FOUNDATION REPORT
SMITHLAND DAM
OHIO RIVER
VOLUME II of II
PHOTOGRAPHS AND FOUNDATION MAPS
Contract No. DACW62-75-C-0015
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This report presents complete foundation records of conditions encountered during construction and the methods used to adapt the dam structures to these conditions. The report covers the construction of the Smithland Dam and Weir only. The construction for the twin 1200 foot locks is covered under a previous report. The high lift gated section of the dam consists of 12 piers and 11 gated bays. The dam section starts on the Kentucky side of the river-wall of the locks and extends 1400 feet to the Kentucky side of pier 12. A fixed weir consisting of granular filled and concrete capped...
Con't

- steel piling cells extends from pier 12 some 1728 feet to the Kentucky bank.
VOLUME II

SMITHLAND DAM

FOUNDATION REPORT

J. A. JONES CONSTRUCTION CO.
& NELLO L. TEER COMPANY
(A JOINT VENTURE)

CONTRACT NO. DACW 62-75-C-0015
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8. Cut-off trench, Gate Bay No. 5, View of healed joint in foundation. 18 Mar 77
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23 Jun 77
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NOTE: Portions of U/S faces of Gate Bays can be seen on Pier foundation photographs.

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21. Solution channel in 10' strip, Gate Bay No. 2, Sta. 72+50S to 72+60S, Sta. 0+30.50 to 0+49.50. Looking upstream. 19 Dec 77
22. Clean-up in 10' wide section, Sta. 0+39.5D to 0+49.5D, Stilling Basin No. 3, Mudseam at 74+255±. 21 Dec 77

23. Downstream face, Stilling Basin No. 5, Illinois 1/4 of bay, Undergoing final clean-up, Bottom Elev. 293.5±. 5 Apr 78
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25. Looking downstream into Stilling Basin No. 5 from tainter gate. Solutioned area on right prior to removal. Trench through rest of bay later cleaned out and filled with dental concrete. 4 Apr 78
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(Unstream and downstream sections very similar)
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14 Feb 77

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Ruler at approx. neat line.
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10 May 77
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14 Jun 77

86. Training Wall, View of rock conditions in Kv. face, Bottom Flev. 240 ft.  
6 Jun 77
PART II

FOUNDATION MAPS
Very badly weathered surrounded by residual clay & alluvium cont.

Prob. cheat prior to excav.

Siliceous marker bed

Tight bedding plane

Open strained bedding plane

Elev 249

PIER 2

72+50 S  72+60 S  72+70 S  72+80 S  72+90 S  73+00 S
S END PIER Z
HA. O+13.54
Bottom Rough - Calsite Deposits showing on Joint - Shaley Appearance 05 - Rough Rock Marked Appearance US.

ΔSMC 328
0.4 Deep

ΔSMC 382
G

ΔSMC 381
G

CC5-1

X 53

X 52

ΔSMC 394

X 51

X 50

1+20.5 U
76+73.54 S

1+20.5 U
76+73.54 S

PIER 5
Thin med. bed. v. chty. L.S.
Sl. Din. weed. bed. film.

Thin med. bed. v. chty. acc. out.

Debris

W. flow
SOL. XYIN.

270

275

265

260

255

250

245

Frac. XYIN. L.S.
STYLC.
Med. bedd.

XYIN. L.S.

SOL. XYIN.

SOL. XYIN.

SOL. XYIN.
PIER 6
ILL. SIDE

PIER 6
FOUNDATION FLOOR
Sketched 23 April 77

290

280

270

260

250

240

KY SIDE

Pief.10
No. 1 CUITEF TRENCH

FP 211 - 56
2. CUTOFF TRENCH

DATE: 1 DEC 1976
CUTOFF TRENCH
NO 6  CUTOFF TRENCH
Profile

Profile

Founding elev. 250.

Bay No. 7 Cutoff
Q. 7  CUTOFF TRENCH
Y NO. 9  CUTOFF TRENCH  Flw 245
CUTOFF TRENCH
Note: It may appear between plans lines.
- Very weathered surface with strong joint.
- Refer frequently to any material.
- This entire face looks very much like a faulted feature.

BAY US FACE
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**PIER 9**

6" gap caused by heaving along sole.


Plan 9

Plot

Plan 11

Fig 10
RAY 9 US FACE
Mutt 44re 4r b E L 270

PRESPLIT FACE
STA 0+49.5D

solid 4r. 6ks

PRESPLIT FACE
STA 0+49.5D

mud face

fresh bes

rock

fresh bes

thicked 4-6" bkn

planted tight to rock w/ P.1 wall

O+49.5D

PLACED TIGHT TO ROCK w/ P.1 WALL

0+49.5D

foundation gate bay I

STA 72+23.545

sta 71+73.545

FOUNDATION
GATE BAY I

PLACED TIGHT TO ROCK w/ P.1 WALL

0+49.5D

P.1 WALL

CONCRETE FROM P.1

CONCRETE FROM P.1

P.1 WALL

CONCRETE FROM P.1

CONCRETE FROM P.1

CONCRETE FROM P.1
bkn, blky, fr breaks; springing over jet
no pre-split holes visible
unable to map

T  NESE  T  Op surface  T
18" o.c. 11' U/S

(2) Odc. Ch., 7' wd, 11' H
Random

T, Odc. Hf.  T

V/S face formed 8-6' deep

EL. 270
EL. 260

0+49.5D
0+39.5D

CP-4
STA 75+28.54S

STA 74+63.545

Foundation GATE Bay 3
For breaks; springing on jts
re-split holes visible
unable to map

which, T wd
10 dp
Random
Tt
T

Random fr.
Tt

Random fr.
Tt

random fr.
T

solch 10° dp,
pinched out

Lowation Gate Bay 3

EL 270

EL 260

0 + 49.5 D

0 + 32.5 D

FP 3

STA 74+03.54S

STA 74+63.54S
FOUNDATION
GATE BAY 4

7512854$
FACE VIEW
D/S PRESPLIT LINE
STILLING BASIN 5

PLAN VIEW
D/S STILLING BASIN
VIEW
SPLIT LINE
STILLING BASIN 5

VIEW
STILLING BASIN

2

FP.11-81
TIGHTLY FRACTURED & JOINTED

BP. HD. GR. IS.
W/LOCALIZED CHERT
CONCENTRATIONS, CHERT
IS FRACTURED
THROUGHOUT

FRAC. LOOSE W/MUD SEAMS
THROUGHOUT

STATION 77+58.55 S
BF. CONC.
TAL. EL. 29.5'

0+135U

GATE BAY #1

0+46.5U

JOINTED N-85-E & N-20-E

CHALL. FLD.
CLR. CL. AVG. 4.5 FT.
MUD SEAM 2'-6" BELOW ROCK @ EL. 253'
BOT. SOL. CHANNEL 3'-3" DEEP
UNCONSOLIDATING BP. W/CHEMT. NOD.
(W)BE TO GR. TO GREEN L. SHAUX, CHEMT. NOD.
SOL. CHANNEL 85'

CITY LAYER 1'-8" THICK

JOINTER 1'-8" SPACING
N-20-E & E-W
OVERBROKE CONC. FROM PIER
O+13.5U

GATE BAY #5
"46.5U

STN 76+76.45 S

FP II-82