

QUASAR NO. 15-14 CROWN ZELLERBACH
SW SW Sec. 15, T6N, R4W

SAMPLE DESCRIPTION

- 0 - 30 Sandstone, medium light gray, very fine grained, silty, very poorly sorted, angular grains, micaceous, carbonaceous, slightly bentonitic.
- 30 - 180 Siltstone, medium light gray, micaceous, carbonaceous, slightly bentonitic.
- 180 - 210 Siltstone, medium light gray, sandy, micaceous, carbonaceous.
- 210 - 270 Shale, light gray, silty, blocky, soft.
- 270 - 300 Shale as above and siltstone, light gray, shaley.
- 300 - 330 Siltstone, light gray, (salt and pepper), shaley with black well rounded sand grains, micaceous.
- 330 - 360 As above and shale, black, silty, blocky with a few loose, very coarse quartz grains and a few loose very coarse subrounded to well rounded black sand grains.
- 360 - 390 Siltstone as above with much loose, very coarse, clear to milky subangular to subrounded glassy quartz grains and a few loose, very coarse subrounded to well rounded black sand grains.
- 390 - 420 Sandstone, light gray, (salt and pepper), very fine grained, silty, poorly sorted, subangular to subrounded grains with medium well rounded black sand grains and siltstone, black, with much loose, very coarse subrounded black sand grains and very coarse angular to subrounded clear glassy quartz grains.
- 420 - 515 No sample.
- 515 - 540 Sandstone, medium light gray, (salt and pepper), fine grained, silty, poorly sorted, subangular to subrounded grains, no visible porosity, no shows.
- 540 - 570 Sandstone as above and chert, white, very angular.
- 570 - 600 Sandstone, medium light gray, (slightly salt and pepper), very fine grained, silty, poorly sorted, subangular to subrounded grains, carbonaceous, trace black shale partings and chert, white, very angular.
- 600 - 630 Siltstone, medium light gray, (salt and pepper), carbonaceous, trace chert, white, very angular and trace, clear glass pebbles and trace polished rounded, black pebbles (chert?).

Sample Description (cont'd)

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630 - 660	Siltstone, medium light gray, slightly bentonitic.
660 - 720	Siltstone, medium light gray, slightly salt and pepper, slightly sandy.
720 - 840	Siltstone, medium gray to medium light gray, salt and pepper, micaceous, sandy, shaley.
840 - 870	Siltstone as above with minor chert, white, very angular, chonchoidal fracture.
870 - 930	Siltstone, medium light gray, slightly salt and pepper.
930 - 1020	Siltstone, medium light gray, slightly salt and pepper, micaceous.
1020 - 1110	Siltstone, medium light gray, slightly salt and pepper, sandy.
1110 - 1140	No sample.
1140 - 1170	Siltstone, medium light gray, slightly pyritic.
1170 - 1200	Siltstone, medium light gray, micaceous, slightly pyritic.
1200 - 1230	Siltstone as above and siltstone, medium light gray, salt and pepper, micaceous, sandy.
1230 - 1260	No sample.
1260 - 1290	Siltstone, medium light gray, salt and pepper, pyritic with trace calcareous fossil shells.
1290 - 1320	Siltstone as above and limestone detrital with matrix, medium brown, sublithographic, very argillaceous.
1320 - 1350	Limestone as above with a trace of fossil fragments and minor siltstone as above.
1350 - 1380	As above and minor shale, medium gray, silty, blocky, soft. (poor sample)
1380 - 1410	Siltstone, medium light gray, shaley and shale, gray-brown, silty, blocky, soft, trace tuff, dark green, trace fossil fragments.
1410 - 1530	Shale, medium light gray, micaceous, slightly silty, blocky, firm, very gummy when wet.
1530 - 1560	Shale, medium light gray, micaceous, soft, gummy when wet, pyritic, trace fossil fragments.

1560 - 1590 Shale, medium light gray, blocky and shale, brownish gray, blocky, micaceous, blocky, trace pyrite.

1590 - 1650 Shale, brownish gray, micaceous, blocky, very slightly calcareous.

1650 - 1680 Shale as above and minor shale, greenish gray, blocky, trace sandstone, brownish gray, very fine grained, medium sorted, angular grains, very shaley, trace fossil fragments.

