

#5 Measured
Sect. +
Calyx holes

UNITED STATES
DEPARTMENT OF THE INTERIOR

DI-6

APPROVED DECEMBER 1941

Greens
Family
den

Greers Ferry Dam Site

March 26, 1958

Calyx Hole #1

210' west along dam axis

from Calyx hole #2 = (24+90
77+62)

This Hole #1 is not shown on the
geologic section

Fossil zone (59.4 to ^{???}60.3 (about))
Zone is 0.8 to 1.0 thick

Hole #1 is 25+50 = #19
79+50 CE number

59.0+ to 60.1 - elevation 249' = top
fossil
zone

See plate 10, Design memo 7
Greers Ferry

Met. Tom Rogers
& Bud Morgan

Calyx hole # 2 24+90--77+62

50.5 to 51.1 = fossil zone

Site No 4

Plate 3 of Design Memo #1.
(Geologic profile of Site #4)

Get plate 2 also
+ all of Design Memo #1 if possible.

~~JE~~ Eugene Brown

Site 4 is near Center S $\frac{1}{2}$
Sec 8, T 10N, R 9W.

March 27, 1958

Greers Ferry Dam Site

① Hole # 6	R5 700 69 + 25	Elevation 538.5
0 - 7.8	Overburden	-- no sample
7.8 - 19.1	Sandstone, white, dense, v.f. to f. gr. contains trace dark grains, white clay grains, and mica.	
19.1 - 20.4	Sand stain yellow. Brown iron stain parous F.-M. Gr. "Farrell Impression, prob. Delced bed"	
20.4 - 23.1	S.S. white Dense F.V. - F. Gr.	
23.1 - 24.7	S.S. abundant but with grain shal. Laminar	
24.7 - 28.0	S.S. Light Gray v.f. - F. Gr. trace sh. Shlam.	
28.0 - 34.0	S.S. med. Gray v.f. Gr. contains many shal. Lam.	
34.0 - 36.0	S.S. Yellow. Gray F.-M. Grain Iron stain along fracture	
36.0 - 39.6	S.S. Gray F. Gr. Dense	

- 39.6-42.3 S.S. Yellowish Gray F. - M. Grain
parous
- 42.3-43.6 Shale Dark Gray
- 43.6-46.1 S.S. Shaley F. Gr.
- 46.1-47.4 S.S. Gray Conglomeratic v. - Carb Grain
contains small Cherts & Quartz Grains
Most of quartz granules and shale?
chips in upper half. Lower half
mostly m-c ss.
- 47.4-48.8 Shale Dark Gray
- 48.8-50.6 S.S. Shaley F.C. Gr.
- 50.6-53.4 S.S. Yellowish Gray parous M. Gr. & rock
v.c. Gr. & mica.
- 53.4-56.0 S.S. Gray Shaley v.f. Gr.
- 56.0-57.5 S.S. Gray Dirty mostly F. Gr. But rock
of Quartz granules.
- 57.5-81.7 Shale Dark Gray

81.7 - 97.3 ss medium gray, silty, shaly
very fine to fine grained;
trace of medium grains in upper 6".
fossil impressions 86.6 87.0 contain
shale laminae throughout.

97.3 - 114.6 shale dark gray to med. gray
contains silt laminae in part.

114.6 - 133.5 ss brownish gray, medium to
course grained, slightly porous, almost
friable in part, mica, silty, trace
of qtz. granules; silty throughout
but no shale partings, trace of
plant fossils. lower 1' more compact
fine grained.

133.5 - 159.1 shale, medium to dark gray, abundant
silty lenses in upper 1'; only trace
on down

159.1 - 160.6 ss, medium gray, fine to med. gr.
interlaminated with dark gray sh.
slightly more ss than sh, slightly
cg. in upper 6", ss pebbles, qtz.
granules, crinoids, corals

160.6 - 172.6 sh. med. to dark gray, trace of silt-
stone laminae.

