

DIAMOND DRILL LOG

HOLE No. 87-I1

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| | | | | | | | | | | | | | |
|-------------|--|-----------|-------------|---------|--------|------------|------------|---------------|---------------|----------------|----------------|-----|-----|
| Property | MIDNIGHT GULCH | NTS | 105 D/2 | Claim | TON | Elevation | 4900' | Azimuth | 220° | Length | 339' | Dip | -50 |
| Coordinates | 4440N/1120W | Dip Tests | -50° at EOH | Advance | 217.9' | Depth | 259.7' | Date Collared | JULY 19, 1987 | Date Completed | JULY 22, 1987 | | |
| Purposes | TEST JUNCTION OF 2 MAJOR LINCMENTS & MINERALIZATION AT TUN SHOWING | | | | | Drilled by | CARON D.D. | Assays by | ACME | Logged by | WUGH MALKINSON | | |

| Interval | | Rec'y % | RQD | DESCRIPTION | Sample No. | Interval | | Core Width | Cu | Fe | Mn | Al | Si | Ti | |
|----------|----------------|---------|------|---|------------|----------------|----------------|------------|----|----|----|----|----|----|--|
| From | To | | | | | From | To | | | | | | | | |
| 0 | 14' (1.22m) | | | CASING | | | | | | | | | | | |
| 4' | 29' (8.23m) | | | ANDESITIC LAPILLI TUFF & TUFF | | | | | | | | | | | |
| 0 | 40.5' | 22 | 0.18 | 4'-16' : Dark green lapilli tuffs w/ 7% < 15mm angular fragments. Blocky & broken core. 6" flow w/ 10% 5mm matrix (chlorite?) phenocrysts at 13'; flow contact @ 15.5' to CIA. 16'-17'6" : Dark greyish green moderately silicified lapilli tuff. 17'6" - 22' : Dark green lapilli tuff grading into fine grained tuff. | | | | | | | | | | | |
| | | | | 22' - 24' : Dark green to grey green, brecciated tuffs, w/ some silicification of bx. Bx band variable thickness & orientation to CIA. Slightly vuggy w/ calcite infilling. 24' - 26' : Brownish green to grey green, weakly porphyritic, 'chaotic' silicified to unsilicified tuffs. 26' - 27' : Brownish green, fine grained tuff, massive. Lower contact broken. | 8485 | 22' (6.71m) | 24' (7.32m) | 2' | 27 | 6 | 81 | .4 | 5 | 1 | |
| 29' | 32' (9.75m) | | | FINE GRAINED ALT'D RHYOLITE PORPHYRY Purplish brown, w/ 35% < 1mm feldspar xts in an aphanitic matrix. 5-10% limonitization spotting, may also be silicified. Fracturing & giv. increase with depth. Sericite & limonite along fractures, with up to 50% limonite in 8mm qtz & 1% py. mostly broken core. | 8486 | 29' (8.84m) | 32' | 3' | 13 | 6 | 21 | .3 | 2 | 1 | |