1680 - 1710 Shale, brownish gray, blocky and sandstone, medium light gray, very fine grained, medium sorted, angular grains, calcite cement, micaceous, trace fossils (snails), trace gray green tuff.

1710 - 1770 Shale as above.

1770 - 1830 Shale, brownish gray, bentonitic, firm, blocky.

1830 - 1860 Shale, brownish gray, soft, blocky, tends to be gummy when wet.

1860 - 1890 Shale as above and siltstone, medium light gray, sandy, very calcareous.

1890 - 1920 Shale, brownish gray, blocky, tends to be gummy when wet.

1920 - 1950 Shale as above and sandstone, light gray, salt and pepper, fine grained, well sorted, subangular to subrounded grains, calcite cement, no visible porosity, no shows, minor pyrite.

1950 - 1980 Sandstone as above, micaceous, pyritic.

1980 - 2010 No sample.

2010 - 2040 Sandstone, light gray, salt and pepper, fine grained, medium sorted, angular to subangular grains, calcite cement, micaceous, pyritic with black shale partings and shale, brownish gray, flakey, slightly silty, trace fossil fragments.

2040 - 2070 Shale, medium light gray, blocky, gummy when wet.

2070 - 2100 Shale as above and siltstone, medium light gray, micaceous, carbonaceous, calcareous, trace sandstone light gray, fine grained, well sorted, subrounded to well rounded grains, very pyritic, trace fossil fragments.

- 2100 - 2130 Sandstone, light gray, fine grained, well sorted, subrounded grains, micaceous, calcite cement, pyritic, trace poor intergranular porosity, very scattered pale yellow fluorescence, poor streamer cut in xylene.
- 2130 - 2160 Sandstone, light gray, fine grained, well sorted, subangular to subrounded grains, micaceous, calcite cement, very pyritic, no visible porosity, no shows and shale, brownish gray, firm, flakey.
- 2160 - 2190 Sandstone, light gray, fine grained, well sorted, well rounded grains, calcite cement, micaceous, very pyritic, no visible porosity, no shows, and shale, medium light gray, firm, blocky.
- 2190 - 2220 Sandstone as above and shale, medium brownish gray, flakey.
- 2220 - 2250 Shale, black, blocky, silty, bituminous.
- 2250 - 2280 As above and shale, medium light gray, silty, blocky and a trace sandstone, light gray, fine to medium grained, poorly sorted, subrounded grains, calcite cement.
- 2280 - 2310 Shale, dark brownish gray to black, blocky, in part bituminous and shale, medium light gray, blocky, slightly silty.
- 2310 - 2340 Shale, light brownish gray, flakey to blocky and sandstone, light gray, fine grained, medium sorted, subrounded grains, calcite cement, micaceous, pyritic.
- 2340 - 2400 Sandstone, light gray, fine grained, well sorted, subrounded to well rounded grains, calcite cement, very pyritic, with black bituminous shale partings.
- 2400 - 2460 Sandstone, light gray, medium grained, medium sorted, subrounded to well rounded grains, calcite cement, very pyritic.
- 2460 - 2490 As above (mostly cave-ins).
- 2490 - 2500 Sandstone as above and shale, medium gray, blocky, calcareous.
- 2500 - 2520 Shale, medium gray, silty, blocky.
- 2520 - 2530 Shale as above and sandstone, light gray, salt and pepper, fine to medium grained, medium sorted, subrounded grains, calcite cement, very pyritic.

