(1) March 23, 1993 thru March 27, 1993 SHEET ____ OF ____

COMPUTED ____ DATE ____

STORAGE VOLUME = 1,733,233 cf CHECKED ____ DATE ____

PUMPING CAP

1500 gpm = 12031 ft³/hr

1200 gpm = 9625 ft³/hr

(1A) 5.73" in 5 days

DAY 1 3.87" = 1,355,029 cf

= 378,204

+ 577,488 (PUMPING)

avail. 955,692 cf

DAY 2 .22" = − 77,030

+ 577,488 (PUMPING)

1,456,150 cf

DAY 3 0" + 577,488 (PUMPING

= 1,733,233 (BACK UP TO MAX. STORAGE)

(1B) DAY 1 3.87" = 1,355,029

= 378,204

+ 288,744 (PUMPING)

666,948

DAY 2 .22" = − 77030

+ 288744 (PUMPING)

878,662

DAY 3 0" = + 288744

1,167406

DAY 4 .51" − 178,570

+ 288744 (PUMPING)

1,277,580

DAY 5 1.13" − 395654

+ 288744 (PUMPING)

1,170,670 slightly more than 2 days to max. storage

TVA 11030 (WM-7-75)

SHEET _____ OF _____

COMPUTED _____ DATE _____

CHECKED _____ DATE _____

(1C)

1,733,233

DAY1 3.87" − 1,355,029

378,204

+462,000 (pumping)

840,000

DAY 2 .22" − 77,030

+462000 (pumping)

1,224,970

DAY 3 0" + 462000 (pumping)

1,686,970

DAY 4 .51" −178,570

+462,000 (pumping)

1,733,233 (back up to max. storage)

(1D)

1,733,233

DAY 1 3.87" −1,355,029

378,204

+231,000 (pumping)

609,204

DAY 2 .22" −77,030

+231,000 (pumping)

763,174

DAY 3 0" +231,000 (pumping)

994,174

DAY 4 .51" −178,570 (pumping)

+231000

1,046,604

DAY 5 1.13" −395654

+231 000 (pumping)

881,950

more than 3½ days to max storage

TVA 11030 (WM-7-75)

TVA-00006682

(1) SHEET ____ OF ____

Peaks

COMPUTED ____ DATE ____

STORAGE VOLUME = 1,733,233 cf CHECKED ____ DATE ____

4.09" in 30 hrs = 1,432,059 cf

left = 301,174

+ pumping

2 @ 1500	721,860	1,023,034
1 @ 1000	360930	662,104
2 @ 750	577500	878,674
1 @ 500	288,750	589,924

3.87" in 18 hrs = 1,355,029

left = 378,204

+ pumping

2 @ 1500	433,116	811,320
1 @ 1000	216,558	594,762
2 @ 750	346,500	724,704
1 @ 500	173,250	551,454

TVA 11030 (WM-7-75)

(2) Dec 4, 1993 thru Dec 10, 1993 SHEET ____ OF ____

COMPUTED ____ DATE ____

STORAGE VOLUME - 1,733,233 cf CHECKED ____ DATE ____

(2A) 6.03" in 7 DAYS

DAY 1 4.32" = 1,512,590 cf
= 220,643 cf
+577,488 (PUMPING)
798131

DAY 2 .4" −140,055
+577,488 (PUMPING)
1,235,564

DAY 3 0" +577,488 (PUMPING)
1,733,233 back up to max. Storage

(2B) DAY 1 4.32" = 1,512,590 cf
= 220,643 cf
+288,744 cf (pumping)
509,387 cf

DAY 2 .4" −140,055 cf
+288,744 (pumping)
658,076

DAY 3 0" +288,744 (PUMING)
946820

DAY 4 0" +288,744 (PUMPING)
1,235,564

DAY 5 0" 288,744 (PUMING)
1,524,308

DAY 6 0" 288,744 (PUMPING
1,733,233 (back up to max. storage

TVA 11030 (WM-7-75)

(2)

SHEET ____ OF ____

COMPUTED ____ DATE ____

CHECKED ____ DATE ____

(2c)

DAY 1 4.32" = 1,512,590 cf
= 220,643 cf
+ 462,000 (PUMPING)
682,643

DAY 2 .4" -140,055
+462,000 (PUMPING)
1,004,588

DAY 3 0" +462,000 (PUMPING)
1,466,588

DAY 4 0" +462,000 (PUMPING
1,733,233 (back up to max. storage

(2d) DAY 1 4.32" 1,512,590 cf
= 220,643 cf
231,000 (PUMPING)
451,643

DAY 2 .4" -140,055
+231,000 (PUMPING)
542,588

DAY 3 0" +231,000 (PUMPING)
773,588

DAY 4 0" 231,000 (PUMPING)
1,004,588

DAY 5 0" 231,000 (PUMPING)
1,235,588

DAY 6 0" 231,000 (PUMPING)
1,466,588

DAY 7 1.18" -458.679
+ 231,000 (PUMPING)
1,238,909 slightly more than 2 days to max. storage

