LITHOLOGIC LOG

Project: McCoy

Hole: 25-9

Elevation: _____ Date Drilled: _____

Location: _____ Method: _____

Geologist: _____ Gamma: _____

Depth (')	Description
	brown, lt. brown, red-brown, white, gray v.f.g. qtzite. 58% (!) red-purple silicified siltstone conglomerate or fault breccia with very angular clasts of chert, qtzite, and silt-st. Many have calcite veins, caps. Calcite shows stress in curved cleavage faces.
1650-1660	As above, but no clay minerals present. Few pebbles of graywacke with micaceous flakes (muscovite). Appearance of green/lime-green chert w/iron staining (PPh?). (Note: basal T_{rc} unit mapped east of 864-90 contains siltstones and conglomerates with identical micaceous flakes).
1660-1690	As above (1640-1660), but increasing amount of green, green w/red iron stains on micro-fractures chert (20-75% of total). Fault breccia still present (10-50%). Very little graywacke (PPh).
1690-1740	As above with 30-60% green, gray, dk. green chert. 20-30% silty graywacke which is now slightly calcareous and has pheocrysts of qtzite (no micaceous flakes). 0-10% brown qtzite (f.g.).
1740-1750	No sample.
1750-1880	40-80% green-gray chert as angular gravel size chips. 15-45% reddish brown-purple silicified siltstone gravel size chips. 5-30% gray brown quartzite gravel size chips (P_{ph}). 5-30% graywacke (calcareous w/SiO_2 phenocrysts - not micaceous).
1880-2000	80-90% chert and dark purple/brown silicified silt-st.; 10-20% buff to gray quartzite; occasional rock fragments of T_{rc} chert gravel-pebble conglomerate from uphole - very iron-stained. (Note: Both the chert (green, lime-green, dk. green iron stained on micro-fractures green) and the silicified silt-st. (dark reddish-purple brown to reddish orange to gray-orange) were mapped as outcrops and low "rubble" hills 1-2 miles east of 25-9 and 1-3 miles east of 864-90. Hand samples of these PP Havallah sequence rocks are available - see Avery's rock collection!).

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Hole: 25-9

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Depth (ft)	Description
990-1090'	30-90% chert/qtzite subrounded-subangular gravel conglomerate with green, gray, brown chert and gray qtzite (as before, T_{rc}) 10-70%. F.g.-f.c. gray quartzite.
1090-1100'	40-50% conglomerate as above; 60-50% orange-gray sandy silt-st.
1100-1200'	30-50% greenish gray chert, rounded-angular pebble-gravel size chips-clasts. 30-50% gray, brownish-gray f.g. qtzite; 10-40% silty ss (orange-gray). T_{rc}
1200-1440'	50-95% chert, qtzite, chert/qtzite conglomerate (T_{rc}) as before. 5-50% buff, orange-gray or lt. brown-tan silty ss to sandy ss. Appearance of purple/red-gray qtzite, conglomerate. T_{rc}
1440-1460'	60-70% tan-lt. brown sandy silt-st. 30-40% gravel conglomerate. T_{rc}
1460-1540'	40-80% gravel-pebble (T_{rc}) conglomerate. Mostly v.f. gravels, rounded-angular. 20-60% orange-gray to lt. brown silty-ss and sandy silt-st.
1540-1600'	Chocolate-brown qtzite/chert gravel-pebble conglomerate (60% of total). Brown silty-ss, orange-gray sandy ss (40%). T_{rc}
1600-1620'	80-100% chert/qtzite conglomerate w/bedded chert (angular chert clasts 40%).
1620-1640'	50% reddish-purple, silicified, subrounded to rounded silt-st. pebbles and finely crushed silt-st. containing large angular quartz phenocrysts. Many pebbles are graywacke (clay/silt-st. matrix with quartz phenocrysts - see sample!). 30-40% T_{rc} conglomerate as before. 10-20% grayish green qtzite and chert. Havallah Formation.
1640-1650'	Fault zone: about 2% of total is greenish-white, soft (H< 2), w/greasy feel, splintery soapstone (tall and/or other clay minerals). Does not expand when heated. 40%

