W-17,391
SFWMD IWSD-TW
SWSW sec 4, T47S R29E
Collier County, Immokalee Quad
GL: ±25' TD: 2354'
Well Completed 01/12/96

Cuttings are available at the Florida Geological Survey cuttings library in Tallahassee. Brief lith log of cuttings by R.S. Caughey in 8/98 & 11/98.

Depth in feet below GL	DESCRIPTION
GL thru 305'	Cuttings were not available when this log was completed. See Martin Balinsky lith log of 08/16/96 for this interval. M. Balinsky lith log is available on the Florida Geological Survey web site or from the FGS in Tallahassee or the Ft. Myers Oil & Gas section, FGS field office.

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Depth in feet below GL	DESCRIPTION
305-315	Loose Qz sand, f-m-c-rare pebble, clear, sltly cloudy, gray, subang-rnd, larger grs are ltly frosted, most grs are med & coarse; 5% Ls, wh & yel gray, fg-vfg, sdy, the yel gray Ls is modly rexal & has small molds; minor loose bl phos grs. Unwashed: As above, with minor loose calc silt & much more fine grs & few coarse & med grs.
315-325	Loose Qz sand as above, with more fines & some v fine, less med & coarse.
325-335	Ls mix: wh, vfg, sltly sdy, rarely phos Ls and wh, modly to stgly rexal, moldic, sltly sdy Ls; some Ls, yel gray, dolomitic(?), sdy to v sdy; minor loose Qz sand, largely med & coarse as above; little to no phos.
335-343	As above, with more loose Qz sand, largely coarse & some pebble size. Unwashed: As above, more Ls, less loose Qz sand & minor wh & grayish wh clays.
343-357	As above, with 5-10% yel gray, sdy-v sdy, fg, dolomitic and 30% loose Qz sand, f-m-a few pebbles. Unwashed: As above, with much less Qz sand, more Ls/Dol and 10-15% wh, dirty wh, calc clay/silt.
357-367	Ss, wh, v calc to sltly calc, f-m-c Qz grs, some Ss has vf drusy calcite cement; 20-30% Ls as above; minor Dol; trace-minor phos grs; 10-20% loose Qz sand, f-m-c-a few pebbles. Unwashed: As above, with much more loose vf-f Qz sand & silt and sltly less Ls.
367-375	As above.
375-382	As above. Unwashed: As above, with trace-minor pale greenish clay(?).
382-390	Siltstone to a v silty Ss, grayish olive, calc to v calc, carries much sand(f-m-c-few pebbles), trace to minor phos grs; minor Ls, wh, fg, fos.
390-398	As above, sltly more silt & sltly less sand; some of the grayish olive green "silt" has a somewhat waxy luster(may be a clay rather than a silt).

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Depth in feet below GL	DESCRIPTION
398-410	Siltstone, grayish olive, sdy to sltly sdy, some is v clayey & only sltly fg sdy, some is sltly phos to phos.
410-420	Siltstone as above, with 1-3% phos as small & minute bl grs.
420-428	As above, 1-4% phos as small/minute bl grs.
428-435	Dolosilt, dk greenish gray, clayey, sltly sdy, phos, some shell frags.
435-448	As above.
448-459	Dolosilt(?), darker shade of greenish gray than above, more clayey, less dolosilt particles, phos, some is sdy.
459-467	Siltstone, dk greenish gray, clayey, bears some dolosilt, phos; dolosilt as above; overall phos @ 2-6%.
467-480	Dolosilt, sltly clayey-clayey, phos, bears common to numerous mollusk shell frags.
480-490	Siltstone, grayish olive green, vfg sdy, sltly clayey, bears com-numerous shell frags & some rnd Qz grns; overall phos @ 1-3% as bl specks & minute grs.
490-497	Siltstone as above, now more clayey & carries abundant shell frags, more Qz grns & 10-20% phos as bl fos frags, grns & grs.
497-510	Siltstone as above, with 8-16% phos, few shell frags.
510-523	As above.
523-535	Siltstone, v clayey, 6-12% phos as grs & grns.
535-545	Ls, wh & grayish yellow, sdy, phos, v fos, numerous encrusting bryozoa & mollusks, common cheilostome bryozoa; phos as small bl grs @ 1-3%.
545-555	As above, a few echinoid spines.
555-565	As above, phos now @ 2-6% and sand content of Ls is greater than above.
565-575	As above.
575-585	As above, some decrease in sand & phos content.

