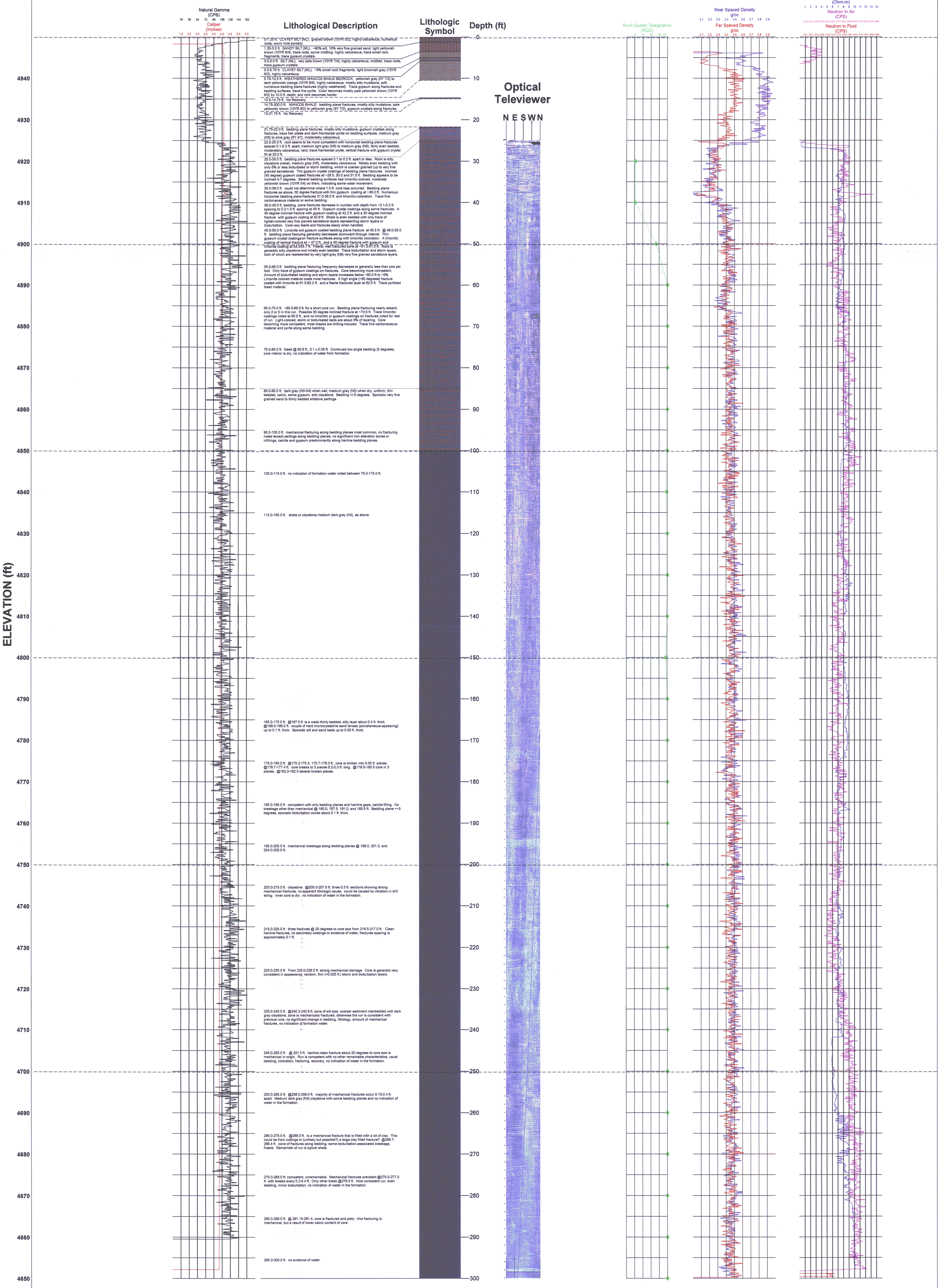
CRJ01-0207



0-1.25 ft. CLAYEY SILT (ML); grayish brown (10YR 5/2), highly calcareous, numerous roots, worm hole porosity.

1.25-3.5 ft. SANDY SILT (ML); ~90% silt, 10% very fine grained sand, light yellowish brown (10YR 6/4), trace roots, some mottling, highly calcareous, trace small rock fragments, trace gypsum crystals.