TVA 11030 (WM-7-75)

(2)

SHEET ____ OF ____

Peak

COMPUTED ____ DATE ____

CHECKED ____ DATE ____

STORAGE VOLUME = 1,733,233 cf

4.72" in 30 hrs = 1,652,645

left = 80,588

+ pumping (1 pump 721,860; 1 pump 360,930; 2 pumps 577,500; 1 pump 288,750) = 802,448; 441,518; 658,088; 369,338

4.32" in 18 hrs = 1,512,590

left = 220,643

+ pumping (433,116; 216,558; 346,500; 173,250) = 653,759; 437,201; 567,143; 393,893

TVA 11030 (WM-7-75)

(3) Feb 8 1994 thru Feb 11, 1994 SHEET ____ OF ____

COMPUTED ____ DATE ____

CHECKED ____ DATE ____

STORAGE VOLUME = 1,733,233 cf

6.67" in 3 1/4 days

(3A)

DAY 1 .4" avail 140,055
=1,593,178
+ 288,744 (pumping)
1,733,233

DAY 2 1.48" -518,202
+577,480 (pumping)
1,733,233

DAY 3 1.37" -479,687
+577,480 (pumping)
1,733,233

DAY 4 3.42" -1,197,467
577,480 (pumping)
1,113,246

slightly more than 1 day to pump out to max storage

(3B)

DAY 1 .4" avail 140,055
1,593.178
+144,372 (pumping)
1,733,233

DAY 2 1.48" -518,202
+288,744 (pumping)
1,503,775

DAY 3 1.37" -479,687
+288,744 (pumping)
1,312,832

DAY 4 3.42" -1,197,467
+288,744 (pumping)
404,109

take slight more than 4 1/2 days to pump out to max. storage

TVA 11030 (WM-7-75)

TVA-00006687

(2)

SHEET _____ OF _____

COMPUTED _____ DATE _____

CHECKED _____ DATE _____

STORAGE VOLUME = 1,733,233 cf

(3C)

DAY 1 .4" 140,055

avail 1,593,178

+ 462000 (pumping)

1,733,233

DAY 2 1.48" -518,202

+ 462,000 (pumping)

1,677,031

DAY 3 1.37" -479,687

+ 462000 (pumping)

1,659,344

DAY 4 3.42" -1,197,467

462,000 (pumping)

923,877

take 1 3/4 days to pump out to max storage

(3D)

DAY 1 .4" 140,055

avail 1,593,178

+ 231,000 (pumping)

1,733,233

DAY 2 1.48" -518,202

+231,000 (pumping)

1,330,531

DAY 3 1.37" -479,687

+ 231,000 (pumping)

1,081,844

DAY 4 3.42 -1,197,467

+ 231,000 (pumping)

115,377

take 7 days to pump out to max eff.

within an inch of freeboard

TVA 11030 (WM-7-75)

(3)

SHEET _____ OF _____

Peak

COMPUTED _____ DATE _____

STORAGE VOLUME = 1,733,233 cf

CHECKED _____ DATE _____

3.42" in 18 hrs. = 1,197,467 cf

left = 535,766

+ pumping (433,116 + 216,558 + 346,500 + 173,250) = 968,882 + 752,324 + 882,266 + 709,016

TVA 11030 (WM-7-75)

(4) Mar 27, 1994 thru Mar 31, 1994 SHEET ____ OF ____

COMPUTED ____ DATE ____

STORAGE VOLUME = 1,733,233 cf CHECKED ____ DATE ____

(4A) [6-18" in 5 days]

DAY 1 4.78" = 1,673,653
available = 59,580
+ 577,488 (pumping)
637,068

DAY 2 .96" 336,131
+ 577,488 (pumping)
878,425

DAY 3 .04" - 14,006
+ 577,488 (pumping)
1,441,907

less than 1 day to pump back down to max. storage

(4B)

DAY 1 4.78" = 1,673,653
59,580
+ 288,744 (pumping)
348,324

DAY 2 .96" - 336,131
288,744 (pumping)
300,937

Day 3 .04" - 14,006
+ 288,488 (pumping)
575,419

Day 4 0" + 288,488 (pumping)
863,907

Day 5 .4" - 140,055
+ 288,488 (pumping)
1,012,340

2½ days to pump back down to max. stora

TVA 11030 (WM-7-75)