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Depth in feet below GL	DESCRIPTION
585-595	As above, continued decrease in sand & phos content, now some Ls is silty & with minor clay stringers.
595-605	As above, no clay stringers.
605-615	As above, a little wh, fg, modly rexal, moldic, fos, sltly phos Ls, with little to no sand.
615-621	As above.
621-632	50% Ls/fos as above; 50% clay, pale olive to grayish olive, calc, phos.
632-647	Largely clays as above, phos @ 1-3% as small bl grs, & a few grns.
647-652	As above, commonly carries dolosilt particles & shell frags.
652-665	70% Ls/fos as @ 535'-545'; 25% pale olive to wh clays.
665-678	As above, with 40% wh to pale olive clays.
678-688	Ls, wh, dirty wh, sdy to v sdy, phos, fos, some is v clayey, some with grayish olive green clay stringers; overall phos @ 2-4% as small bl grs; some mollusks.
688-698	As above, with more clays.
698-708	As above, with more phos(3-7% as bl, dk brn grs, grns, fos frags), some mollusks, echinoid spines, a few encrusting & cheilostome bryozoa; 2-5% Dol, yel gray, dirty wh, f xln, sucrosic; some clays as above, minor dolosilt(?).
708-711	Mostly clays & v clayey Ls; common dolosilt, some cheilostome bryozoa.
711-720	Clay, lt olive gray, grayish olive green & dolosilt, phos to v phos(4-12% as grs, grns, fos frags, possibly minor phos crust); common Ls, v clayey, silty, phos, sdy.
720-728	As above, with 10-20% phos as grns, fos frags, grs.
728-738	15-25% phos as fos frags, grns, grs, common crust; 5% Dol yel gray, yel wh, f-m xln; 15-30% clays; remainder is a v clayey, silty, phos, fos Ls; common cheilostome & encrusting bryozoa.

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Depth in feet below GL	DESCRIPTION
738-750	Ls, dirty wh, clayey & silty, phos, fos, bryozoa(as above); some dolosilts, common clays as above; minor dolomite; overall phos @ 2-3% as small grs.
750-760	Largely wh-dirty wh, calc clays & dolosilt, fos, phos(at 1-3% as grs); 5-10% Dol, yel gray, f xln, sucrosic; bryozoa as above.
760-770	As above, more Dol(10-20%); more phos @ 3-8% as fos frags, grns, grs; some Ls, phos, sdy, fos, cheilostome and encrusting bryozoa.
770-773	Dolosilt, pale olive, fos, clayey, phos, some bryozoa as above.
773-783	Ls, wh, yel wh, fg, fos-v fos, phos, some is sltly fg sdy, a little is replaced by f xln, lt olive gray Dol, mollusks, cheilostome/encrusting bryozoa, echinoid spines & common to numerous red algae fragments.
783-800	As above, with 10-20% lt gray, fg, phos to v phos, sdy Ls(nearly a calc Ss).
800-807	As above, less lt gray, phos, sdy Ls; 5% of the Ls is replaced by Dol as @ 773'-783'.
807-820	Ls, wh, v lt gray, fos, phos(1-3% bl, brn, small & minute grs), sltly sdy to sdy, mollusks, gastropods.
820-831	As above, with a little Dol, yel gray, yel wh, f-m xln.
831-841	As above, less Dol; Sorites present.
841-852	As above, trace Dol; no Sorites observed.
852-862	Ls, wh, fg sdy, phos, fos(mollusks), sometimes moldic, sometimes with med drusy calcite coating the molds.
862-870	No samples available.
870-880	Ls, yel wh, yel gray, fg, sdy to v sdy, little to no phos, some Ls has been v stgly rexal by yel brn, vfg to fg calcite.
880-889	Ss, yel wh, (Qz grs are clear, subang-subrnd, vf-f, about 60-80% are as loose Qz grs), calc, fos(v abundant small, discoid, spiraled forams & some small mollusks, & some small echinoid spines), no phos.