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| Interval | | Recy % | ROD | DESCRIPTION | Sample No. | Interval | | Core Width | | | | | | |
|----------|----------|--------|------|---|------------|----------|----------|------------|-----|---|-----|----|---|---|
| From | To | | | | | From | To | | | | | | | |
| 32' | 38'6" | | | ALT'D & SHEARED PORPHYRITIC ANDESITE (?) FLOW | | | | | | | | | | |
| | (11.73m) | | | | | | | | | | | | | |
| | | | | Buss orangish brown, w/ 10-15% 1-4mm elongate (lenticular) sericitically & carbonate altered feldspars in a fine grained limonite & carbonate (Fe + Ca) alt'd matrix. Foliation @ 50° to CIA. | 8487 | 32' | 33' | 1' | 9 | 9 | 35 | .1 | 4 | 1 |
| | | | | | 8488 | 33'6" | 37' | 3'6" | 7 | 9 | 26 | -2 | 2 | 1 |
| | | | | | | (10.21m) | (11.28m) | | | | | | | |
| | | | | - 32' - 33': 2 ± 1cm qtz - limonite vns with 1-3% 1mm py | | | | | | | | | | |
| | | | | - 33' - 33'6" & 37' - 38': Rounded pebbles; overburden seam (?) | | | | | | | | | | |
| | | | | - 38'4" - 38'6": Carbonate alt'd fault gouge. Sharp contacts both roughly ⊥ to CIA. | 8489 | 38' | 38'6" | 6" | 13 | 9 | 23 | -1 | 2 | 2 |
| | | | | | | (11.58m) | | | | | | | | |
| 38'6" | 86' | | | ANDESITIC TUFF, LAPILLI TUFF AND FLOWS. | | | | | | | | | | |
| | (26.21m) | | | | | | | | | | | | | |
| 40.5 | 95 | 98 | 0.70 | - 38'6" - 41': Dark brownish green, v. fine to fine grained tuffs. Strong sericitic alt. at top of unit, weak limonitization throughout rest. 1% carb fracture filling. | | | | | | | | | | |
| | | | | - 41' - 45': 'mottled' lapilli tuff, moderately chloritized. 1% 2mm to 30mm jasper clasts (w/ 1% py). 3% hairline to 5mm carbonate fracture filling. Trace disc py. | 8490 | 43' | 45' | 2' | 159 | 6 | 109 | .5 | 6 | 1 |
| | | | | - 45' - 46': Dark green, amygdaloidal flow, w/ 1-2mm amygdules filled with calcite & chlorite. | | (13.11m) | (11.72m) | | | | | | | |
| | | | | - 46' - 52': Green to dark green, highly fractured; moderately epidotized & strongly carbonatized along fractures. Fractures most commonly 20-30° to CIA. | | | | | | | | | | |
| | | | | Combination of tuffs & flows | | | | | | | | | | |
| | | | | - 52' - 53': 'mottled' lapilli tuff. | | | | | | | | | | |
| | | | | - 53' - 67': Dark green, principally mottled lapilli tuff with small flow units. Moderate chloritization weak epidotization | | | | | | | | | | |

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| Interval | | Recy % | RQD | DESCRIPTION | Sample No. | Interval | | Core Width | | | | | | |
|----------|--------|--------|------|---|------------|----------|-------|------------|-----|----|-----|----|---|---|
| From | To | | | | | From | To | | | | | | | |
| | | | | - 67' - 83' Dark green, principally weakly porphyritic flows w/ 3% 1-mm chloritized or epidotized mafic for feldspar phenocrysts. Several mottled sections; minor lapilli tuffs & flow breccias. Strongly epidotized at 78'. <1% calcite filled tension fractures. Grades into fine grained nonporphyritic tuffs at base. 81' as 8" amygdaloidal flow. | | | | | | | | | | |
| | | | | - 83' - 86' Dark green, mottled lapilli tuff, strongly epidotized at base. | | | | | | | | | | |
| 86' | 87' | | | RYOLITIC OVERBURDEN (?) | | | | | | | | | | |
| | 26.52m | | | 80% pinkish brown fine grained rhyolite & 20% andesitic volcanic core rubble fragments. | | | | | | | | | | |
| 87' | 107'4" | | | ANDESITIC VOLCANICS | | | | | | | | | | |
| | 32.12m | | | Dark green, green to greenish grey flows, tuffs & lapilli tuffs. Scattered epidote vns & fracture fillings. Several generations of vns including qtz vnts, carb vnts & fracture fillings, & epidote. Py, chalcocite, malacite &/or bornite occur in trace amounts in amygdules, qtz vnts, along epidote & qtz vns & in fractures. Good recovery. | | | | | | | | | | |
| 95' | 111' | 94 | 0.33 | - 87-90' Mottled lapilli tuffs & tuff bx (?), 88' & 88'6" | 8491 | 87' | 89' | 2' | 156 | 10 | 130 | .1 | 2 | 1 |
| | | | | 5 to 10 mm epidote vns at 50°-60° to C.A. Trace cpx, py, mal & bornite | | | 27.13 | | | | | | | |
| | | | | - 90' - 93'6" Moderate to strongly epidotized porphyritic & amygdaloidal flows (w/ cpx, mal & py) grading into fine gr. tuffs. | 8492 | 90' | 92' | 2' | 87 | 5 | 124 | .1 | 8 | 2 |
| | | | | - 93'6" - 94'6" mottled lapilli tuffs | | | | | | | | | | |