(4)

SHEET _____ OF _____

COMPUTED _____ DATE _____

CHECKED _____ DATE _____

STORAGE VOLUME = 1,733,233 cf

(4C)

DAY 1 4.78" = 1,673,653
available = 59,580
462,000 (pumping)
521,580

Day 2 .96" − 336,131
+ 462,000 (pumping)
647,449

Day 3 .04" − 14,006
+ 462,000 (pumping)
1,095,443

Day 4 0" 462,000 (pumping)
1,557,443

Day 5 .4" − 140,055
+ 462,000 (pumping)
1,733,233

max storage

(4D)

DAY 1 4.78" = 1,673,653
avail = 59,580
231,000 (pumping)
290,580

DAY 2 .96" − 336,131
+ 231,000 (pumping)
185,449

Day 3 .04" − 14,006
231,000 (pumping)
402,443

Day 4 0" + 231,000 (pumping)
633,443

Day 5 .4" − 140,055
+ 231,000 (pumping).
724,388

nearly 4½ days to max. storage

TVA 11030 (WM-7-75)

(5) april 12 thru April 16, 1994 SHEET ____ OF ____

COMPUTED ____ DATE ____

STORAGE VOLUME = 1,733,233 cf CHECKED ____ DATE ____

[4.58" in 4½ days

(5A)

DAY 1 .05" = 17,507
left = 1,718,726
+ 288,744 (pumping)
1,733,233

DAY 2 2.41" - 843,829
+ 577,488 (pumping)
1,466,892

DAY 3 0" + 577,488 (pumping)
1,733,233

DAY 4 1.30" 455,178
+ 288,744 (pumping)
1,566,799

DAY 5 .82" - 287,112
+ 577,488 (pumping)
1,733,233 back up to max storage

(5B)

DAY 1 .05" = 17,507
left = 1,718,726
+ 144,372 (pumping)
1,733,233

DAY 2 2.41" - 843,829
+ 288,744 (pumping)
1,178,148

DAY 3 0" 288,744 (pumping)
1,466,892

DAY 4 1.30" - 455,178
+ 288,744 (pumping)
1,300,458

DAY 5 .82" - 287,112
+ 288,744 (pumping)
1,302,090

1½ days to pumpout to maximum storage

TVA 11030 (WM-7-75)

(5) SHEET ____ OF ____

COMPUTED ____ DATE ____

STORAGE VOLUME = 1,733,233 cf CHECKED ____ DATE ____

(5C)

DAY 1 .05" = 17,507
left = 1,718,726
231,000 (pumping)
1,733,233

DAY 2 2.41" -843,829
+462,000 (pumping)
1,351,404

DAY 3 0" +462,000 (pumping)
1,733,233

DAY 4 1.30" 455,178
+231,000 (pumping)
1,509,055

DAY 5 .82" -287,112
+462,000 (pumping)
1,683,943 about 2½ hrs to pump back up to max storage

DAY 1 .05" = 17,507
left = 1,718,726
+ 115,500 (pumping)
1,733,233

DAY 2 2.41" = -843,829
231,000 (pumping)
1,120,404

DAY 3 0" = 231,000 (pumping)
1,351,404

DAY 4 1.30" -455,178
231,000 (pumping)
1,127,226

DAY 5 .82" -287,112
+231,000 (pumping)
1,071,114 ≈ 2 days 21 hrs to pump out to max. storage

TVA 11030 (WM-7-75)

KIF-COAL YARD RUNOFF POND

2 lines

Time (hr)	10 yr (cf)	1500 gpm	1200 gpm	1500^2 gpm	1200^2 gpm
0.5	619742	6016	4813	12032	9626
1	777303	12031	9625	24064	19252
2	875340	24063	19250	48128	38504
3	1032905	36094	28875	72192	57756
6	1232480	72188	57750	144384	115512
12	1470573	144375	115500	288768	231024
24	1680657	288750	231000	577536	462048

