Amoco Production Company

Surface Log

Name: MISTY RIDGE SECTION
Area or Quad: PORT MOLLER QUAD State: ALASKA
Location: LISTED TO RIGHT →
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 Hoodo Fm. NEAR the crest of the ANTICLINE.
Location: 53° 26' N 161° 19' W
Plotted by: WILLIAMS / BROWN Date: 7/7/77

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

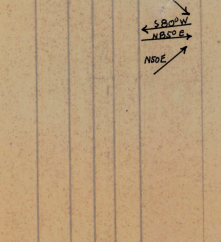
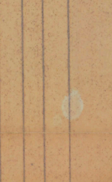
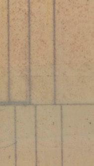
PERIODS	EPOCHS	GROUP or FM.	MEMBER	AGES (Stages)	FOSSILS	ODORS	SHOWS	DEPTH	LITHOLOGY	POROSITY	SAMPLES	DESCRIPTION

TERTIARY — Paleocene thru Oligocene — BEAVER BAY GROUP — TOLSTOI - STEPOVAK

- 5' AP 4071 PS, AP 4072 SR — Shale, blk, silty, fissile. Ss, gry, mg, ps, sa, hd & tite
- 46' AP 4073 G — 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.
- 254' AP 4074 PS; 275' AP 4075 PS — SILTSTONE, blk, blocky, hd, sli meta. Interbedded SS, tan-grn, fs, ms, SR-SA siltstone & silty mudstone, dk gry thinly bedded & carb.
- 305' AP 4076 PS, AP 4077 SR — Interbedded: Ss, tan-grn, f-mg, some cg/cong., carb, arg, lithic, volcanoclastic. Siltstone & blk mudstone hackly, conc, wood frags
- E-W 38S; 340' AP 4078 PS
- N82W 33SW; 380' AP 4079 PS — Ss, gry-grn, f-mg, some cong. lenses, sa-sr, p-ms, thin bedded, arg, lithic, feld, carb. Scarce x-bedding. Siltstone, dk gry,
- 430 AP 4080 PP
- 477' AP 4081 PS — Ss, gry-grn, f-cg, ps, SA-SR, cong. lenses, few sandy siltstones, lithic, sli feld., carb. debris, poor ø, occ. 1" thick blk mudstones
- N80E 32SE; 550' AP 4082 PS, AP 4083 PP
- 587' AP 4084 PS, AP 4085 SR — MUDSTONE & Siltstone, blk, hd, hackly, poor exposures
- Covered - probably silts
- 648' AP 4086 PS — Covered - as above
- 708' AP 4087 PS, AP 4088 SR — Siltstones & mudstones, dk gry-blk, silty, sli fissile in streaks
- N80E 36SE; 780' AP 4089 PS; 812' AP 4090 PS — Breccia - green, tuffaceous, volcanic angular, vps. - like Belkofski. Scattered siltstones, blk, dk gry, hackly to 4' thick
- Breccia as above
- Ss, grn, f-mg, p-ms, tuff, volc, lithic, poor ø. Breccia as above.
- 11" ; 1152' AP 4091 PS — Tuffs - tan, brown to green, weathered very clayey.
- 1215' AP 4092 PS — As above - leaf imprints carb. highly weathered, poor exposures.
- HORNBLENDE ANDESITE - Sill. Scattered breccia in float
- Breccia, as above
- Thickness ?? — 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
- N80W 55SW; 1778' AP 4093 PS — ANDESITE. Ss-grn, f-mg, ups, SR, chl, tuff, volc. lithic, sli cong, thin bedded, few gry sandy siltstones. Conglomerate - grading upward from boulders to pebbles.
- Thickness ?? — Breccia, green, volcanic, pebble size, tuff matrix very clayey, highly weathered. Very similar to breccias in Belkofski.
- Leg A / Break in section / Leg B — 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 & Volcanoclastics - 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!
- Leg B / N75E 43SE; 2450' AP 4099 PS, AP 4100 SR / Leg C
- 2495' AP 4101 PS — Mudstone, brown-dk gry, silty, fissile to hackly, calc conc, few thin SS.
- 2522' AP 4098 PS; 2547' AP 4097 PS — SS, gry, grn, mg, sa-se, ps, sli. cons., ang., lithic, feld, carb tite. Shale-dk gry, silty, iron stained
- 2572' AP 4096 PS — SS, grn, gry, f-cg, hard & tite, lithic, cong.