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| Interval | | Rec'y % | RQD | DESCRIPTION | Sample No. | Interval | | Core Width | | | | | | |
|----------|--------|---------|------|--|------------|----------|------|------------|-----|---|-----|----|---|---|
| From | To | | | | | From | To | | | | | | | |
| | | | | - 94'6" - 100' : Porphyritic to amygdaloidal flows & tuffs. Chloritization of mafic phenocrysts. | | | | | | | | | | |
| | | | | - 100' - 103'6" : Mottled lapilli tuff w/ trace malacopy along fractures. minor epidote-calcite vns & b x vns at 50-60° to C.A. | 8493 | 100' | 102' | 2' | 303 | 7 | 136 | -1 | 8 | 3 |
| | | | | - 103'6" - 107'4" : Grades from 1mm amygdaloidal flows into mottled lapilli tuff. | | | | | | | | | | |
| 107'4" | 109'6" | 33.5% | | ALTERNATING (GRADED) ANDESITIC LITHIC TUFF | | | | | | | | | | |
| | | | | Sequence of finegrained dark green tuff or in some case may be flows grading into greyish white. 30% 1-2mm euhedral xstls, 15% $\leq 10\mu m$ lithic fragments in a silicified, chloritized & fractured matrix. Unit is repeated 7 times with each bed from 2cm to 9cm thick. Contacts commonly 75-85° to C.A. | | | | | | | | | | |
| 109'6" | 126' | 38.40% | | MIXED ANDESITIC VOLCANICS | | | | | | | | | | |
| III | 126 | 80 | 0.65 | Succession starting at top w/ tuff, mottled lapilli tuff, mottled xtal tuff then fine grained tuff. | | | | | | | | | | |
| | | | | Switch to NQ at III' | | | | | | | | | | |
| 126' | 150' | 45.70% | | ALT'D ANDESITIC VOLCANICS + RHYOLITE | | | | | | | | | | |
| 126 | 136 | 55 | 0.25 | Buff orangish brown, ^{bleached} carbonate (Fe & Ca), limonite & sericite tuff, lapilli tuff & porphyritic flows. Moderately foliated in places at 55-60° to C.A. 40% blocky & broken core. Sct fn gr py $\leq 1\%$. | | | | | | | | | | |

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| Interval | | Rec'y % | RQD | DESCRIPTION | Sample No. | Interval | | Core Width | | | | | | |
|----------|-------|---------|-----|--|------------|----------|--------|------------|----|----|----|-----|----|----|
| From | To | | | | | From | To | | | | | | | |
| | | | | - 129'6" - 135'1" : sheared, ^{caliche} porphyritic flows & fault gouge. Poor rec'y. | 8494 | 129'6" | 135'1" | 5'6" | 29 | 10 | 67 | .4 | 8 | 11 |
| | | | | - 135'1" : Potential small rhyolite unit, ^(41.15%) v. poor rec'y. | 8495 | 135'1" | 140' | 5' | 26 | 10 | 64 | 1.8 | 20 | 34 |
| | | | | - 146' - 146'6" : Greenish white sericitized & 3mm feldspars in a strongly silicified brilliant orange aphanitic matrix - rhyolite porphyry? | | | | | | | | | | |
| 150' | 218' | | | ALT'D RHYOLITE + RHYOLITE PORPHYRY | | | | | | | | | | |
| | | | | Orangish-pinkish brown becoming greyish, at depth. Fe carb, limonitized (?) bleached | 8496 | 151' | 154' | 3' | 7 | 6 | 18 | .6 | 6 | 13 |
| | | | | or silicified &/or sericitized - | 8497 | 154' | 156' | 2' | 14 | 5 | 26 | .5 | 3 | 6 |
| 176 | 227.5 | 78 | 027 | aphanitic matrix w/ sericitized &/or 'bleached' feldspars. Alteration & fracturing less intense with depth. Tr to 1% py. | 8498 | 156' | 161' | 5' | 9 | 6 | 21 | .3 | 5 | 4 |
| | | | | 1-2% hairline to 4mm q.v.s. usually with an accompanying alteration halo. Limonite and/or Fe carb (ankerite) along 40% of fractures & veins. 1-2% carbonate vns & tension gash fillings. Upper core mostly broken. Trace of volcanic xenoliths. Qtz veining decreases w/ depth | 8499 | 161' | 166' | 5' | 13 | 11 | 32 | .5 | 7 | 17 |
| | | | | - 151' - 154' : Strong bleaching, 3% q.v., 2% fractures; 1% py. | 8500 | 188' | 190' | 2' | 4 | 11 | 30 | .3 | 2 | 12 |
| | | | | - 154' - 156' : As above but 5mm sericitized q.v. at 155' | 8501 | 207' | 210' | 3' | 5 | 16 | 30 | .3 | 5 | 20 |
| | | | | - 156' - 161' : moderate to strong bleaching, sericitized & silicified around q.v. | 8502 | 210' | 212' | 2' | 4 | 7 | 31 | .2 | 7 | 6 |
| | | | | - 161' - 166' : mostly broken & blocky core | | | | | | | | | | |
| | | | | - 166' - 188' : moderately altered rhyolite porphyry w/ 3-7% 1-2mm phen | | | | | | | | | | |