- 172.6-173.1 SS med. gray, silty, fine to med. grained.
- 173.1-176.3 Sh. med. to dark gray, trace of silt laminae
- 176.3-177.6 SS med. gray, slightly cg., fine to med. grained; contains Sh. and siltstone, pebbles, abundant fossils, especially large gastropods.
- 177.6-192.3 Sh. med. to dark gray, abundant siltstone laminae
- 192.3-212.3 As above, but only a few siltstone laminae.

C1 0.3

elevation 324.2 bottom of hole

TD 212.3

hole 6 had 14 boxes, all present.

March 28, 1958

Greers Ferry Dam Site

25+00

Elevation - 430.0

72+00

(2)

- 0 - 8.6 Overburden -- no sampler
- 8.6 - 31.7
101.8
133.5
SS, brownish gray, porous,
silty, med. grained, trace of
coarse grains, and qtz granules,
plant fragments, and a few
brachiopods? sand is almost
friable in part, mica, and
glauconite? no indication of
cg. at base.
- 31.7 - 34.6 I Interlaminated siltstone and dark
101.8
136.4
gray shale. Amount of siltstone
decreases downward.
- 34.6 - 40.2 Sh. med. to dark gray, very finely
101.8
142.0
micaceous, contains trace of
siltstone laminae.
- 40.2 - 41.3 From top down ss 0.15', sh. 0.15',
101.8
143.1
ss 0.25', sh. 0.15', ss 0.4'.
SS is fine grained, sh is
silty.
- 41.3 - 42.3 Sh. medium to dark gray, contains
101.8
144.1
many siltstone laminae.

42.3-43.7	SS med. gray, silty, fine to med. grained.
43.7-44	Sh. dark gray.
44-47.8	SS brownish gray, porous, slightly friable, med. to coarse grained.
47.8-47.95	Sh. dark gray
47.95-48.6	SS med. gray, and compact, fine to med. grained.
48.6-52.2	Sh. dark gray, slightly silty
52.2-52.9	SS, med. gray, fine to med. grained. contains few sh. laminae
52.9-58.9	Sh. dark gray, trace of silt laminae
58.9-60.0	SS, med. gray, compact, very silty, fine to med. grained
60.0-70.8	Sh, dark gray, slightly silty.
70.8-71.1	SS, med. gray, silty, fine to med. grained.
101.8	
172.9	
71.1-90.7	Sh, med. gray to dark gray, very

silty, siltstone lenses and laminae are contorted into a marble cake effect. 1.4' below top is 0.2' of silty fine to med. grained ss.

90.7-121.7

101.8

223.5

Sh, dark gray, contains few siltstone laminae.

121.7-129.5

101.8

231.3

SS, med. light gray, silty micaceous, very fine to fine grained, contains abundant sh. laminae that increase in size & number until grades into sh in underlying unit.

129.5-146.4

101.8

248.2

Sh, med. gray to dark gray, very silty and slightly sandy. Thin contorted siltstone & sandstone laminae throughout give the unit a marble cake effect. Grades into underlying unit.

146.4-154.8

101.8

256.6

Interlaminated siltstone & shale, in about equal proportions

154.8-159.3

101.8

261.1

Interlaminated siltstone, shale and med. grained ss. in about equal proportions. ss lenses

contains fossil frags, crinoids,
bryozoa etc. and appears
to have a limy matrix.

- 159.3-162.8 Sh, dark gray, contains abundant
siltstone laminae.
 $\frac{101.8}{264.6}$
- 162.8-165.0 SS, med. light gray, silty, shaly,
micaceous, fine grained, with
lenses of med. to coarse grains.
 $\frac{101.8}{266.8}$
- 165.0-166.8 Sh, dark gray, contains abundant
siltstone laminae.
 $\frac{101.8}{268.6}$
- 166.8-176.5 SS, light gray, compact, very fine
to fine grained, contains sh.
partings as much as 0.15'
thick in the upper four feet and
shale laminae in the lower part.
 $\frac{101.8}{278.3}$
- 176.5-178.1 Sh, dark gray, contains laminae
of siltstone to very fine sandstone
laminar.
 $\frac{101.8}{279.9}$
- 178.1-178.9 Cg, med. gray, contains ss pebbles
to 1" in length, well rounded
pebbles, abundant fossil
frags, fine to very coarse ss.
trace of qtz. granules.
 $\frac{101.8}{280.7}$

0.1' above base is a 0.5'
shale parting.