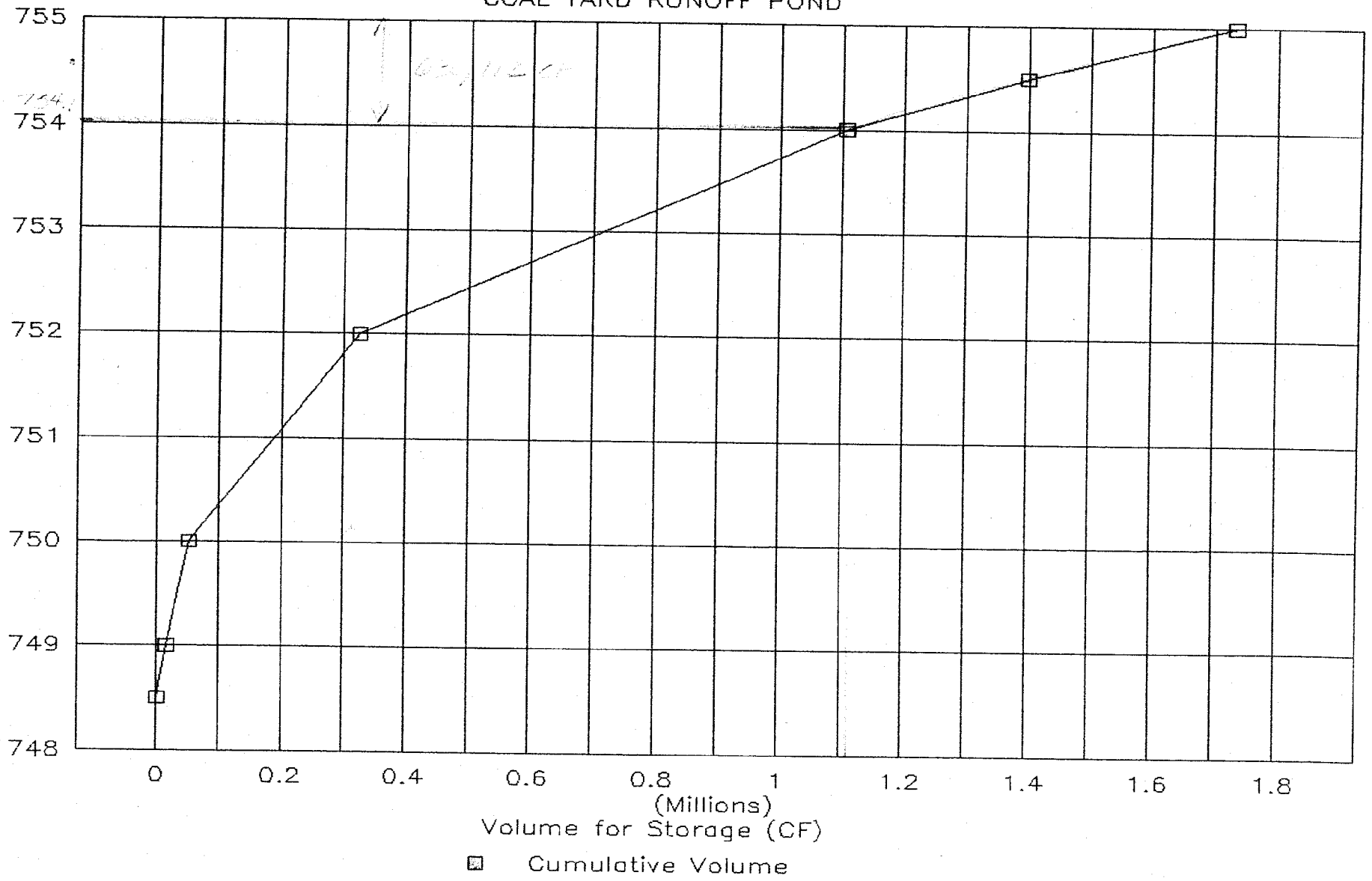
KINGSTON FOSSIL PLANT

RAINFALL DATA (US Weather Bureau Technical Paper No. 40)

Rainfall Duration (hr)	5 yr Rainfall Depth(in)	2 yr Rainfall Depth (in)	1 yr Rainfall Depth (in)
0.5	1.52	1.2	1.05
1	1.91	1.55	1.3
2	2.4	1.95	1.6
3	2.6	2.1	1.65
6	3.25	2.5	2.1
12	3.75	2.85	2.5
24	4.25	3.4	2.9