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| Interval | | Rec'y % | RQD | DESCRIPTION | Sample No. | Interval | | Core Width | | | | | | |
|----------|--------|---------|------|---|------------|----------|--------|------------|---|-----|----|----|----|----|
| From | To | | | | | From | To | | | | | | | |
| | | | | - 188' - 190' : 4% py fracture filling, 4mm qtz-carb vn at 50° to C.A. & strongly altered 'cumby' core. | | | | | | | | | | |
| | | | | - 190' - 207' : Rhyolite porphyry as before, but most feldspar are rimmed w/sericitic centres. | | | | | | | | | | |
| | | | | - 207' - 212' : Strongly alt'd | | | | | | | | | | |
| | | | | - 213' : Q.v. with 2mm euhedral py | 8503 | 212'6" | 213'6" | 1' | 4 | 10 | 24 | .3 | 2 | 2 |
| | | | | - 216'6" : Sericitized 2cm bx | 8504 | 216' | 217' | 1' | 4 | 10 | 25 | .4 | 4 | 2 |
| | | | | - 217-218' : Core rubble | | | | | | | | | | |
| 218' | 227' | | | MIXED ALT'D RHYOLITE & ANDESITIC TUFF | | | | | | | | | | |
| | 69.19% | | | | | | | | | | | | | |
| | | | | - 218' - 219' : Orangish brown fgnr. tuff | | | | | | | | | | |
| | | | | - 219' - 220'6" : Alt'd (as above) rhyolite, bx at top, patchyitic toward base | | | | | | | | | | |
| | | | | - 220'6" - 222'6" : Dark green fgnr. xtal tuff w/ 10% 1mm chlorite phenocryst, unit orangish brown where bleached. | | | | | | | | | | |
| | | | | - 222'6" - 227' : Alt'd rhyolite; silicified, bleached (sericite, limonite & Fe carb), with 4mm qtz-ankerite (?) vn & fracture filling. Lower contact @ 85° to C.A. (broken). | 8505 | 222'6" | 224' | 1'6" | 6 | 11 | 20 | .3 | 8 | 4 |
| | | | | | 8506 | 224' | 227' | 3' | 5 | 177 | 39 | .7 | 11 | 13 |
| 227' | 236' | | | ANDESITIC TUFF | | | | | | | | | | |
| | 71.93% | | | | | | | | | | | | | |
| 227.5 | 251 | 93 | 0.55 | Dark brownish green, fine grained, weakly foliated at @ 65° to C.A.; limonitically bleached at top, & weakly chloritized throughout remainder of section. <1% 1-3mm q.v. at 60-80° to C.A., in addition qtz-albite fracture fillings at @ 25° to C.A. | | | | | | | | | | |