178.9 - 199.0 Sh., med gray to dark gray, very
~~101.8~~ silty, contains abundant
300.8 siltstone lenses & laminae,
many of which are contorted.

C/ 0.1
elevation 231.1' bottom of hole
Bates 13 all present
TD 199.0.

March 28, 1958

Greers Ferry Dam Site.

25+00

Elevation - 261.7

③

74+50

- 0 - 2.3 Overburden, no samples
- 2.3 - 9.3 SS, light gray, very fine to fine grained, contains a few sh. laminae
- 9.3 - 9.9 Slightly silty shale.
- 9.9 - 10.6 Cg. med. gray, sandy & shaly, contains abundant fossil frags., a few rounded SS pebbles, fine to coarse SS., gastropods, crinoids etc., trace of Qtz. granules?
- 10.6 - 32.0 Sh., med to dark gray, very silty, contains abundant contorted siltstone laminae & lenses.
- 32.0 - 72.8 Sh., as above, but less silty, contains moderate amount of silt lenses & laminae and decrease toward base of unit. and lower 10' contains very little silt.
- 72.8 - 77.8 SS, med. gray, very silty, very fine

270.1
280.7

270.1
302.1

270.1
342.9

270.1
347.9

to fine grained, contains some
medium grains, abundant
fossil frag. in most of unit,
conchoids, brachs. etc., the
sand is limy throughout.

- 77.8-82.7
 $\frac{270.1}{352.8}$ Sh, med. gray to dark gray, very
silty, grades into unit below.
- 82.7-88.2
 $\frac{270.1}{358.3}$ SS, very silty & shaly, med. gray,
mottled with light gray,
probably not more than 50%
sand sized, trace of fossil frags,
slightly limy.
- 88.2-99.2
 $\frac{270.1}{367.3}$ SS, light gray, very slightly limy,
very fine to fine grained, trace
of mica, but otherwise reasonably
clean. grain size increases
downward, lower half is fine
to med. grain size.
- 99.2-101.0
 $\frac{270.1}{371.1}$ SS, light gray, fine to med.
grained, limy & fossiliferous,
lower 0.1' in upper half sh
parting, lower half brown
iron stained fossiliferous SS.
- 101.0-134.3
 $\frac{270.1}{404.4}$ Sh, dark gray, non-limy, slightly
silty, trace fossil frags. in

some of zones.

134.3-162.6 SS, light gray, compact, very
fine to fine grained, slightly
micaeous, but otherwise
relatively clean, a few thin
shale laminae, especially
in lower 2/3 rd., sharp
contact with underlying unit, lower
0.3' is Cg., ironstone? and
SS pebbles to as much as
1/2 inches long.

162.6-164.5 Sh, dark gray, slightly silty.

164.5-164.8 Coal, no apparent shale partings
in it.

164.8-169.6 Sh, dark gray, very silty, siltstone
laminae increases downward
till grades into underlying unit.

169.6-177.3 SS, light gray, very fine grained,
upper 1' of unit very silty and
shaly, lower 0.4' contains many
sh partings

177.3-185.3 SS, light to med. gray, compact,
fine to med. grained, relatively

clean; except for a few thin sh
partings.

185.3-185.6 Interlaminated sh & siltstone

270.1

455.7

185.6-186.7 SS, light gray, compact, micaceous,
very fine to fine grained.

270.1

456.8

186.7-188.8 Interlaminated siltstone & sh.
contains some lenses of very
fine SS.

270.1

458.9

188.8-195.5 SS, light gray, compact, fine to
medium grained, contains
abundant sh partings to 1/2"
thick, more abundant in
lower half.

270.1

465.6

195.5-200.5 sh, dark gray, silty, contains
abundant siltstone laminae,
and one very fine grained SS
bed 2.7' above base and 0.7'
thick.

270.1

470.6

TD 200.5 = 61.1 elevation bottom of hole
14 boten present.