KINGSTON FOSSIL PLANT

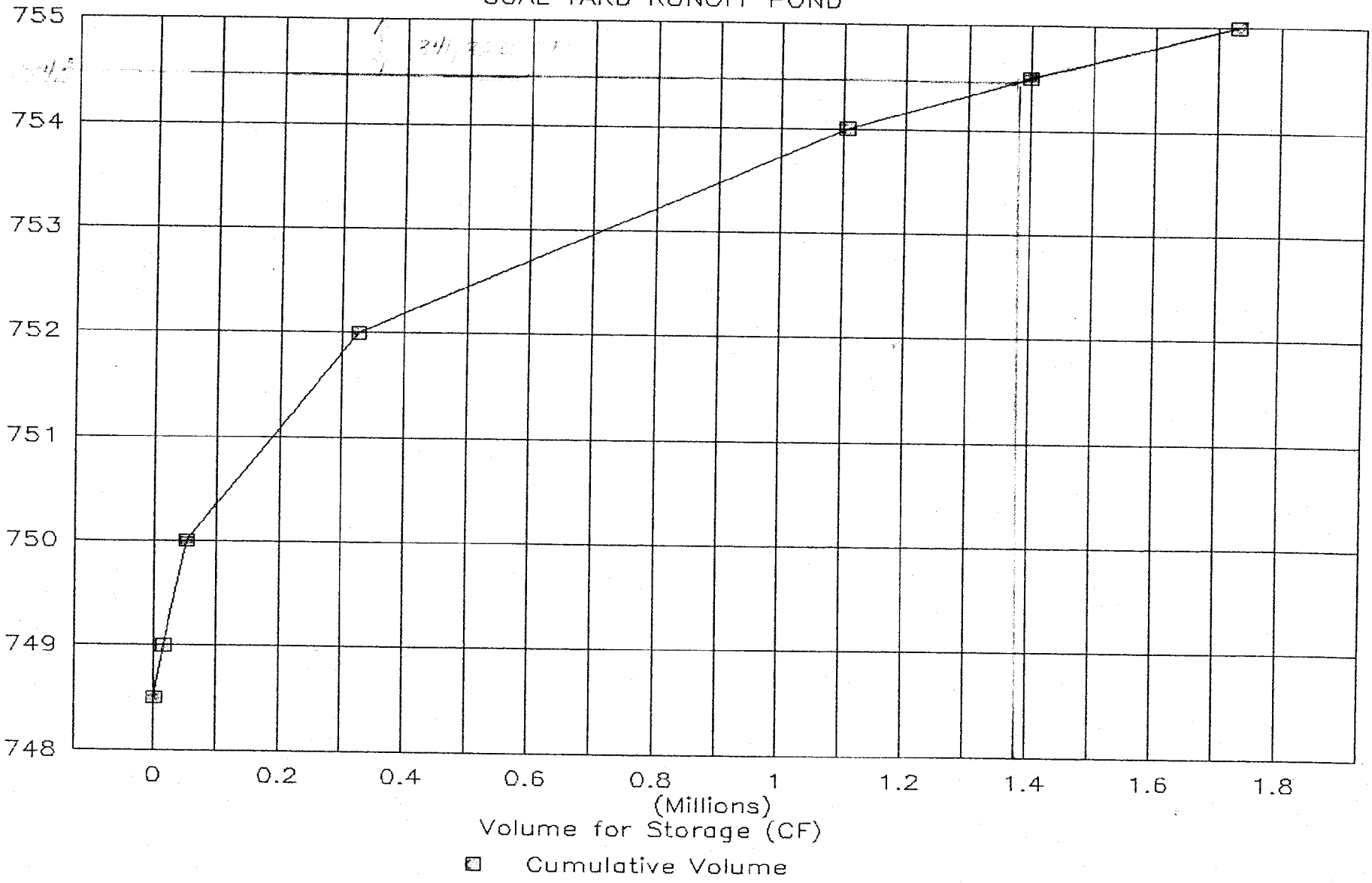
COAL YARD RUNOFF POND



- STORAGE AVAILABLE AT TOP OF 25-YR-24-HR STORM WITH 2 ft FREEBOARD

KINGSTON FOSSIL PLANT

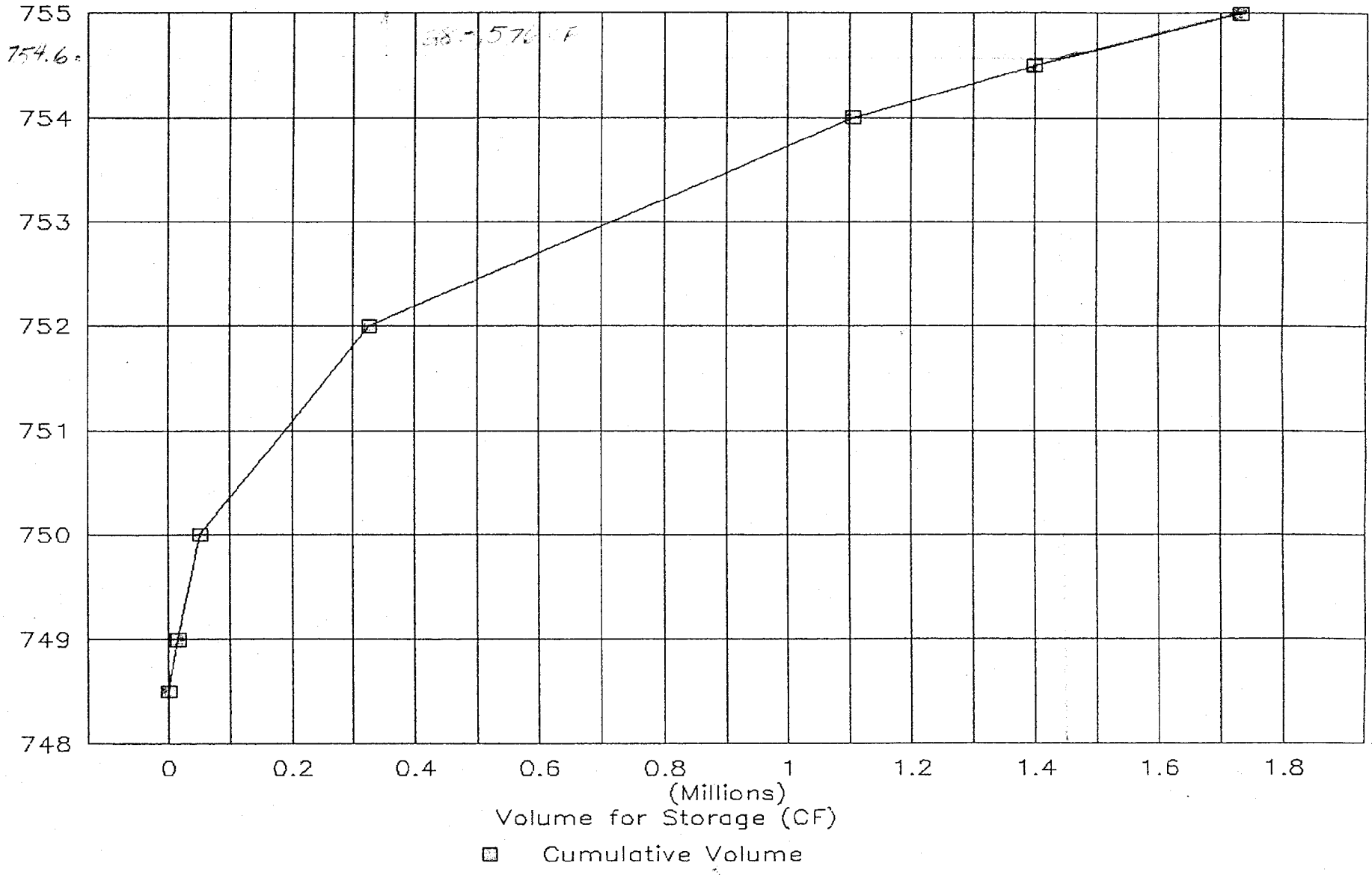
COAL YARD RUNOFF POND



TVA-00006697

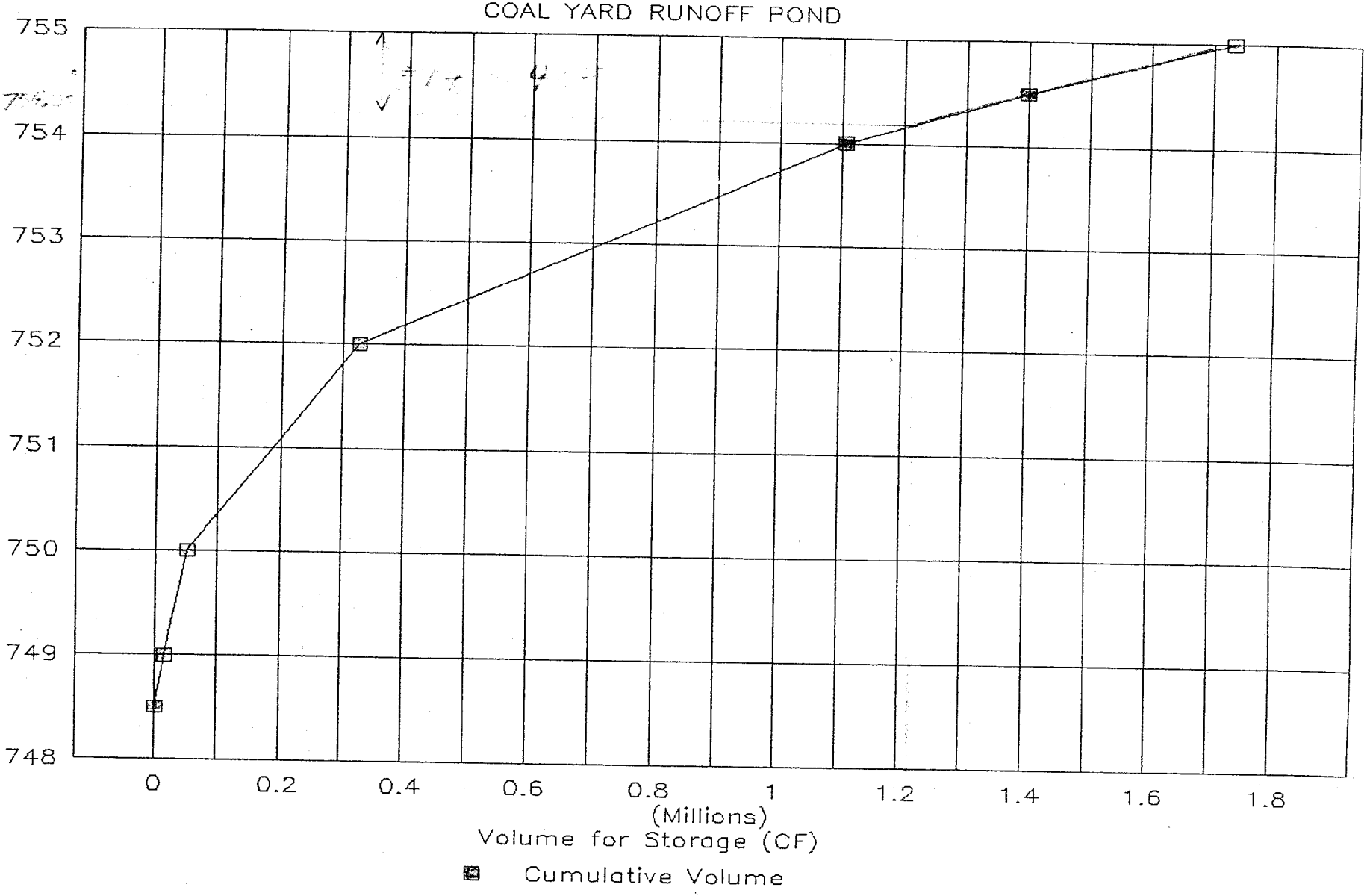
KINGSTON FOSSIL PLANT

COAL YARD RUNOFF POND



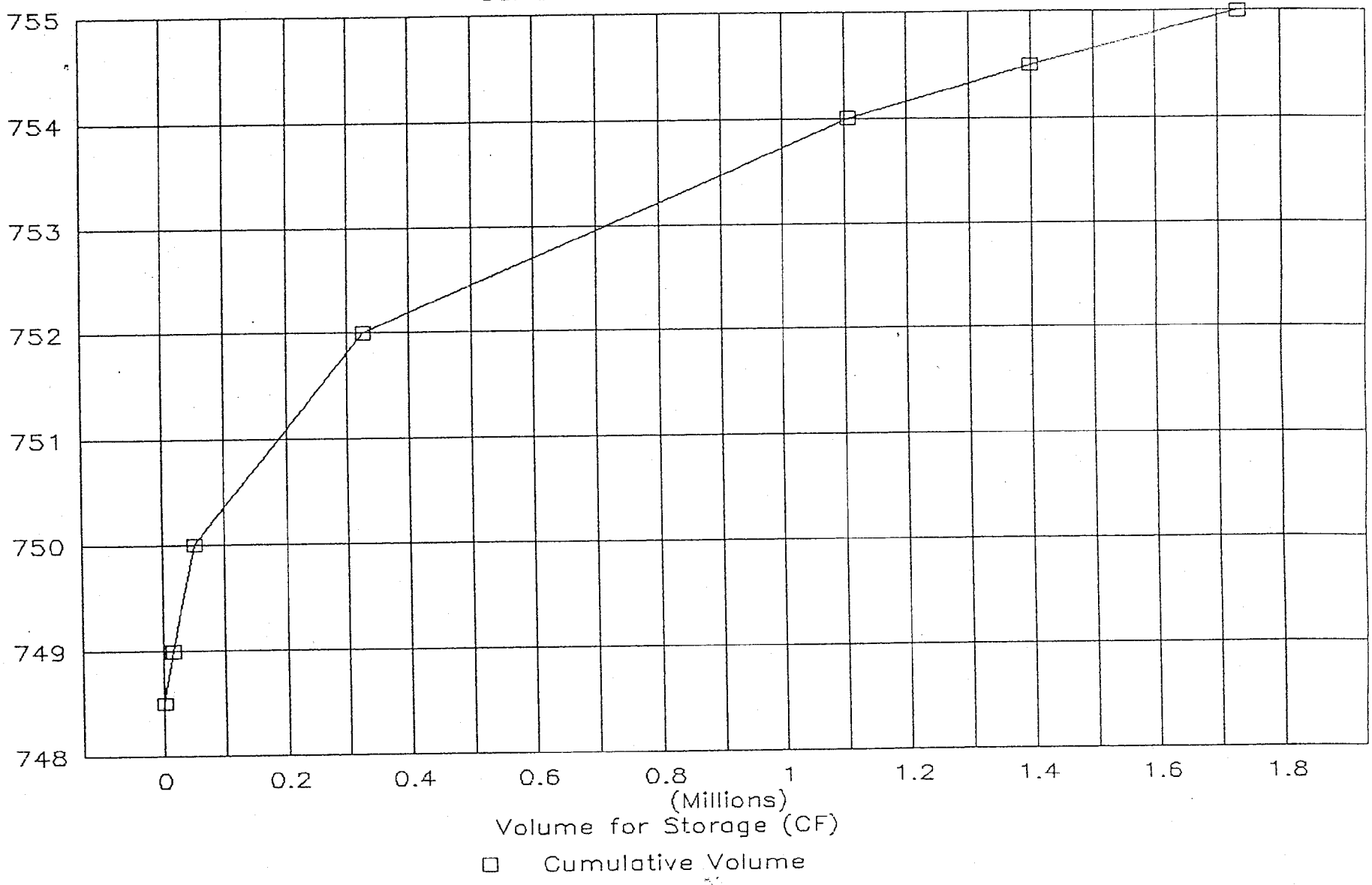
KINGSTON FOSSIL PLANT

COAL YARD RUNOFF POND



KINGSTON FOSSIL PLANT

COAL YARD RUNOFF POND



KINGSTON FOSSIL PLANT
COAL YARD RUNOFF POND

SHEET ____ OF ____

COMPUTED CLM DATE 6-20-94

CHECKED ____ DATE ____