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| Interval | | Rec'y % | RQD | DESCRIPTION | Sample No. | Interval | | Core Width | | | | | | |
|----------|--------|---------|------|--|------------|----------|------|------------|---|----|----|----|----|---|
| From | To | | | | | From | To | | | | | | | |
| 236' | 245' | | | MIXED ANDREITIC LAPILLI TUFF & FELSIC LAPILLI FLOWS | | | | | | | | | | |
| | 14.5m | | | | | | | | | | | | | |
| | | | | - 235' - 237'6": As above but with lapilli fragments < 1cm & weakly bleached | | | | | | | | | | |
| | | | | - 237'6" - 239': Dark purplish grey, porphyritic w/ 5% 3mm phen in an aphanitic matrix. | | | | | | | | | | |
| | | | | 5% 1-2mm qtz - Rhyolite flow | | | | | | | | | | |
| | | | | - 238' - 239': Lapilli tuff as above | | | | | | | | | | |
| | | | | - 239' - 239'6": Rhyolitic flow as above. | | | | | | | | | | |
| | | | | - 239'6" - 245': Lapilli tuff as above but slightly more bleached, becomes tuffaceous at depth. Lower contact sharp 55° to C.A. | | | | | | | | | | |
| 245' | 252' | | | RHYOLITE PORPHYRY | | | | | | | | | | |
| | 16.5m | | | | | | | | | | | | | |
| | | | | Dark purplish grey to orangish brown, w/ 2% subhedral to euhedral 2-3mm plagioclase phenocrysts in an aphanitic & occasionally flow banded matrix. Slightly bleached. | | | | | | | | | | |
| 252' | 272' | | | ALT'D RHYOLITE PORPHYRY | | | | | | | | | | |
| | 32.91m | | | | | | | | | | | | | |
| 251' | 266' | 81 | 0.26 | Orangish to light greenish brown, fc carb, sericitized &/or silicified, w/ Mn & weak carb alteration along fractures. 1-5% qtz, w/ 1-2% subhedral py. 2-7 2cm irregular tuff bands near top of unit. Variable amounts of bleaching. 3-5% fractures at base with ankerite(?), py infilling. Variable orientation; commonly // 20° to 200° to C.A. | 8507 | 252' | 254' | 2' | 4 | 2 | 24 | .1 | 4 | 1 |
| | | | | | 8508 | 256' | 258' | 2' | 5 | 15 | 34 | .2 | 6 | 4 |
| | | | | | 8509 | 267' | 272' | 5' | 4 | 20 | 43 | .3 | 11 | 2 |

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| Interval | | Rec'y % | RQD | DESCRIPTION | Sample No. | Interval | | Core Width | | | | | | |
|----------|---------|---------|------|---|------------|----------|--------|------------|-------------|----|----|----|---|---|
| From | To | | | | | From | To | | | | | | | |
| 272' | 276' | | | RHYOLITE QUARTZ-FELDSPAR PORPHYRY | | | | | | | | | | |
| | 280' | | | Light greenish to orangish brown, mostly Fe bleached w/ 8% (5% plagioclase, 3% qtz) 1-2mm euhedral to subhedral phenocrysts, in an aphanitic matrix. Becomes a purplish grey porphyry at base. Lower contact 50-60° to C.A. | | | | | | | | | | |
| 276' | 277'6" | | | FINE GRAINED ALT'D ANDESITIC TUFF | | | | | | | | | | |
| | 281'50" | | | Light green where chloritized & brownish grey toward contacts where bleached w/ 2mm qtz-aplite vns/fracture fillings at 20° to C.A. | | | | | | | | | | |
| 277'6" | 279'6" | | | RHYOLITE PORPHYRY | | | | | | | | | | |
| | | | | Dark purplish grey porphyry, as before, grading into a flow banded rhyolite. | | | | | | | | | | |
| | | | | - 278'6": 3cm lapilli tuff band | | | | | | | | | | |
| 279'6" | 295'6" | | | ALT'D ANDESITIC LAPILLI TUFF | | | | | | | | | | |
| | 9026 m | | | | | | | | | | | | | |
| 286 | 301'5" | 52 | 0.08 | Dark green w/ either limonitic or sericitic bleaching. | | | | | | | | | | |
| | | | | - 287' - 294'6": Blocky & v. broken core | | | | | | | | | | |
| 295'6" | 302'6" | | | MIXED ALT'D ANDESITIC VOLCANICS & RHYOLITE | | | | | | | | | | |
| | 921'50" | | | | | | | | | | | | | |
| 301 | 316 | 70 | 0.30 | Very blocky & broken core w/ 80% rhyolite fragments, 30% quartz in rhyolite, 30% rec'y. | BS10 | 300'6" | 302'6" | 2' | (35% rec'y) | | | | | |
| | | | | | | | | | 10 | 41 | 90 | .5 | 5 | 4 |
| 302'6" | 315' | | | ANDESITIC CRYSTAL TUFF (OR PORPHYRIC FLOW) | | | | | | | | | | |
| | 96'50" | | | | | | | | | | | | | |
| | | | | Dark green, w/ 30% 0.5-1mm chlorite (matrix) grading to 1-2mm feldspar xtals < 1% \leq 2mm carbonate (calcite) vns. | | | | | | | | | | |