3.5-5.0 ft. SILT (ML); very pale brown (10YR 7/4), highly calcareous, mottled, trace roots, trace gypsum crystals.

5.0-5.75 ft. CLAYEY SILT (ML); ~5% small rock fragments, light brownish gray (10YR 6/2), highly calcareous.

5.75-10.5 ft. WEATHERED MANCOS SHALE BEDROCK; yellowish gray (5Y 7/2) to dark yellowish orange (10YR 6/6), highly calcareous, mostly silty mudstone, soft, numerous bedding plane fractures (highly weathered). Trace gypsum along fractures and bedding surfaces, trace fine pyrite. Color becomes mostly pale yellowish brown (10YR 6/2) by 10.0 ft. depth, and rock becomes harder.

10.5-14.75 ft. No Recovery.

14.75-300.0 ft. MANCOS SHALE: bedding plane fractures, mostly silty mudstone, pale yellowish brown (10YR 6/2) to yellowish gray (5Y 7/2), gypsum crystals along fractures.

15-21.75 ft. No Recovery.

21.75-22.0 ft. bedding plane fractures, mostly silty mudstone, gypsum crystals along fractures, trace fish plates and dark framboidal pyrite on bedding surfaces, medium gray (N5) to olive gray (5Y 4/1), moderately calcareous.

22.0-25.0 ft. rock seems to be more competent with horizontal bedding plane fractures spaced 0.1-0.2 ft. apart, medium light gray (N8) to medium gray (N5), fairly even bedded, moderately calcareous, hard, trace framboidal pryite, vertical fracture with gypsum crystal fill at 23.0 ft.

25.0-35.0 ft. bedding plane fractures spaced 0.1 to 0.2 ft. apart or less. Rock is silty claystone overall, medium gray (N5), moderately calcareous. Mostly even bedding with only 5% or less bioturbated or storm bedding, which is coarser grained (up to very fine grained sandstone). Thin gypsum crystal coatings of bedding plane fractures. Inclined (45 degree) gypsum coated fractures at ~28.5, 30.0 and 31.5 ft. Bedding appears to be inclined 5-7 degrees. Several bedding surfaces had limonitic-colored, moderate yellowish brown (10YR 5/4) on them, indicating some water movement.

35.0-38.0 ft. could not determine where 1.0 ft. core loss occurred. Bedding plane fractures as above, 30 degree fracture with thin gypsum coating at ~36.0 ft. Numerous horizontal bedding plane fractures 37.0-38.0 ft. and limonitic-coloration. Trace fine carbonaceous material on some bedding.

38.0-45.0 ft bedding plane fractures decrease in number with depth from ~0.1-0.2 ft. spacing to 0.2-1.0 ft. spacing at 45 ft. Gypsum crystal coatings along some fractures. A 45 degree inclined fracture with gypsum coating at 42.2 ft. and a 30 degree inclined fracture with gypsum coating at 42.9 ft. Shale is even bedded with only trace of lighter-colored very fine grained sandstone layers representing storm layers or bioturbation. Core very fissile and fractures easily when handled.

45.0-55.0 ft. Limonite and gypsum coated bedding plane fracture. at 45.5 ft. @ 48.0-55.0 ft. bedding plane fracturing generally decreases downward through interval. Thin gypsum crystal coatings on fracture surfaces along with limonitic coloration. A limonitic coating of vertical fracture at ~ 47.0 ft., and a 45 degree fracture with gypsum and limonite coating at 3.4-3.54.7 ft. Fissile, well fractured zone at ~51.0-51.5 ft. Rock is generally silty claystone and mostly even bedded. Trace bioturbation and storm layers, both of which are represented by very light gray (N8) very fine grained sandstone layers.

55.0-65.0 ft. bedding plane fracturing frequency decreases to generally less than one per foot. Only trace of gypsum coatings on fractures. Core becoming more competent. Amount of bioturbated bedding and storm layers increases below ~60.0 ft to ~5%. Limonite colored material coats most fractures. A high angle (~60 degrees) fracture coated with limonite at 61.3-62.2 ft. and a fissile fractured layer at 62.5 ft. Trace pyritized fossil material.

