite
Mudstone, dk gry, sli silty, hackly
Ss, tan, fs, ps, ang, carb feld, lithic
Siltstone, dk gry-brown, & mudstones
Poor exposures

SS, green, m/cg, sli cong, ps, sa-se, feld, lithic, very hd & tite, no visible bedding, highly jointed & weathered

Conglomerate SS - similar to above, massive pebbles to 2"
Poor exp.

Ss, green, m-cg to cong, p-ms, sa, sli ang, feld, lithic, poor φ, hd, massive highly jointed - ridge forming large set 1045'? x-set visible from air

Covered - Ss talus

Ss, grn-gry, ps, sa, sli ang, feld, lithic, volc matl, poor φ
Siltstone, blk, hackly, hd.

Siltstone - dk gry, as above
Scattered SS - tan, vfs, silty, ang, carb.

Siltstones as above concretion "slendonites".

Siltstones as above few thin SS to vfg. hd tite.

Siltstones as above, exposures becoming very weathered.

Poor exposures - siltstone slopewash.

Siltstone, dk gry-blk, hackly
Leg D ends at lowest exposure in saddle, Leg E begins at point of projected up dip of bedding on Mtn summit & is measured down section to the lowest exposed outcrop.
SS, gray, f. gr, sa-se, p-sort, argillaceous, feldspathic, thinly bedded, carbonized plant frags on bedding planes, highly jointed 1" thick interbed of fine ss, poor porosity, 3-4" feldspathic conc.
sh, black, coaly
Andesite Sill, MASSIVE
SS, As Above; sh, black, coaly AT TOP. Alt. beds of f-m ss, sh, & siltstone ≈ 2-3' thick

SS, gray-green, f-m, ANG, v poor sorting, low porosity, MASSIVE, some thin laminations, small ¼" walled burrows
Andesite dike
ss, gray, f-m, ANG, p. sorted, thin laminations
siltstone, gray, f-med, sh. gray-black
SS, AS ABOVE
siltstone, dk gray, thinly bedded to MASSIVE
SS, As Above, vf-f with carbonized wood
sh; As Above
mudstone, gray, gastropods + pelecypods / siltstone
SS, gray-green, f-m, sa, m sorted, low porosity, highly indurated, slightly argillaceous, mod. bedded, feldspathic - lithic oscillation ripples.
sh, black, 1-2' interbeds, pelecypods, gastropods + carbonized plant frags on bedding surfaces, walled burrows. Fossils: CARDIUM FLOAT, MYA CLAMS, mud-dwelling pelecypods, Turritella
Alternating ss + sh As Above ss:sh 3:1
walled burrows filled with crse sand
ss, f-m, A, psorted, low porosity, thinly laminated, some calcite veins
LEG F was measured down section, on the same MTN AS LEG E, after geometrically projecting position with strike + dip
SS, gray, f, sa-sa, m.sorted, fair porosity, thin bedded, slightly argillaceous, 40% feld, 40% lith, 20% qtz, carbonized plant frags on bedding planes
ss, gray, crse-vcrse, a-sa, upsorted, fair-poor porosity, well cemented (slightly carbonate), x-beds, massive.
sh, black, carbonaceous
ss, As Above, ex poor sorting, x-beds, fair porosity
LEG G is geometrically tied across a ½ mile wide valley with the strike + dip of the units of the two legs.
sh, black, carbonaceous
ss, gray, crse, sa, ex poor sort, low porosity, bedded
sh, gray, fissile, carbonized plant frags, silty, with occ. interbeds of ss + sh. Andesite dike
Alternating interbeds of shale, dark gray, + ss, gray, fine, a-sa, p sorted, poor porosity, thinly interbedded
ss, as above, med
shale, gray, hackly fracture
ss, gray, f-vf, ang, m.sorted, low porosity, 1-2' thick beds, carbonized wood on bedding planes.
Andesite porphyry - sill
ss, gray, f., sa, psorted, fair-poor porosity, thinly laminated
shale, black, thinly laminated
Alt. 1-3' interbeds of ss + sh. ss-sh ratio 3:2
sh, As Above
ss, gray, med-crse., s.a., v.p. sort., poor porosity, massive
sh, As Above
ss, As Above, med gr.
Andesite Intrusive
ss, As Above
sh, black - dk. gray, slightly silty, fissile
ss, tan, f., s.a., m. sorted, low porosity, thinly laminated x-bedded - crse gr.
sh, As Above
ss As Above, crse, no x-beds, sh:sh 7:1
ss As Above, m-crse, x-beds
sh As Above
ss As Above crse-v crse
sh, black, fissile, some iron, numerous leaf impressions
Andesite intrusive
ss, med, otherwise As Above
Alt. beds of ss, gray, f-m, ang, m-p. sorted, poor porosity, some crse lens + sh, gray, fissile
ss, gray-green, crse, ang, v.p. sorted, good porosity, graded bedding
sh. As Above; ss:sh = 1:1
mudstone, dk gray, carbonaceous
ss, As Above, crse - v. crse, petrified wood inclusions.
mudstone, gray, silty, numerous plant frags, concretions
ss, As Above, gr. size grades med-crse