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Depth in feet below GL	DESCRIPTION
889-896	Ss/fos as above, with 20% Ls, wh, fg, "chalky", sdy, no phos.
896-910	Ls/Ss, wh, yel wh, grades between a sltly sdy, fos, microgranular Ls to a calc, fos Ss, rarely any phos in either the Ls or Ss, fos are common to abundant forams, some mollusks, a few worm tubes(?).
910-927	Largely v pale orange, microgranular, sltly sdy(no phos), fos Ls; some Ss as above.
927-940	As above, most is foram rich & sltly sdy & all is modly to stgly rexal.
940-958	As above, overall more sdy(some is a calc Ss) & less stgly rexal, a few forams.
958-968	Mix of Ss/Ls, grades between a v sdy Ls to a calc Ss, rarely phos, a few mollusks, gastropods, worm tubes(?) & some forams, some is stgly rexal, some modly rexal, some wkly rexal.
968-978	As above, overall more rexal & more sdy(largely Ss & v sdy Ls); a little Ls, v lt gray, sdy, porous, "fos hash", cemented by f-vf drusy calcite(fossils are forams & shell frags with rounded edges).
978-989	As above, with more "fos hash" Ls as above.
989-1001	Largely "fos hash" Ls, cemented by f-vf drusy calcite.
1001-1010	As above, with 20-30% Ss, v lt gray-med gray, fg, calc, sltly phos, mollusks.
1010-1021	As above, with very little Ss.
1021-1028	As above, with little to no Ss.
1028-1040	As above, with 50% Ss, yel gray to med gray, sltly phos, fg, mollusks.
1040-1052	Ss, yel gray thru med gray, fg, calc, v sltly phos(as minute-small, bl grs), some is fos(mollusks), some is moldic(with f-coarse drusy calcite lining molds); ±3% Ls, yel wh, sdy, rarely phos, "fos hash"(mollusk shell frags, forams, peloids, echinoid spines-some shell frags with rnd edges).
1052-1063	80% Ss as above; 20% "fos hash" Ls as above.

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Depth in feet below GL	DESCRIPTION
1063-1074	70% Ss & 30% Ls as above.
1074-1083	As above.
1083-1093	80% Ss & 20% Ls as above.
1093-1103	Largely Ss, lt gray, med gray, yel gray, bearing numerous mollusks.
1103-1115	Ss as above; 5-10% Ls, v pale orange, granular-microgranular, v fos(forams & peloids), no sand, no phos.
1115-1125	Ls, lt to med gray, yel gray, micritic, sdy, phos to sltly phos, fos, mollusks & abundant peloids/forams(?); Ls, yel gray, fg, fos(mollusks), sdy; Ls, vpo, micro-granular, fos, no sand, no phos; some Ss as above.
1125-1135	As above, rare red algae frags, a few crab claws.
1135-1146	As above.
1146-1152	As above, with 25% Ls, wh, fg, "chalky", sltly fos to fos, no sand, no phos, a few red algae frags.
1152-1163	Ls, wh, fg, fos, modly rexal, with red algae frags & a few Lepidocyclina(large-med, v lt gray, lt gray, flat); Ls, vpo & yel wh, microgranular-granular, stgly rexal, peloids, forams, no sand, no phos; some Ss as above.
1163-1177	As above, red algae frags more common; common Ss as above.
1177-1188	As above, numerous red algae frags, a few Lepidocyclina, slight increase in the vpo, microgranular, v fos, modly-stgly rexal Ls; common Ss as above.
1188-1198	Ls/fos as above; 10-20% Ls, vpo, microgranular, modly rexal, Lepidocyclina(med, vpo, saddle shape), a few Operculinoides [This is "typical" Ocala Ls & fossils].
1198-1208	About equal mix of wh, fg, "chalky" Ls with red algae & 'flat' Lepidocyclina and vpo, microgranular-fg Ls with vpo, saddle shape Lepidocyclina & a few Operculinoides.
1208-1218	Largely vpo, microgranular Ls with common Operculinoides & Lepidocyclina; some to common wh, fg, "chalky" Ls, with red algae & 'flat' Lepidocyclina.
1218-1228	As above.
1228-1238	As above.

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Depth in feet below GL	DESCRIPTION
1238-1248	Ls, v pale orange, microgranular, a little granular, most is modly rexal, common Lepidocyclina, Operculinoides, Camerina, some red algae frags.
1248-1258	As above, with numerous Lepidocyclina, Camerina, Operculinoides, no red algae frags.
1258-1270	As above.
1270-1282	As above, now all Ls is microgranular.
1282-1292	As above, rare bl specks of carbonaceous matter.
1292-1294	Ls, fg, vpo-v lt olive gray, significant calc clays and some v clayey Ls.
1294-1299	Ls, vpo, microgranular, modly rexal, abundant Lepidocyclina, Operculinoides.
1299-1310	As above.
1310-1314	Ls, fg, vpo to v lt olive gray & clayey Ls & calc clays.
1314-1317	Ls, vpo, microgranular, wkly to modly rexal, numerous to abundant Operculinoides & Camerina, common-numerous Lepidocyclina; minor clays.
1317-1330	Ls/fos as above; trace to minor grayish orange, euhedral/ subhedral, small Dol xls in matrix of most of the Ls.
1330-1340	As above, now Dol is nearly gone.
1340-1350	Ls/fos as above, now wkly to modly dolomitized as @ 1317'-30'; possibly Ls bears minor clay.
1350-1356	As above, overall sltly less Dol; minor carbonaceous matter "dusts" the inside of some fos frags.
1356-1361	Ls, vpo, microgranular, common Operculinoides, Lepidocyclina, some Camerina; only some Ls is sltly dolomitic.
1361-1366	Ls as above, abundant Camerina, common to numerous Operculinoides, a few Lepidocyclina, rarely echinoid spines; no Dol.
1366-1376	As above.
1376-1386	As above, trace to minor clays.