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| Interval | | Rec'y % | RQD | DESCRIPTION | Sample No. | Interval | | Core Width | | | | | | | |
|----------|-----------|---------|------|---|------------|----------|--------|------------|----|----|----|----|---|---|--|
| From | To | | | | | From | To | | | | | | | | |
| | | | | - 309' : 2 cm qtz-chlorite-carbonate vn at 75° to CIA. | | | | | | | | | | | |
| | | | | - 311'-313' : V. blocky & broken core (rubble) | | | | | | | | | | | |
| | | | | - 312'6"-313'6" : Qtz-epidote-calcite- chlorite-mn oxide vn + fracture filling. Trace py | 8511 | 312'6" | 313'6" | 1' | 61 | 7 | 68 | .2 | 2 | 1 | |
| 315' | 328'6" | | | ANDESITIC VOLCANICS | | | | | | | | | | | |
| | (100.15m) | | | variably alt'd | | | | | | | | | | | |
| 316 | 339 | 83 | 0.07 | Dark green, A tuffs (lithic lapilli & crystal) | 8512 | 315'6" | 317' | 1'6" | 23 | 9 | 70 | .1 | 6 | 2 | |
| | | | | - 315'6"-316' : Fault gouge, carb alt. | | | | | | | | | | | |
| | | | | - 316'-317' : Broken core, v. poor rec'y | | | | | | | | | | | |
| | | | | - 317'-325' : Broken core, lapilli tuff, 5% carbonate fracture filling | 8513 | 325' | 326' | 1' | 7 | 10 | 59 | .1 | 9 | 3 | |
| | | | | - 325'-326' : V. poor rec'y, clay, limonite & carb alt'd tuff. | | | | | | | | | | | |
| | | | | - 326'-328'6" : Bleached-limonitized calcite, & well foliated xtal tuff & lapilli tuff. | | | | | | | | | | | |
| 328'6" | 330' | | | ALT'D RHYOLITE | | | | | | | | | | | |
| | (100.38m) | | | | | | | | | | | | | | |
| | | | | Grey to light green, strongly sericitized & qtz veined, v. poor rec'y, broken core | 8514 | 329' | 330' | 1' | 33 | 6 | 37 | .2 | 7 | 3 | |
| | | | | | | | | | | | | | | | |
| 330' | 332' | | | FINE GRAINED FELSIC TUFF (?) | | | | | | | | | | | |
| | (10.19m) | | | | | | | | | | | | | | |
| | | | | Pinkish grey, w/ 0.5mm angular qtz fragments, + 5% <0.5mm diss magnetite(?). May be a frag. granodiorite? | | | | | | | | | | | |
| 332' | 339' | | | ANDESITIC XTAL TUFF | | | | | | | | | | | |
| | (10.31m) | | | | | | | | | | | | | | |
| | | | | Dark green, fn to med. grained, 1% calcite fracture fillings (miner. bx). Mostly broken core | | | | | | | | | | | |
| | | | | - 335' : 4 cm, silicified & sericitized rhyolite porphyry. | | | | | | | | | | | |
| | | | | E.O.H. | | | | | | | | | | | |

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