LITHOLOGIC LOG

Project: McCoy

Hole: 25-9

Elevation: _____ Date Drilled: _____

Location: _____ Method: _____

Geologist: Avery Gamma: _____

Depth ('	Description
840-850'	T_{rc} as before with 20% brown silicified silt-st.
850-880'	Quartzite: f.c. to l.g., dense, well-cemented (gray). Very minor sulfide mineralization (pyrite) as before. T_{rc}
880-900'	30% quartzite as above, 60% dk. gray, dense, silicifed silt-st. Slight effervescence in dilute HCl, with minor sulfide mineralization as granular coatings and in stringers. Very few chips of gray ls with dk. gray silt-st. inclusions (silt-st. slightly calcareous).
900-920'	20% gray Ls, (hardness ≃ 2 1/2); 30% gray-dk. gray calcareous silt-st., (hardness ≃2 1/2-3); gray-lt. gray calcareous ss (hardness ≃4 1/2) and a f.c. silty ss make up 50% of total. T_{rc}
920-940'	As above, with 50% of total sample comprised of dense, gray, non-calcareous quartzite (hardness ≃ 6-7). T_{rc}
940-960'	Quartzite, as above with 50% qtzite/chert gravel conglomerate.
960-970'	30-40% reddish-brown silicified silt-st., some with calcite stringer veings (H ≃4), 50-60% gray, dense, f.c. quartzite (some brownish-gray) (H 6) and about 10% chert/quartzite gravel conglomerate. Minor sulfides (granular pyrite c-pyrite).
970-980'	90% mottled and banded lt. gray - v. dk. gray calcareous silt-st. (H ≃2 1/2 to 3 1/2). Some fragments have f.c. appearance. Minor sulfides as granular fracture fillings, veinlets? 10% or less silt-st. as before. T_{rc}
980-990'	80% gray-dk. gray f.g-f.c. quartzite w/minor sulfides as before. 20% chert/qtzite gravel conglomerate w/minor sulfides as before. T_{rc}

LITHOLOGIC LOG

Project: McCoy

Hole: 25-9

Elevation: _____ Date Drilled: _____

Location: _____ Method: _____

Geologist: _____ Gamma: _____

Depth (')	Description
500-560'	T_{rc} (as before but now all gravel size subrounded to subangular clasts of chert and quartzite with 20-60% orange-gray silty sandstone).
560-580'	T_{rc} as before but now 70% quartzite; 20% silty-ss; 10% chert gravels and pebbles.
580-620'	T_{rc} as before but no orange-gray silty ss.
620-640'	T_{rc} as before with 5-30% silty ss.
640-650'	T_{rc} pebble conglomerate (chert & quartzite about 30-50%).
650-720'	T_{rc} chert, quartzite, and dark brown to reddish brown silicified siltstone gravels and pebbles, rounded to angular, with varying ratios of up to 40% siltstone, 60% quartzite.
720-730'	90% reddish dk. brown silicified siltstone. 10% gravels (T_{rc}).
730-760'	T_{rc} silicified siltstone as above with a siltstone/chert gravel conglomerate in a siltstone matrix (up to 70% matrix).
760-780'	T_{rc} chert/qtzite pebble-gravel conglomerate with siltstone.
780-790'	T_{rc} as above w/20% silt-st. pebbles. Pyrite and chalcopyrite? As granular fracture fillings, coatings.
790-800'	Quartzite: v.f.g. w/distinct black grains in otherwise white quartzite w/blebs or nodules of black, sulfide-rich silicified siltstone.
800-820'	T_{rc} chert/qtzite pebble-gravel conglomerate w/minor pyrite (granular).
820-840'	T_{rc} as before but no mineralization.