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Depth in feet below GL	DESCRIPTION
1386-1393	Ls, v pale orange, microgranular, abundant Camerina & numerous Operculinoides.
1393-1403	As above, some to common Lepidocyclina fragments.
1403-1413	As above, with abundant Operculinoides, numerous Camerina & some Lepidocyclina.
1413-1424	Ls, yel gray, fg, sltly silty & clayey, rarely any fos, a few 'worn' fragments of Camerina, Operculinoides & Lepidocyclina.
1424-1437	As above, a little has been wkly to modly replaced by vf, subhedral Dol.
1437-1444	As above, now 10-25% is more silty & clayey & v sltly carbonaceous; a few Operculinoides, Camerina & Lepidocyclina fragments; now less dolomitized Ls.
1444-1455	10-20% Ls as above, with a few Camerina, Operculinoides & Lepidocyclina(not replaced by coarsely xln calcite); 80-90% Ls, vpo-grayish orange, granular, bearing forams, peloids, small gastropods & small, complete echinoids(?), both the Ls & fos are largely replaced by med to coarsely xln calcite; no cones observed.
1455-1459	Ls, vpo-grayish orange, granular, v fos(fos as above), now about one third is replaced by calcite as above & two thirds is wkly to stgly replaced by grayish orange, f-m, subhedral Dol.
1459-1464	Dol, grayish orange, med subhedral & euhedral, completely to nearly completely replaces the Ls(described above) & fossils(occasionally a few fos remain unreplaced in the Dol), some Dol is vuggy; a few Camerina, Operculinoides and Lepidocyclina frags(untouched by Dol replacement-possibly these fossils are cavings).
1464-1465	Largely a silty, clayey, carbonaceous, calc & sltly dolomitized unit; some Dol & dol Ls as above.
1465-1468	Dol as @ 1459'-1464', overall less Ls remains & sltly more euhedral Dol than @ 1459-64'.
1468-1476	Ls/Dol/fos as @ 1455'-1459'; trace to minor brn-dk brn chert; a little Ls, dirty wh, fg, silty & clayey.
1476-1479	Dol, yel gray-gray orange, fg, subhedral/euhedral, some is med subhedral/euhedral(probably the Dol replaced the fg, silty, clayey Ls described above).

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Depth in feet below GL	DESCRIPTION
1479-1487	70% Dol as above; 30% Ls, most is wkly to stgly dolomitized.
1487-1489	Dol, grayish orange, f-m subhedral-some euhedral, occasionally a fos is unreplaced by Dol.
1489-1497	Ls, v pale orange, granular, forams, peloids, small echinoids(?), the fos & Ls are replaced by med-coarse xln calcite; minor Dol as above; no cones observed; some Camerina & Operculinoides.
1497-1507	65% Dol, grayish orange, med subhedral-euhedral; 35% Ls/fos as above, with common Dictyoconus cookei, the Ls is commonly partially replaced by Dol.
1507-1518	Ls/fos as above, fos & some Ls commonly replaced by med-coarse calcite; minor Dol.
1518-1528	Ls/fos as above, a few D. cookei; minor Dol & calcite.
1528-1538	Ls, vpo, granular, v fos to fos hash, very abundant forams & peloids, a few D. cookei, wkly to modly rexal.
1538-1548	As above, little to no Dol or calcite.
1548-1556	As above, with a little med-coarse calcite replacing the Ls matrix.
1556-1558	Ls, vpo, dirty wh, fg to microgranular, silty, sltly carbonaceous, few to common D. cookei. The Ls is wkly to nearly totally replaced by dk brn, brn anhedral & subhedral Dol.
1558-1782	Cuttings are missing.