65.0-75.0 ft. ~65.0-65.5 ft. for a short core run. Bedding plane fracturing nearly absent, only 2 or 3 in this run. Possible 30 degree inclined fracture at ~73.5 ft. Trace limonitic coatings noted at 65.5 ft., and no limonitic or gypsum coatings on fractures noted for rest of run. Light-colored, storm or bioturbated beds are about 3% of layering. Core becoming more competent, most breaks are drilling-induced. Trace fine carbonaceous material and pyrite along some bedding.

75.0-85.0 ft. fossil @ 80.6 ft., 0.1 x 0.05 ft. Continued low angle bedding (5 degrees), core interior is dry, no indication of water from formation.

85.0-95.0 ft. dark gray (N3-N4) when wet, medium gray (N5) when dry, uniform, thin bedded, calcic, some gypsum, silty claystone. Bedding +/-5 degrees. Sporadic very fine grained sand to thinly bedded siltstone partings.

95.0-105.0 ft. mechanical fracturing along bedding planes most common, no fracturing noted except partings along bedding planes, no significant iron alteration zones or infillings, calcite and gypsum predominantly along hairline bedding planes.

105.0-115.0 ft. no indication of formation water noted between 75.0-175.0 ft.

115.0-185.0 ft. shale or claystone,medium dark gray (N4), as above.

185.0-175.0 ft. @167.5 ft. is a weak thinly bedded, silty layer about 0.4 ft. thick. @168.0-169.0 ft. couple of hard microcrystalline sand lenses (porcelaneous-appearing) up to 0.1 ft. thick. Sporadic silt and sand beds up to 0.05 ft. thick.

175.0-185.0 ft. @175.2-175.4, 175.7-176.3 ft., core is broken into 0.05 ft. pieces. @176.7-177.4 ft. core breaks to 3 pieces 0.2-0.3 ft. long. @179.5-180.5 core in 3 pieces. @182.0-182.5 several broken pieces.

185.0-195.0 ft. competent with only bedding planes and hairline gaps, calcite filling. No breakage other than mechanical @ 185.0, 187.5, 191.0, and 193.5 ft. Bedding plane <~5 degrees, sporadic bioturbation zones about 0.1 ft. thick.

195.0-205.0 ft. mechanical breakage along bedding planes @ 198.0, 201.3, and 204.0-205.0 ft.

205.0-215.0 ft. claystone. @205.0-207.5 ft. three 0.3 ft. sections showing strong mechanical fractures, no apparent lithologic cause, could be caused by vibration in drill string. Inner core is dry , no indication of water in the formation.

215.0-225.0 ft. three fractures @ 20 degrees to core axis from 216.5-217.0 ft. Clean hairline fractures, no secondary coatings or evidence of water, fractures spacing is approximately 0.1 ft.

225.0-235.0 ft. From 228.0-228.5 ft. strong mechanical damage. Core is generally very consistent in appearance, random, thin (<0.025 ft.) storm and bioturbation layers.

235.0-245.0 ft. @240.2-240.8 ft. zone of silt size, coarser sediment interbedded with dark gray claystone, zone is mechanically fractured, otherwise the run is consistent with previous runs, no significant change in bedding, lithology, amount of mechanical fractures, no indication of formation water.

245.0-255.0 ft. @ 251.5 ft. hairline clean fracture about 20 degrees to core axis is mechanical in origin. Run is competent with no other remarkable characteristics, usual bedding, coloration, fracturing, recovery, no indication of water in the formation.

255.0-265.0 ft. @256.0-259.0 ft. majority of mechanical fractures occur 0.15-0.4 ft. apart. Medium dark gray (N4) claystone with some bedding planes and no indication of water in the formation.

265.0-275.0 ft. @266.0 ft. is a mechanical fracture that is filled with a lot of clay. This could be from cuttings or (unlikely but possible?) a large clay filled fracture? @268.7-269.4 ft. zone of fractures along bedding, some bioturbation-associated breakage, friable. Remainder of run is typical shale.

275.0-285.0 ft. competent, unremarkable. Mechanical fractures prevalent @275.0-277.0 ft. with breaks every 0.2-0.4 ft. Only other break @279.5 ft. Nice consistent run, even bedding, minor bioturbation, no indication of water in the formation.

285.0-295.0 ft. @ 291.15-291.4, core is fractured and platy - this fracturing is mechanical, but a result of lower calcic content of core.

295.0-300.0 ft. no evidence of water.