March 29, 1958

Greens Ferry
Site #4
Hole #5

Boxes 10+11
missing
12 boxes

Surface Elevation 518.9

- Box 1 5.1 to 25.6
- 0 - 5.1 = 513.8 Overburden, no sample
- D-1 5.1 - 7.5 ss
- D-2 7.5 - 14.2 = 504.7 CL-3.0
ss
- D-3 14.2 - 16.8 light-gray clay
- D-4 16.8 - 18.7 med-gray clay
18.7 - 20.6 ^{498.3} = 1.9 CL -
- D-5 20.6 - 22.4 - Dirty ss
- D-6 22.4 - 25.6 = 493.3 CL 0.6
Clean ss

Box 2 493.3 - 474.6
 25.6 - 44.3

D-7 Gray ss - 25.6 - 26.6

D-8 Brown, weathered ss 26.6 - 27.9
 Lower 0.2 = gray clay parting

D-9 27.9 - 29.3 - gray ss
 Upper 0.3 brown

D-10 29.3 - 32.8 - GL-1.7 in middle
 Shale & silts interlam

D-11 32.8 - 34.3 - ss Gray
 Upper 0.3 w/ small dark sh? chips
 Lower 0.5 med-dk gy & dirty

D-12 34.3 - 42.2 - shale CL-1.3

D-13 42.2 - 44.3 - shale

Box 3 474.6 - 457.8
 47.6 - 57.8

D-14 47.6 - 52.3 CL 0.7
 Shale

D-15 52.3 - 61.1
 Shale

Box-4 457.8 - 441.9
61.1 - 77.0

D-16 61.1 - 63.1 CL 0.6
shale

D-17 63.1 - 67.1 CL 0.2
Gray sl. dirty ss - oxidized
along fracture near middle

D-18 67.1 - 71.5 CL 0.5
Mottled gray ss - bottom 0.5 ss coarser &
Lower 0.6 shale } dirty especially above
contact w/ shale.

D-19 71.5 - 75.5 -
White very hard ss

D-20 75.5 - 77.0
Hard ss w/ shale chips

Box-5 441.9 to 424.8
77.0 - 94.1

D-21 77.0 - 81.5
Sl shaley dirty, Congl(?) ss

D-22 81.5 - 82.3
Clean ss - trace sh in middle

D-23 82.3 - 84.3
Brown ss

D-24 84.3 - 88.2 - 55
1.7 core lost starting 0.8 from top
1.3 to 0.5 above base = brown
Otherwise, light gray

D-25 88.2 - 92.9 shaley ss

D-26 92.9 - 94.1 Lt gy ss

Box 6 424.8 - 409.4
94.1 - 109.5

D-27 94.1 - 96.7
Shaley ss - lower 1.0 mostly sh

D-28 96.7 - 97.5 congl. ss

D-29 97.5 - 101.6
Sl. dirty ss

D-30 101.6 - 102.9 sl shaley ss

D-31 102.9 - 104.2 Porous (foss?) ss

D-32 104.2 - 105.9 Dirty ss
Lower 0.4 foss.

D-33	105.9 - 109.5	shale
	0.6 - 1.5	missing
Box 7	409.4 - 393.3	
	109.5 - 125.5	
D-34	109.5 - 117.5	shale
D-35	117.5 - 125.5	shale
Box 8	393.4 - 378.3	
	125.5 - 140.6	
D-36	125.5 - 127.2	Shale w/ trace ironstone Top 1.1 Saltstone lower 0.6
D-37	127.2 - 132.9	shale
D-38	132.9 - 135.0	ss - sl porous
D-39	135.0 - 136.7	ss - sl porous
D-40	136.7 - 140.6	ss sl porous 1.0' section 0.2 above base missing