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Depth in feet below GL	DESCRIPTION
1782-1784	Ls, yel gray, dense, granular, minor carbonaceous specks & blebs thru out, forams common, possibly slickensides on several cutting fragments.
1784-1788	50% Ls as above; 5% Ls, vfg, silty, clayey(?), carbonaceous; 45% Ls, v pale orange, granular, abundant peloids/forams, modly to stgly rexal, a little is intensely rexal.
1788-1793	As above.
1793-1799	40% Ls mix as above; 60% Ls, yel gray, med gray, pale yel brn, micritic, bearing some forams.
1799-1801	Ls as at 1782'-1784', with 5-10% v lt gray, calc clay.
1801-1804	50% Ls, wh, vfg, chalky; 40% Ls as above; 5-10% grayish brn clay; some micritic Ls.
1804-1807	95% Ls, wh, vfg, chalky; 5% Ls, granular-microgranular, sltly carbonaceous.
1807-1809	Largely granular, dense, yel gray-gray brn, carbonaceous Ls, with forams, some peloids, cones, wkly to modly rexal.
1809-1815	Ls as above, a few D. cookei, one possible D. americanus.
1815-1823	Ls, yel gray-gray brn, granular to fg, most is modly carbonaceous, about 5-10% is wkly to modly dolomitized by med-coarse, euhedral, clear to yel gray xls; a few Dictyoconus cookei.
1823-1831	Ls, vpo, yel gray, granular, modly to stgly rexal, little carbonaceous matter.
1831-1841	Ls, vpo, gran-microgran, mod-stgly rexal, tr-no carbon matter.
1841-1851	Ls, vpo-gray wh, microgran-fg, modly rexal, some silty(?), a little with thin, bl, carbonaceous laminations; D. cookei.
1851-1862	Ls, yel gray-vpo, gran, mod-stgly rexal, wkly carbonaceous, peloids/forams, common large, flattened cones(D. americanus?).
1862-1868	Largely Ls, wh, vfg, chalky & some Ls/fos as above.
1868-1873	Ls as @ 1851'-1862'.
1873-1875	Ls, wh, vfg, chalky; some Ls as above; possibly some wh clay.
1875-1882	50/50% wh, vfg, chalky Ls & Ls, gray orange, gran, stgly rexal, v fos.
1882-1886	Largely gray orange, stgly rexal, gran Ls, 5% is intensely rexal.

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Depth in feet below GL	DESCRIPTION
1886-1892	Ls, grayish orange, microgranular, some granular, porous, nearly all is stgly to v stgly rexal by vf drusy calcite.
1892-1897	As above.
1897-1902	As above.
1902-1910	As above, a little carries a small amount of euhedral-subhedral, clear, pale yel gray Dol in the matrix.
1910-1918	Ls, v pale orange, granular, porous, modly-stgly rexal(the vf drusy calcite is nearly gone); some wh to v lt gray, fg, fos, modly rexal Ls; peloids &cones(D. cookei) present; trace Dol in matrix.
1918-1920	Ls, vpo, fg, some microgranular, wkly to modly rexal, trace Dol in matrix as above.
1920-1923	Ls, vpo, dirty wh, dk yel brn, fg, vfg, microgranular, often with thin carbonaceous laminations & throughout matrix, wkly to modly rexal; trace to minor milky wh, xln, sucrosic gypsum intergrown with Ls(especially the carbonaceous Ls); possibly trace vf, clear Qz xls and calcite(?) xls also intergrown with gypsum; D. cookei present.
1923-1928	Ls, vpo, granular, modly to stgly rexal, rarely trace Dol in matrix, minor carbonaceous matter.
1928-1934	Ls as above, minor to common carbonaceous matter and laminations, tr-minor Dol in matrix; rare gypsum in matrix.
1934-1937	Ls mix: fg, microgranular, some granular, modly rexal, fos, cones; minor Dol in matrix; 3-6% gypsum, milky wh, xln, sucrosic-gypsum is associated with a carbonaceous(?) breccia of vfg Ls fragments, many frags are angular & small to v small size. This carbonaceous bx may in fact be related more to a "weathered crust" origin. This same carbonaceous(?) matter with minor gypsum was observed at 1920-1923'.
1937-1944	As above; minor Dol; 2-4% gypsum as above; common carbonaceous matter, about half as thin, v closely stacked laminations, the rest is in the carbonaceous/ bx unit with minor gypsum.
1944-1949	Ls, wh to vpo, granular & fg, fos, some with thin, carbonaceous laminations, minor xln gypsum associated with the laminations; D. americanus present.