LITHOLOGIC LOG

Project: McCoy

Hole: 25-9

Elevation: _____ Date Drilled: _____

Location: _____ Method: _____

Geologist: Avery Gamma: _____

Depth (')	Description
245-260'	Gray-orange sand-st./silty sand-st. conglomerate similar to 155-215' interval.
260-300'	T_{rc} (as before) with iron stained gravel-pebble conglomerate. Addition of a few limestone pebble-size fragments (angular). Some larger fragments of conglomerate (chert-quartzite) in last 20'.
300-320'	Chert T_{rc} conglomerate (60-40%), orange gray silty ss (as in 245-260') (40-60%).
320-330'	90% chert pebble conglomerate (T_{rc}). One clast shows FeS_2, $CuFeS_2$ mineralization (as granular coating on pebble and as stringer vein through pebble).
330-350'	T_{rc} with orange-gray silty ss as in 300-320'. Percent of silty ss drops from 50% to 20% over this interval.
350-360'	80% qtzite chert/qtzite pebble conglomerate: (T_{rc}).
360-390'	Same as 330-350'
390-410'	90% gravel-pebble-boulder chert/qtzite conglomerate: (T_{rc}), 10% silty ss.
410-420'	Gravel size chert/qtzite conglomerate with qtzite (35%): (T_{rc}).
420-440'	Gray-orange silty ss (35%), chert/qtzite conglomerate (65%): (T_{rc}).
440-450'	Same T_{rc} conglomerate with $CuFeS_2$, bornite, pyrite mineralization as granular fracture fillings, coatings, stringers in pebbles of qtzite. Few green/red banded chert clasts.
450-500'	T_{rc} (as before) with up to 50% orange-gray ss sand. (m.g., subrounded grains). Purple color to some conglomerate fragments. Color of ss becomes darker throughout interval.

LITHOLOGIC LOG

Project: McCoy

Hole: 25-9 (864-65)

Elevation: 5776

Date Drilled 26/3/81 thru 3/5/81

Location: NWSW Sec 9 T22N R40E

Method: rotary/air/ and/or mud

Geologist: Avery

Gamma:

Depth ( )	Description
0- 15'	Overburden: Edwards Creek tuff float, and Triassic basal conglomerate float in mud-silt-sand.
15- 65'	Triassic basal conglomerate (T_{rc}): Strongly cemented sub-rounded to subangular gravel and pebble size clasts of brown, reddish brown, red, gray and green chert; white gray and brown quartzite. Cement is SiO_2, with much iron staining along clast edges, in fractures, and in cement itself. Few boulder-size clasts of chert/quartzite.
65- 75'	Same as above, with addition of rounded reddish-purple f.c. quartzite, and yellow-brown chert fragments.
75- 85'	Same as above, with appearance of reddish brown, finely crushed siltstone making up approximately 20-30 % of total sample.
85- 95'	Same as 15'-65', with quartzite clasts ≃80% of total. rounded chert pebbles ≃10% of total. reddish-brown siltstone ≃10% of total.
95-125'	Same as above, but siltstone now ≃30-40% of total.
125-155'	Same T_{rc}, with appearance of buff (orange-gray) ss pebbles, and reddish-buff silt-st. pebbles (both well-rounded/rounded) - new material ≃25-35% of total.
155-215'	T_{rc} with finely crushed, orange-gray silty sand-st. making up between 20% and 55% of total sample in this interval. Rounded-subrounded pebbles (chert/quartzite) still constitute up to 80% of total.
215-225'	Same as above. Silty ss <20% of total now.
225-245'	T_{rc} with 80% white qtzite/qtzite conglomerate that is densely cemented, l.g. qtzite with gravel-size, subangular clasts. Iron staining on fracture faces, and some hydrous copper oxide coatings on some fragments (qtzite retains sedimentary features as opposed to older quartzites such as Valmy, etc.).