

LITHOLOGIC LOG

Project: 864Hole: 38-gElevation: 5169Date Drilled: 16/4/81 thru 9/5/81Location: SESW Sec 9 T23NR40EMethod: rotary/airGeologist: Avery

Gamma: _____

Depth ()	Description
0-15'	Orange-gray silty sandstone, partly silicified, alteration (clay) present, brecciated and containing iron veinlets and staining (50%). Chert-gray/pebble (T _{RC}) conglomerate in silica matrix. Iron-stained.
15-25'	Broken, brecciated, altered (clay) T _{RC} ? silicified silt-st., sandstone, chert congl. Drillers (Pat Edwards) say that rock is fractured, poor drilling. Iron-stained.
25-45'	30-50% of original rock (Ls?) is totally replaced with silica. Some T _{RC} conglomerate (<5%). 50-70% brown, white, gray F-m.g. quartzite.
45-55'	Same. Chips are smaller. Some chert. Strongly iron-stained formation. 20% silty sandstone of an orange-gray color.
55-65'	As above, with 50% T _{RC} chert/qtzite silica cemented conglomerate and 5-45% silty-sandstone of orange-gray color.
65-75'	As above, with 20-60% conglomerate and coarse sandstone. Very iron-stained.
75-85'	As above, w/clay alteration and brecciated conglomerate, chert. Fault?
85-115'	Same as 65-75'.
115-135'	85% chert/qtzite gravel-pebble conglomerate. 10% orange-gray silty-ss matrix of conglomerate? 5% gray-white m.g. qtzite.
135-155'	Very silicified conglomerate as above w/fault breccia & silic. Ls? - original rock totally replaced with silica. Very iron-stained. One fragment with cinnabar. 5-20% silty ss, 20% quartzite.
155-175'	Same as above, but now all silicified rock (Ls?) - no conglomerate, some breccia. Another cinnabar fragment. Iron-stained. Silty ss < 10%.
175-185'	Same as above with 30% f-mg. White-buff qtzite.

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185-215'	Appearance of tan, buff, brown and orange white-gray F.M.G. qtzite. Many chips have black spotty appearance due to pheonocrysts (coarse sand grains). $H \approx 7$. 60-80% total (congl., silicified congl. Ls 20-40%) .
215-225'	60% orange-gray F.M.G. ss. 40% above. (silty-ss too).
225-235'	As above, but ss is siltier, and is sometimes a silty ss congl. with gravel size clasts of chert, 5% red silt st (silicified). Ss is orange-gray to lt. brown.
235-245'	Same as above.
245-255'	Same as above. 50% ss, ss congl.
255-265'	Same as above. 80% ss.
265-275'	Same as above. Some of ss is stained a flamingo pink-red. Mercury?
275-285'	50% tan-gray fg-mg qtzite ($H \approx 7$). 50% congl./silicified Ls.
285-295'	80% gravel-pebble congl. in orange-gray silic. silty ss. Maxtrix.
295-307'	50% gravel-pebble congl. in orange-gray silic. silty ss or silicified. 50% qtzite, brown-orange gray interbedded w/reddish brown silt. st.
307-320'	Red siltstone w/thin interbeds, laminae of tan qtzite as above. 5% green chert angular chips. (PPh).
320-330'	As above with 40-50% red siltst (silic). 30-35% tan-orange qtzite. 15-20% green chert. (PPh).
330-340'	60% gray silicified Ls. No effervescence in acid. Grain size is too small to see w/hand lens and silt. effervescence when scratched. 40% orange gray-brown ss.
340-350'	60-70% orange-gray-brown silty ss. 30-40% gray ss as above.

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350-360'	40% interbedded, thinly bedded orange-gray-brown silty ss. 60% gray-dk. gray chert gravel highly silicified congl. w/rounded-angular chasts.
360-370'	Same as above, but was 80% congl. Very tightly silicified clasts "melted" into each other.
370-380'	70% very silicified conglomerate. 30% brown-orange-gray silty ss. Looks like t _{rc} . Two chips have cinnabar xls.
380-390'	Same as above but now 70% orange-gray silty ss. 30% congl.
390-400'	90% orange-gray to brown silty ss; & ss (f-mg), 10% conglomerate.
400-410'	90% iron-stained, gray silicified Ls, silty ss, orange-gray, 10% conglomerate.
410-420'	50% orange-gray ss (fg), 50% dense, gray silicified Ls or calcareous silt-st.
420-430'	80% dense, gray silic. calc. siltst. or Ls.
430-440'	Dense gray-dk. gray (bedded) siltst. and day st. (H ≈ 4). Some is silicified. Few qtz. w/sulfide picas.
440-450'	Same as above.
450-460'	Brown, brownish green-gray siltst. silty ss. Orange-gray too.
460-470'	Brown, brownish green-gray siltst. silty ss. Orange-gray too.
470-480'	Brown appearance of red silic. siltst.
480-490'	Brown, brown, brownish green-gray siltst. silty ss, but some iron-stained silty ss. Some of it is conglometric.
490-500'	" " " " " "
500-510'	Gray f.g. ss, silty ss, clayst. siltst. (silicified) fractured, iron-stained.