- 2613' AP 4095 PS — Siltstone, blk, hard
- N75E 43SE; 2655' AP 4094 PS / Leg C / Leg D — Break in section. Tie back to saddle on ridge. — Ss, gry, fs, ms, grn, hd & tite, few interbeds of siltstone & shale, carb debris on bedding surf. Cong-gry-pebble ss, shale rip ups
- Breccias - green, volcanic, with occ. wood debris, very poor bedding. Numerous andesite dikes
- 2960' AP 4102 PS — Mudstone - dk brown gry - thin zone in breccias
- Breccias as above
- 3135' AP 4103 PS — Mudstone, brown, gry, fissile
- N80E 45SE; 3178' AP 4105 PP; 3194' AP 4104 PS — Ss, gry, ss to cg, w/ cong. lenses ¼" pebbles, p-ms, sa, sli ang, feld. lithic, lenses of calc sand - very hd & tite, med-thick bedded, highly jointed. Siltstone & mudstone - dk gry.
- Breccia as above
- 3255' AP 4106 PS, AP 4107 SR — Siltstone, blk, very hd, deformed. Andesite intrusive
- 3310' AP 4108 PS — Siltstone, blk, calc, hd, highly deformed
- Andesite intrusives w/ scattered breccias.
- 3595' AP 4109 PS, AP 4110 SR — Siltstone, blk-gry, very hd, highly def. 4110 - Concretion with macrofossils. Andesite dikes
- 3615' AP 4111 PP — Ss, tan-gry, f-ms, sa-sr, m-ps, lim, ang, feld, lithic, thin-med bedded, some x bedding, poor ø
- N75E 40SE; 3645' AP 4112 PS — Ss & siltstone as above. Andesite dikes
- 3663' AP 4113 PS
- N75E 40SE; 3686' AP 4114 PS — Mudstone & Siltstone, dk gry-blk, very carb, thinly bedded, few thin ss, ms, ps, hd, tite
- 3725' AP 4115 PS, AP 4116 SR — mudstone, dk gry, sli silty, hackly
- Top of ridge descending along dip bearing — SS, tan, fs, ps, ang, carb feld, lithic
- 3796' AP 4117 PS — Siltstone, dk gry-brown, & mudstones. Poor exposures
- 3840' AP 4118 PS
- 3866' AP 4119 PP — 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.
- 4010' AP 4120 PP — Ss, green, m-cg to cong, p-ms, sa, sli ang, feld, lithic, poor ø, hd, massive highly jointed - ridge forming. Large set 10x15' x set visible from air
- Covered - SS talus
- 4130 AP 4122 PP; 4135 AP 4121 PS — SS, green/gry, ms, ps, sa, sli ang, feld, lithic, volc matrix poor ø. Siltstone, blk, hackly, hd.
- 4176' AP 4123 PS, AP 4124 SR — Siltstone - dk gry, as above. Scattered SS-tan, vfs, silty, ang, carb.
- 4278' AP 4125 PS
- 4328' AP 4126 PS — Siltstones as above. concretion "slendrites"
- 4390' AP 4127 PS, AP 4128 SR — Siltstones as above. few thin ss to ms. hd & tite
- 4430' AP 4129 PS
- 4483' AP 4130 PS — Siltstones as above, exposures becoming very weathered.
- 4531' AP 4131 PS
- Poor exposures - siltstone slopewash.
- 4612' AP 4132 PS, AP 4133 SR; LEG D / LEG E — 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 9 is measured down section to the lowest exposed outcrop.
- N30E 30SE; N80E 20SE; N55W 17SW; 4665' AP 5107 PS; 4675' AP 5108 PP — SS, gray, f-gr, SA-SR, p. sort, arg., illaceous, feldspathic, thinly bedded, carbonized plant frags on bedding planes, highly jointed. 1" thick interbed of fine ss, poor porosity, 3-4" ferruginous conc. sh, black, coaly
- N60W 22SW; 4730 AP 5109 PS — Andesite SILL, MASSIVE. SS, as above; sh, black, coaly at top. Alt. beds of f-ms, sh, & siltstone 2-3' thick
- 4765 AP 5110 PS
- N40W 18SW; 4835 AP 5111 PS — SS, gray-green, f-m, ang, v poor sorting, low porosity, MASSIVE, some thin laminations, small ¼" walled burrows. Andesite dike