Sample Description (cont'd)
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- 2530 - 2540 As above and shale, brownish gray, flakey, micaceous, carbonaceous with subrounded greenish gray basalt pebbles.
- 2540 - 2560 Shale, brownish gray, very micaceous, blocky (poor samples - mostly lost circulation material).
- 2560 - 2580 Shale, dark gray, flakey and minor chert, white to blue-gray, very angular.
- 2580 - 2600 Sandstone, light gray, fine grained, medium sorted, subrounded grains, calcite cement, micaceous, pyritic and shale, brownish gray, silty, blocky, trace chert, white, very angular.
- 2600 - 2620 Shale, dark brown to black, bituminous, blocky and shale, brownish gray, blocky, carbonaceous, trace chert, white, very angular.
- 2620 - 2630 As above (very poor sample - mostly lost circulation material).
- 2630 - 2640 Siltstone, medium light gray, shaley with black carbonaceous shale partings (very poor sample - mostly lost circulation material).
- 2640 - 2660 Shale, black, pyritic, bituminous.
- 2660 - 2670 Sandstone, light gray, earthy, fine to medium grains, poorly sorted, subangular grains, very shaley and shale, medium gray, blocky.
- 2670 - 2680 Sandstone, light gray, fine to medium grained, poorly sorted, subangular to subrounded grains, calcite cement, very pyritic.
- 2680 - 2690 Sandstone as above and shale, brownish gray, blocky.
- 2690 - 2700 No sample
- 2700 - 2710 Siltstone, medium gray, earthy, shaley.
- 2710 - 2720 Sandstone, light gray, fine grained, medium sorted, subangular to subrounded grains, calcite cement, micaceous, very pyritic.
- 2720 - 2730 Sandstone, light gray, fine to coarse grained, poorly sorted, subrounded to well rounded grains, calcite cement, micaceous, very pyritic, friable (much loose sand), few black shale partings.
- 2730 - 2740 Sandstone, light gray, fine grained, well sorted, subrounded grains, calcite cement, micaceous, slightly pyritic.

Sample Description (cont'd)

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- 2740 - 2760 Sandstone, light gray, (salt and pepper), very fine to fine grained, poorly sorted, subrounded grains, micaceous, calcite cement.
- 2760 - 2770 Sandstone, light gray, very fine grained, silty, poorly sorted, subangular to subrounded grains, calcite cement, micaceous and shale, medium brown, blocky, soft.
- 2770 - 2790 Siltstone, light gray, very calcareous, sandy and shale, brownish gray carbonaceous with black bituminous stringers.
- 2790 - 2800 Siltstone, light gray, sandy, micaceous, pyritic.
- 2800 - 2810 As above and shale, brownish gray, blocky, carbonaceous, with bituminous stringers.
- 2810 - 2820 Shale, medium light gray, blocky, silty, very calcareous, firm.
- 2820 - 2830 Shale, brownish gray, blocky, non-calcareous, trace fossil fragments, trace pyrite.
- 2830 - 2840 Shale as above with much pyrite.
- 2840 - 2850 Siltstone, brownish gray, shaley.
- 2850 - 2860 As above and shale, medium light gray, silty, blocky, firm.
- 2860 - 2870 Shale as above and volcanic ash, brick red.
- 2870 - 2880 Siltstone, medium light gray, shaley with white calcite inclusions.
- 2880 - 2910 Shale, medium light gray, silty, blocky, firm.
- 2910 - 2920 Shale, medium gray, blocky, gummy.
- 2920 - 2930 Shale, medium gray, blocky, firm.
- 2930 - 2970 Shale, medium gray, blocky, firm, silty.
- 2970 - 2980 Basalt, black, very hard and basalt, dark greenish gray, very hard.
- 2980 - 2990 Basalt, greenish gray, very hard and siltstone, medium gray, very hard.
- 2990 - 3020 Basalt, black, very hard and basalt, greenish gray, very hard.

Sample Description (cont'd)

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3020 - 3030	Siltstone, tan, shaley and minor basalt, black, very hard.
3030 - 3050	Siltstone, tan, shaley and basalt, black, very hard.
3050 - 3060	Siltstone, medium light gray, shaley and minor basalt, black and basalt, dark greenish gray.
3060 - 3070	Siltstone, medium light gray, trace pyrite.
3070 - 3080	As above with minor basalt, black, very hard.
3080 - 3100	Siltstone, light brownish gray, micaceous.
3100 - 3130	As above with a trace pyrite.
3130 - 3140	As above with minor basalt, dark green, very hard.
3140 - 3170	Siltstone, medium light gray, micaceous.
3170 - 3180	As above and shale, medium gray, blocky, silty, firm.
3180 - 3200	Shale, medium gray, blocky, slightly silty, firm.
3200 - 3210	As above and basalt, black and basalt, greenish gray, very hard.
3210 - 3219	Basal, black and basalt, greenish gray, very hard.
3219	Total Depth