Box 9 378.3 - 363.0
140.6 - 155.9

D-41 140.6 - 144.4 brown ss

D-42 144.4 - 146.3 brown ss

D-43 146.3 148.5 H gy ss

D-44 148.5 151.7 Dirty, foss? ss

D-45 151.7 - 152.6 upper $\frac{1}{2}$ silty sh
lower half gy foss? ss

D-46 152.6 - 153.3 brown, dirty foss ss

D-47 153.3 - 155.9
Upper 0.8 v. shaley ss
Lower 1.8 shaley ss

Box 10 }
missing

Box 11 }

Box 12 331.2 - 319.2
187.7 - 199.7

D-48 187.7 - 191.5 wh togy ss

D-49 191.5 - 193.3 H 94 ss

D-50 193.3 - 193.6 Congl ss
grades into shale below

D-51 193.6 - 195.5 shale

D-52 195.5 - 199.7 shale

Bottom of hole

March 30, 1956
Greens Ferry Dam site # 4
Hole # 7
Surface Elevation 336.8

10 boxes - all present

0 - 13.9 Overburden - no samples

Box 1 322.9 - 308.2
13.9 - 28.6

J-1 13.9 - 15.5 shale

J-2 15.5 - 17.9 dirty ss

J-3 17.9 - 19.2

top 0.0 - 0.4 silty shale

0.4 - 1.3 dirty ss w/ shale partings

J-4 19.2 - 21.1 silty orsdy shale

J-5 21.1 - 21.5 fossil congl?

J-6 21.5 - 24.9 silts?

J-7 24.9 - 28.6 silts?

Box 2 308.2 - 293.8
28.6 - 43

J-8 28.6 - 32.4

J-9 36.2

J-10 40.3

1.6 missing sl. below center = 0.7^{-2.3} above base

J-11 43

banded slts?

Box 3 293.8 - 279.1
43 - 57.7

J-12 43 - 46.7

J-13 46.7 - 50.3

J-14 50.3 - 54.6

J-15 54.6 - 55.1 - congl, foss

J-16 55.1 - 56.4 - silty shale

J-17 56.4 - 57.7 - congl
oil shale parting 0.4 below top

banded
slts, ironstone?
lumps

Box 4 279.1 - 264.8
57.7 - 72.0

J-18 57.7 - 60.3
SS, upper 0.2 darker, as J-17

J-19 60.3 - 62.0 SS, trace ironstone?
pebbles

J-20 62.0 - 64.7 dirty SS

J-21 64.7 - 67.5 dirty SS, trace
ironstone pebbles, esp @ base

J-22 67.5 - 70.3 Hgy clean SS

J-23 70.3 - 72.0 clean SS

Box 5 264.8 - 249.1
72.0 - 87.7

J-24 72.0 - 75.7
Upper 1.7 SS
Lower 0.8 Shale (1.2' shale lost)

J-25 75.7 - 76.5 - foss cong.

J-26 76.5 - 80.3 clean SS

J-27 80.3 - 84.1 sl banded silty sh

J-28 84.1 - 87.7 sl banded silty sh.

Box 6 249.1 - 234.6
87.7 102.2

J-29 87.7 - 91.3

J-30 91.3 - 95.0 } sl banded silty sh

J-31 95.0 - 98.7

J-32 98.7 - 102.2

Box 7 234.6 - 219.8
102.2 - 117.0

J-33 102.2 - 106.2

J-34 106.2 - 110.3

J-35 110.3 - 113.3

J-36 113.3 - 117.0

Box 8 219.8 - 206.5
117.0 - 130.3

J-37 117.0 - 120.3

J-38 120.3 - 123.4

Upper 1.2 gone - sampled by CEng.

J-39 123.4 - 127.1

J-40 127.1 - 130.3

} silty shale

Box 9 206.5 - 191.9
130.3 144.9

J-41 130.3 - 135.9 shale

135.9 - 137.7 gone - sampled, etc

J-42 137.7 - 141.9 shale

J-43 141.9 - 143.6 silty, foss? shale

J-44 143.6 - 144.9 silty shale

Box 10

191.9 - 177.1

144.9 - 159.7

J-45 144.9 - 148.2 silty shale

J-46 148.2 - 148.7 cong: shale

J-47 148.7 - 150.5 siltstone

J-48 150.5 - 152.3 siltstone

J-49 152.3 - 156.0 ss

J-50 156.0 - 159.7 ss

Bottom of hole