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Depth in feet below GL	DESCRIPTION
1949-1954	Ls, v pale orange, fg & microgranular, fos, commonly carbonaceous, some laminations & short irregular stringers, wkly to modly rexal, common to numerous D. americanus.
1954-1964	Ls, vpo to grayish orange, stgly rexal, granular, v fos, some cones; 1-3% Dol, coarsely xln, euhedral & subhedral, yel gray, replaces the Ls matrix.
1964-1967	Ls as above, now more carbonaceous; 6-12% intergrown Dol/gypsum, the gypsum is milky wh, xln, sucrosic & the Dol is crystal clear, fine, med, coarse euhedral.
1967-1971	Ls, vpo to grayish orange, stgly rexal, granular, v fos, peloidal, some cones.
1971-1980	Ls, vpo & wh, modly to stgly rexal, granular to micro-granular, com to numerous cones, many are D. americanus.
1980-1985	Ls, vpo & grayish orange, stgly rexal, granular to microgranular.
1985-1997	Ls, vpo, granular, v fos, modly to stgly rexal, numerous D. americanus.
1997-2000	Ls, vpo, dirty wh, modly rexal, fg & microgranular, some with a few carbonaceous laminations; Ls, vpo, grayish orange, granular, stgly rexal; common to numerous cones, D. cookei & D. americanus.
2000-2005	Ls, wh, microgranular & fg, modly rexal, some stgly rexal; minor vfg xln, yel gray Dol; a few cones.
2005-2010	Ls, wh, dirty wh, wkly to modly rexal, microgranular, trace scattered carbonaceous matter, some cones.
2010-2016	Ls, vpo, microgranular, mod rexal, fos, numerous cones, com-num D. americanus, some D. cookei.
2016-2020	Ls, wh, fg, wkly rexal, commonly wkly to modly dolo-mitized by fine, euhedral, grayish orange Dol; minor Dol.
2020-2026	Ls, vpo, fg & microgranular, some granular, modly rexal, some stgly rexal, a little Ls with v thin, carbonaceous laminations; trace vf, euhedral Dol in Ls matrix.

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Depth in feet below GL	DESCRIPTION
2026-2033	Ls, wh to v pale orange(vpo), microgranular to granular, stgly rexal.
2033-2036	Ls, vpo, granular, stgly rexal; minor mod brn, f xln, subhedral, euhedral, anhedral Dol.
2036-2039	Dol, mod brn, some dusky brn, vfg xln, anhedral, vuggy (with f euhedral in vugs), commonly fos & some Ls remains unreplaced by Dol; common Dictyoconus cookei.
2039-2046	Ls, vpo, granular & microgranular, stgly rexal, common D. cookei & D. americanus; tr-minor Dol.
2046-2051	Ls, vpo, granular, v fos, v stgly rexal, some is wkly carbonaceous, porous, common cones; minor Dol.
2051-2059	Ls as above; some with thin carbonaceous laminations, common cones; minor Dol.
2059-2062	Ls, dirty wh, silty(?), some sltly carbonaceous, modly rexal, a few cones; some Ls/fos as above.
2062-2070	Ls mix: vpo, modly rexal fg & microgranular and vpo, granular, stgly rexal, porous, v fos; common cones.
2070-2072	Ls, vpo, fg, silty, wkly to modly carbonaceous, some is wkly to stgly dolomitized(vf xln, anhedral, subhedral, wh), rare D. americanus; Ls, vpo, microgran-granular, stgly rexal; 1-2% Dol, brn, f-m euhedral and wh, vf xln, sucrosic; tr-minor wh, vf xln, sucrosic gypsum.
2072-2076	Ls, vpo, granular, stgly rexal, fos, common D. cookei, some D. americanus, commonly wkly carbonaceous, a little is v wkly dolomitized(f euhedral); a little fg, silty Ls as above; trace micritic Ls.
2076-2081	Ls, vpo, dirty wh, fg & granular, stgly rexal, silty, some wkly to modly carbonaceous, some is mottled by brn vf xln Dol; possible trace wh, vf xln, sucrosic gypsum and/or vf xln Qz; some to common cones; trace mod brn, subhedral/euhedral Dol.
2081-2083	65% Ls, dirty wh, fg, some cones, a few cutting fragments with hairline fractures; 35% Dol, dusky brn, mod brn, f xln, anhedral, subhedral, some euhedral, the Dol appears to be filling space between brecciated Ls fragments.
2083-2091	Ls, vpo to grayish orange, stgly to v stgly rexal, fos, common cones; a little fg Ls as above and Ls/Dol bx as above; trace gypsum(?).