Andesite Porphyry / Diorite Porphyry - intrusive, includes xenoliths.
ss, gray, v. crse, ang, upsorted, poor porosity, massive
sh, mudstone, siltstone, lt buff - dk gray
ss, gray, f-med-crse, otherwise as Above
sh, black-gray, highly folded, faulted area, highly distorted beds. Samples 53 + 55 were taken at two levels on the up? side of the fault at different levels. The same is true for 54 + 56 on the down (NW) side of the fault. The rest of the section measured down the up side.
ss, As Above

sh, black, coaly, plant impressions, subbituminous coal, wood
claystone, greenish-brown
ss, gray, crse-v crse, sa-a, upsort, poor porosity, some carbonaceous
sh, brown, fissile
Andesite Sill
siltstone, gray, massive
shale, black, coaly
ss, gray, crse, ang, v. p sorted, poor porosity
Possible contact between Hoodoo + Tolstoi
shale, black, thinly laminated, occasional thin interbeds of ss coaly, carbonized wood frags, sh. calcareous concretions, 8" dia. with sh.
ss, gray, f, ang, p. sorted, low porosity, conc. as above
Alt. ss, + sh, As Above
Andesite Intrusive
ss, gray, med-crse., a-sa, p. sorted, low porosity, massive
sh., gray, silty, highly indurated
ss, As Above
claystone, dk. gray
15-20' covered interval
mudstone, dk gray, silty, some iron, carbonaceous plant frags.
sh., black, carbonaceous, fissile
LEG H is geometrically tied to Leg G with the strike + dip.
LEG H should be entirely within the Hoodoo.
COVERED INTERVAL
Andesite Dike, sporadic out-crops of.

COVERED INTERVAL

shale, gray, some thin interbeds of fine tan siltstone with numerous burrows - chondrites?

Covered interval

ANDESITE INTRUSIVE
sh, black, fissile, thin ¼" thick siltstone interbeds
Andesite dike
sh, As Above, some ferruginous minerals

occasional siltstone + vf ss, thin interbeds
occasional Andesite dikes

Last visible outcrop going down section before the mapped crest of the Anticline.

END OF SECTION

It should be noted that this entire section is structurally complex, with numerous dikes, sills, & other intrusions faults, the throw of which & direction is not known. Each leg has involved a geometric tie across covered intervals. It is hoped that this section can be accurately dated with the correlative techniques of Palynology as this section does represent a continuous section of the Oligocene - Eocene, Stepovak, Eocene Paleocene Tolstoi, & the Cretaceous Hoodoo formation. No distinct lithologic contact between the formations was noted.