- 4875 AP 5112 PS — SS, gray, f-m, ang, p. sorted, thin laminations. Siltstone, gray, f-med, sh. gray-black
- 4915 AP 5113 PS — SS, as above. Siltstone, dk gray, thinly bedded to massive
- SS, as above, vf-f with carbonized wood
- sh; as above
- N35W 18SW; 4985 AP 5114 PS, AP 5115 F — mudstone, gray, gastropods & pelecypods / siltstone
- 5010 AP 5116 PP — SS, gray-green, f-m, sa, m sorted, low porosity, highly indurated, slightly argillaceous, mod. bedded, feldspathic - lithic; oscillation ripples.
- 5050 AP 5117 PS — sh, black, 1-2' interbeds, pelecypods, gastropods, & carbonized plant frags on bedding surfaces, walled burrows. Fossils: coaly/lig float, Myalike clams, mud-dwelling pelecypods, turritella
- N10W 15SW; 5080 AP 5118 F; 5090 AP 5118 PS; 5095 AP 5767 F — Alternating ss & sh as above ss:sh 3:1
- Walled burrows filled with crse sand
- N40W 16SW; 5130 AP 5119 PS; LEG E / LEG F — SS, f-m, A, p sorted, 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
- 5190 AP 5120 PP — SS, gray, f, se-sa, m sorted, fair porosity, thin bedded, slightly argillaceous, 40% feld, 40% lith, 20% qtz, carbonized plant frags on bedding planes
- 5270 AP 5121 PS; 5285 AP 5122 SR — SS, gray, crse-vcrse, A-SA, up sorted, fair-poor porosity, well cemented (slightly calcareous), x-beds, massive. sh, black, carbonaceous
- 5305 AP 5124 PP; 5310 AP 5123 PS — SS, as above, ex poor sorting, x-beds, fair porosity
- LEG F / LEG G; 5360 AP 5125 PS, AP 5126 SR — LEG G is geometrically tied across a ½ mile 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
- 5400 AP 5127 PS — sh, gray, fissile, carbonized plant frags, silt, with occ. interbeds of ss & sh. Andesite dike
- 5415 AP 5128 PS — Alternating interbeds of shale, dark gray, & ss, gray, fine, A-SA, p sorted, poor porosity, thinly interbedded
- 5450 AP 5129 PS — SS, as above, med
- 5485 AP 5130 PS — shale, gray, hackly fracture. SS, gray, f-vf, ang, m sorted, low porosity, 1-2' thick beds, carbonized wood on bedding planes.
- 5520 AP 5131 PS — Andesite porphyry - sill
- 5550 AP 5132 PS — SS, gray, f, SA, p sorted, fair-poor porosity, thinly laminated
- 5595 AP 5133 PS, AP 5134 SR — shale, black, thinly laminated. Alt. 1-3' interbeds of ss & sh. ss-sh ratio 3:2
- 5625 AP 5135 PS — sh, as above. SS, gray, med-crse, S.A., v.p. sort, poor porosity, massive
- 5665 AP 5136 PS — sh, as above. SS, as above, med gr.
- 5710 AP 5137 PS; AP 5138 SR; 5730 AP 5139 PS — 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.
- 5755 AP 5140 PS — sh, as above. SS as above, crse, non x-beds sh:sh 7:1
- N65E 20SE; 5795 AP 5141 PS; 5805 AP 5142 PS — SS as above, m-crse, x-beds. sh as above. SS as above crse-v crse
- 5845 AP 5143 PS, AP 5144 SR — sh, black, fissile, some iron, numerous leaf impressions. Andesite intrusive. SS, med, otherwise as above
- 5885 AP 5145 PS — Alt. beds of ss, gray, f-m, ang, m-p sorted, poor porosity, some crse lens & sh, gray fissile
- N75W 25SW; 5925 AP 5146 PS, AP 5147 SR — SS, gray-green, crse, ang, v.p. sorted, good porosity, graded bedding
- N65E 35SE; 5950 AP 5148 PS — sh. as above; ss:sh = 1:1
- 5980 AP 5149 PS — Mudstone, dk gray, carbonaceous. SS, as above, crse - v. crse, petrified wood inclusions.