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Depth in feet below GL	DESCRIPTION
2091-2096	Mix of granular & fg Ls as above; 5-10% Dol, dusky & mod brn, f xln, subhedral, anhedral, some euhedral(as the Ls/Dol bx above, filling open space between bx frags or in fractures); trace gypsum(?) & Qz inter-grown with Dol; some cones.
2096-2102	Ls, wh to v pale orange(vpo) & dirty wh, fg & granular, modly & stgly rexal, commonly wkly mottled by brn Dol(as above); a little Ls/Dol bx as above; some cones.
2102-2107	Ls, wh & vpo, microgranular to fg, modly rexal; little to no Dol.
2107-2114	Ls as above, now a little stgly rexal, granular Ls; minor dusky brn Ls/Dol bx; common cones.
2114-2119	Ls, vpo, granular, stgly rexal, v fos, porous, some to common cones; Ls is rarely mottled by euhedral/subhedral, dusky brn Dol.
2119-2123	Ls, vpo, fg & granular, stgly rexal; 5-15% Dol, mod brn, yel brn, f-m-c xln, subhedral/euhedral, some as Ls/Dol bx; some vf xln, anhedral Dol.
2123-2128	Dol, dusky brn, yel brn, a little grayish orange, most is vf xln, anhedral/sucrosic, vuggy(f-m euhedral Dol in vugs), some some subhedral/euhedral Dol, rare wh-clear, f-m xln, euhedral Dol; minor Ls as above, rarely as Ls/Dol bx.
2128-2139	Ls, vpo to wh, microgranular, granular, modly to stgly rexal, some cones; minor Dol, dusky brn, f-m euhedral.
2139-2145	Ls, vpo, granular, stgly to v stgly rexal, v fos, porous, some cones.
2145-2147	60-65% Dol, mod brn, dusky brn, grayish orange, f-m xln, euhedral/subhedral, commonly as Ls/Dol bx; 35-40% Ls, vpo, fg & granular, the fg commonly with v thin carbonaceou laminations and some with hairline fractures(may be mud cracks?); possible trace f xln Qz and/or f xln gypsum intergrown with Dol.
2147-2149	Ls, wh, fg to microgranular, modly rexal; trace Dol.

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Depth in feet below GL	DESCRIPTION
2149-2155	70% Ls, v pale orange(vpo), granular, modly rexal, v fos, some wkly dolomitized, peloids & D. cookei common; 15% Ls, wh & vpo, fg, commonly silty & with v thin carbonaceous laminations; 15% Dol, grayish orange, some mod brn & dusky brn, a little yel gray, nearly all is fine, euhedral. Most Dol occurs as a cement within a Ls bx. The bx frags are fg Ls(mudstone) and are rnd & ang; also 2-4% Qz as minute xls intergrown with the Dol(rarely with the Ls) and filling in voids between the Ls bx frags. Afew Qz xls appear to have been broken/moved & recemented by Dol; some minor gypsum occurs intergrown with the Dol.
2155-2158	2-3% Ls as above; 1-2% Qz/gypsum as above; ±95% Dol, mod brn, dusky brn, grayish brn, dk yel orange, a little vpo, anhedral massive and much euhedral that appears to be related to void fillings of which there are very many. Often the Dol appears to have grown along a fracture plane(?) or bedding plane(?) with the intervening Ls now removed creating angular shaped, Dol xl lined voids. [RSC remarks: These type of angular, xl lined voids are common whenever significant euhedral Dol is encountered in this well bore].
2158-2160	Ls, vfg, vpo, some silty, some with v thin carbonaceous laminations & irregular v thin stringers; tr-minor Dol as above.
2160-2162	20% Ls as above, overall sltly more carbonaceous matter, commonly modly to stgly dolomitized; rarely some Ls/Dol/bx as @ 2149-55'; tr-minor Qz as @ 2149-55'. 80% Dol, pale yel orange, dk yel orange, grayish orange, a little mod brn & dusky brn, much void related, euhedral Dol, some anhedral massive.
2162-2164	50% Ls, wh, fg; 50% Ls,vpo, granular to fg, fos, modly rexal & some is wkly dolomitized(by Dol as above).
2164-2169	Dol, about half yel gray & pale yel orange and half dk yel brn, grayish brn, the darker colors are fine-med, anhedral massive & the lighter colors are euhedral/vuggy; rarely some minute Qz xls in vugs & along rare hairline fractures.
2169-2171	Ls, vpo, wkly to modly rexal, fos, a little has been wkly dolomitized.
2171-2173	Ls as above, now commonly dolomitized; the Dol appears to preferentially dolomitize the carbonaceous matter within the Ls.