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510-520'	Same as above, but now 50% gravel chert silicified congl.
520-530'	60% gray fg ss, silic. siltstone is gray-reddish gray-silic claystone is white-greenish gray while 40% congl.
530-540'	Dk. gray chert/qtzite gravel congl. Very dense. Silicified. Sulfides occur as granular fracture fillings, coatings, pyrite, c/pyrite, others. Most clasts are well-rounded to subrounded.
540-550'	Lt. gray - gray fg quartzite.
550-560'	Gray-brownish gray fg qtzite (95%) red silicified silt. st. (5%)
560-570'	Gray-brownish gray fg qtzite (60%) red silicified silt. st. (40%)
570-580'	Gray-brownish gray fg qtzite (95%) red silicified silt. st. (5%)
580-590'	Gray-dk. gray chert and qtzite (Fe) sulfides (minor).
590-600'	Gray, thinly bedded vfg qtzite, some silica silt. st., v. minor chert, sulfides (v. minor).
600-610'	Gray-red silicified siltstone, ss, and claystone.
610-620'	Gray-brownish gray fg-vfg qtzite, some silica silt. st., chert (v. minor sulfides)
620-630'	Gray-dk. gray qtzite (fg), chert, and qtzite (chert congl. sulfides).
630-640'	Same but mostly conglomerate (chert/qtzite rounded-angular pebbles).
640-650'	Same as 600-620 - congl. w/sulfides interval 6.
650-660'	95% red silicified silt. st., qtzite (fg)
660-670'	85% " " " "
670-680'	60% " " " "

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680-690'	Same as 600-610', mostly gray chert, qtzite (fg) 10-15% red silt. st.
690-700'	Same as 600-610' with gray qtzite, green-gray chert, and chert congl.
700-710'	" " " " "
710-720'	" " " " "
720-730'	Same as 600-610'
730-740'	Gray silicified siltstone ss, greenish gray chert, iron-staining.
740-750'	Brownish gray qtzite, red silt. st., chert qtzite congl. (20%).
750-760'	Cong., chert, qtzite, 15% red silic. silt. st.
760-770'	Chert, qtzite, congl., minor sulfides.
770-780'	Chert, qtzite, congl., minor sulfides.
780-790'	Same as 750-760' 10% silt. st.
790-800'	" " mostly qtzite.
800-810'	" " w/buff qtzite, green chert, gray-brown qtzite, red silt. st. (5%).
810-820'	Same as above. No buff qtzite.
820-830'	Chert, congl.
830-840'	" ". some minor sulfides.
840-850'	Chert, congl., red silt. st. (30-40%).
850-860'	" " " (40-50%).
860-870'	Chert, congl., buff iron-stained qtzite (25%).
870-880'	" " " " (40%) w/orange-gray ss congl. (30%).

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880-890'	Green-gray chert congl.
890-900'	Mostly brownish-gray chert. 30% congl.
900-910'	" " " "
910-920'	Chert, congl. 50-56
920-930'	as in 890-900.
930-950'	Clear, brown, green chert, gray-brown fg ss minor sulfides w/FeS.
930-940'	Gray, brown-gray, dk. gray chert, qtzite; minor sulfides.
940-950'	Gray, brown-gray, with some red chert. Minor sulfides.
950-960'	Same as above.
960-970'	Same as above 5% red sulfides (minor pyrite).
970-980'	" " " " "
980-990'	" " " " "
990-1000'	" " red chert ≈20% sil. red silt. st. 5%, congl. 20% and/or breccia.
1000-1010'	Same as above, 10% sulfides, congl. 20% and/or breccia.
1010-1020'	Same, no red chert, mostly grayish chert, sulfides, and/or breccia.
1020-1030'	" " " "
1030-1040'	" " " "
1040-1050'	" " " "
1050-1060'	Mostly cong. (green chert, gray-brown qtzite pebbles, gravels). Sulfides.

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1060-1070'	Same but more alteration, breccia. Iron-staining, sulfides less.
1070-1080'	Mostly green-gray chert, & brown chert w/ congl., sulfides.
1080-1090'	Iron-stained chert, qtzite, very little sulfides.
1090-1100'	Iron-stained chert, qtzite, very little sulfides.
1100-1110'	Iron-stained chert, qtzite, very little sulfides.
1110-1120'	Gray-brown-green chert qtzite, minor sulfides & congl.
1120-1130'	" " " "
1130-1140'	" " " "
1140-1150'	" " " "
1150-1160'	Same as 1110-1150' minor sulfides.
1160-1170'	Same as 1110-1150' minor sulfides.
1170-1180'	Same as 1110-1150' minor sulfides.
1180-1190'	Same as 1110-1150' no sulfides.
1190-1200'	More reddish brown F.C. qtzite, chert congl. No sulfides.
1200-1210'	Same as above.
1210-1220'	Mostly brown-gray-green chert (90%). No sulfides.
1220-1230'	Chert, qtzite, no sulfides.
1230-1240'	Same as above
1240-1250'	Same as above
1250-1260'	Same as above

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1260-1270'	Same as above
1270-1280'	Same as above w/minor sulfides (minor pyrite).
1280-1290'	Same as above.
1290-1300'	Same as above.
1300-1310'	plus, silicified siltst. (red): 20% of total.
1310-1320'	Same as above, no sulfides.
1320-1330'	Same as above.
1330-1340'	Gray-green chert, orange-gray-brownish-gray-reddish-brown qtzite, red silic-silt. st. and 40-50% chert gravel congl., <u>v. minor</u> sulfides as FeS ₂ .
1340-1350'	As above.
1350-1360'	Gray-reddish brown qtzite (60%), gray-green chert (20%), chert congl. (20%).
1360-1370'	Chert; qtzite - gray, brown, red, green, yellow, clear.
1370-1380'	" " " "
1380-1390'	Reddish-brown silicified siltstone, silty-qtzite, silt. st. congl. w/some red chert.
1390-1400'	as above, w/ 10% green chert.
1400-1410'	Green chert (iron-stained), brown qtzite, red silic. silt. st.
1410-1420'	Dk. gray-green chert, qtzite as above, <u>fault breccia</u> only and chert congl., minor sulfide as <u>FeS</u> , red silic. silt. st.
1420-1430'	As above, no silt. st.