CRETACEOUS — HOODOO FORMATION — Post Santonian

- N65E 29SE; 6010 AP 5150 PS, AP 5151 SR — mudstone, gray, silty, numerous plant frags, concretions. SS, as above. gr. size grades med-crse
- Andesite Porphyry / Diorite Porphyry - intrusive. included ss xenolith.
- 6105 AP 5152 PS — SS, gray, v crse, ang, up sorted, poor porosity, massive. sh, mudstone, siltstone, lt buff-dk gray
- SS, gray, f-med-crse, otherwise as above
- Recumbent Fold? / Highly Faulted / Ball & Pillow structure; 6150 AP 5153 PS; 6160 AP 5154 PS; 6185 AP 5155 PS, AP 5156 SR — sh, black-gray, highly folded, faulted area, highly distorted beds. Samples 5345 & 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 is measured down on the up (SE) side of the fault. SS, as above
- 6260 AP 5157 PS — sh, black, coaly, plant impressions, subbituminous coal, wood, claystone, green-brown
- 6285 AP 5158 PS, AP 5159 SR; 6310 AP 5160 PS — SS, gray, v crse-gran, SA-A, up sort, poor porosity, some carbonaceous material. ANDESITE SILL. Siltstone, gray, massive. Shale, black, coaly
- 6350 AP 5161 PS, AP 5162 SR — 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 SS, gray f-ang, p. sorted, low porosity, conc. as above
- 6410 AP 5163 PS — Alt. ss, & sh as above
- Andesite intrusive. SS, gray, med-crse, A-SA, p. sorted, low porosity, massive.
- 6495 AP 5165 PS — sh., gray, silty, highly indurated
- 6515 AP 5166 PS — SS, as above. claystone, dk gray
- 6540 AP 5169 PS; AP 5170 SR — 15-20' covered interval. mudstone, dk gray, silty, some iron, carbonaceous plant frags.
- 6565 AP 5171 PS; LEG G / LEG H — 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
- 6780 AP 5172 PS — shale, gray, some thin interbeds of fine tan siltstone with numerous burrows - chondrites?
- Covered interval
- 6865 AP 5173 PS; AP 5174 SR — ANDESITE INTRUSIVE. sh, black, fissile, thin ½" thick siltstone interbeds. Andesite dike
- 6905 AP 5176 PS — sh, as above, some ferruginous minerals
- 6955 AP 5177 PS; AP 5178 SR — occasional siltstone & vf ss, thin interbeds. occasional andesite dikes
- 7000' — Last visible outcrop going downsection 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.