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Depth in feet below GL	DESCRIPTION
2258-2263	Ls, v pale orange(vpo), granular, v fos, modly to stgly rexal, a little is wkly dolomitized; a little wh, v fg, silty Ls with thin carbonaceous laminations.
2263-2273	Ls, wh to dirty wh, fg, fos, sltly silty with minor thin, carbonaceous laminations, a little is wkly dolomitized by euhedral rhombs in matrix; some wh, granular & micro-granular, fos Ls with D. americanus.
2273-2278	80% Ls, vpo, wh, microgranular & fg, with D. cookei & D. americanus; 5-10% Ls, vpo, granular, v fos, stgly rexal; 5% Ls, v lt gray to med gray, micritic, wkly to modly dolomitized(fine-med, mod brn, euhedral); 3-5% Dol, mod brn, anhedral/subhedral massive; 1% gypsum, milky wh, xln, sucrosic, intergrown with Dol.
2278-2283	Ls, wh, fg-vfg; 10-20% Ls, vpo, fg to granular, sltly carbonaceous, modly rexal, some is mottled by mod brn, euhedral/subhedral Dol; 3-5% Ls, med gray, micritic, wkly to stgly dolomitized by euhedral mod brn & dk to med gray Dol; 2-5% Dol, mod brn & dusky yel brn, vuggy, euhedral; trace milky wh, xln, sucrosic gypsum.
2283-2289	90% Dol, mod brn, dusky yel brn, pale yel orange, most is med euhedral, vuggy(lighter colors), some anhedral/subhedral massive(darker colors); 10% Ls as above, now most to all is fg to granular, carbon-aceous and is wkly to nearly totally replaced by mod brn euhedral/subhedral Dol; trace gypsum intergrown with Dol.
2289-2291	Ls, wh to dirty wh, fg-vfg, sltly silty, all has been wkly to modly dolomitized by grayish yel & dk yel orange, euhedral Dol floating in matrix; trace to minor euhedral Dol as above.
2291-2293	Dol, most is med-coarse, very vuggy, euhedral, pale yel orange, dk yel orange, yel gray; about 30% of Dol is anhedral massive, dusky yel brn, mod brn, grayish brn, a little Dol is lt brn, vfg xln, not sucrosic; tr-minor gypsum intergrown with Dol.
2293-2302	Ls, wh, dirty wh, fg, sltly carbonaceous; Ls, vpo, microgranular, modly rexal; both types of Ls are occasionally v wkly dolomitized by rhombs in matrix.
2302-2312	Ls, wh, dirty wh, fg, common thin carbonaceous lamin-ations; Ls vpo, granular & microgranular, modly rexal.
2312-2318	Ls, wh to vpo, microgranular & fg, sltly carbonaceous, wkly to not rexal; rarely dolomitized by clear xls.

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Depth in feet below GL	DESCRIPTION
2318-2321	95% Dol, yel gray, anhedral, subhedral, some euhedral; 5% Ls, microgranular as above, this Ls is nearly totally to v sltly replaced by above described Dol.
2321-2327	Ls, wh, dirty wh, fg, sltly silty, some with thin carbonaceous laminations; some microgranular Ls; some Ls is wkly to modly dolomitized by dk yel orange xls in matrix.
2327-2331	Dol, yel gray, grayish yel, vfg-fg xln, very vuggy(most are v small, some pin point vugs), most Dol is not sucrosic, some of the v small vugs lined with vf-f, euhedral Dol.
2331-2339	Dol, v pale orange(vpo), wh, yel gray, grayish orange, vfg-fg xln, generally not sucrosic, most is vuggy(small & v small vugs), occasionally some vugs lined by vf euhedral Dol, most vugs are not ; Dol, mod brn, lt brn, mod yel brn, med anhedral, vf-f xln, and a little euhedral, vuggy.
2339-2344	Dol, lt gray, med gray, yel gray, grayish orange, vf-f xln, not sucrosic, most is vuggy to v vuggy with f-vf euhedral Dol in vugs. The vugs are angular and appear to be formed as small/v small open spaces within the crackled host Dol; a few cuttings represent a Dol bx with the fragments cemented by fine euhedral Dol that lines the vugs between fragments.
2344-2346	Dol, v pale yel brn, vf xln, not sucrosic, not vuggy; mod brn, fine & med anhedral massive, commonly vuggy with euhedral Dol in vugs; some mod brn, med euhedral, vuggy Dol.
2346-2349	Dol, lt gray, yel gray, grayish orange, fg xln, and nearly all has a little to a lot of clear selenite intergrown in the matrix(overall selenite is ±20% of sample); some fine to med euhedral, v vuggy Dol, no selenite observed inside of these vugs.
2349-2350	Dol, dk yel orange, pale yel orange, grayish orange, nearly all is fine to med euhedral, vuggy, a little is med anhedral massive.
2350-2354(TD)	90% Dol, dk yel orange, med anhedral & subhedral massive, sltly vuggy and 5-20% selenite intergrown in Dol matrix; 10% Ls, wh, vpo, vfg, all is wkly to nearly totally replaced by euhedral to subhedral dk yel orange Dol.