1 1500 gpm pump

AT END OF 10 YR / 24 HR STORM

1680657 - 288750 = 1,391,907 cf

@ EL 754.5

STORAGE LEFT = 1,733,233 - 1,391,907 = 341,326 CF

RAINS AGAIN..
could contain..

341,326 = 350,137 x
+ 288,750 (24 hr pumping capacity)

x = 1.8" (can't handle a 1 yr - 24 hr storm)

1 1200 gpm pump

AT END OF 10 YR / 24 HR STORM

1680657 - 231,000 = 1,449,657 cf

@ EL 754.6

STORAGE LEFT = 1733,233 - 1,449,657 = 283,576 cf

RAINS AGAIN..
could contain..

283,576 = 350,137 x
+ 231,000

x = 1.47" (can't handle a 1 yr - 24 hr storm)

TVA 11030 (WM-7-75)

KINGSTON FOSSIL PLANT
COAL YARD RUNOFF POND

SHEET _____ OF _____

COMPUTED CLM DATE 6-20-94

CHECKED _____ DATE _____

2 1500 gpm pumps

AT END OF 10 YR STORM
24-HR

1,680,657 - 577,536 = 1,103,121 cf
@ el 754.1

STORAGE LEFT = 1,733,233 - 1,103,121 = 630,112 cf

RAINS AGAIN..
could contain..

630,112 = 350,137 x
+577,536
x = 3.45" (could handle a 2 yr-24 hr storm)

2 1200 gpm pumps

AT END OF 10 YR STORM
24 HR

1,680,657 - 462,048 = 1,218,609 cf
@ el 754.25

STORAGE LEFT = 1,733,233 - 1,218,609 = 514,624 cf

514,624 = 350,137 x
+462,048
x = 2.79" (can't handle a 1 yr-24 HR storm)

TVA 11030 (WM-7-75)

SHEET _____ OF _____

COMPUTED _____ DATE _____

CHECKED _____ DATE _____

TVA 11030 (WM-7-75)

KINGSTON FOSSIL PLANT
COAL YARD RUNOFF POND

SHEET ____ OF ____

COMPUTED CLM DATE 6-30-94

CHECKED ____ DATE ____

10 YR - 12 HR (AT END OF DAY)

TRY: 1 1500gpm pump

10YR-12HR (4.2" RAIN)

1470573 - 144375 = 1,326,198 cf

12hr @el 754.4

STORAGE LEFT = 1,733,233 - 1,326,198 = 407,035 cf

RAINS AGAIN..

could contain.. 407,035 = 350137x

+ 288750

↑ 24 hr x = 1.99" (can't handle a 1 yr - 24 hr storm)

---

2 1500 gpm pumps

10 YR-12 HR (4.2" RAIN)

1470573 - 288,768 = 1,181,805 cf

@ el 754.15

STORAGE LEFT = 1733233 - 1181805 = 551,428 cf

551,428

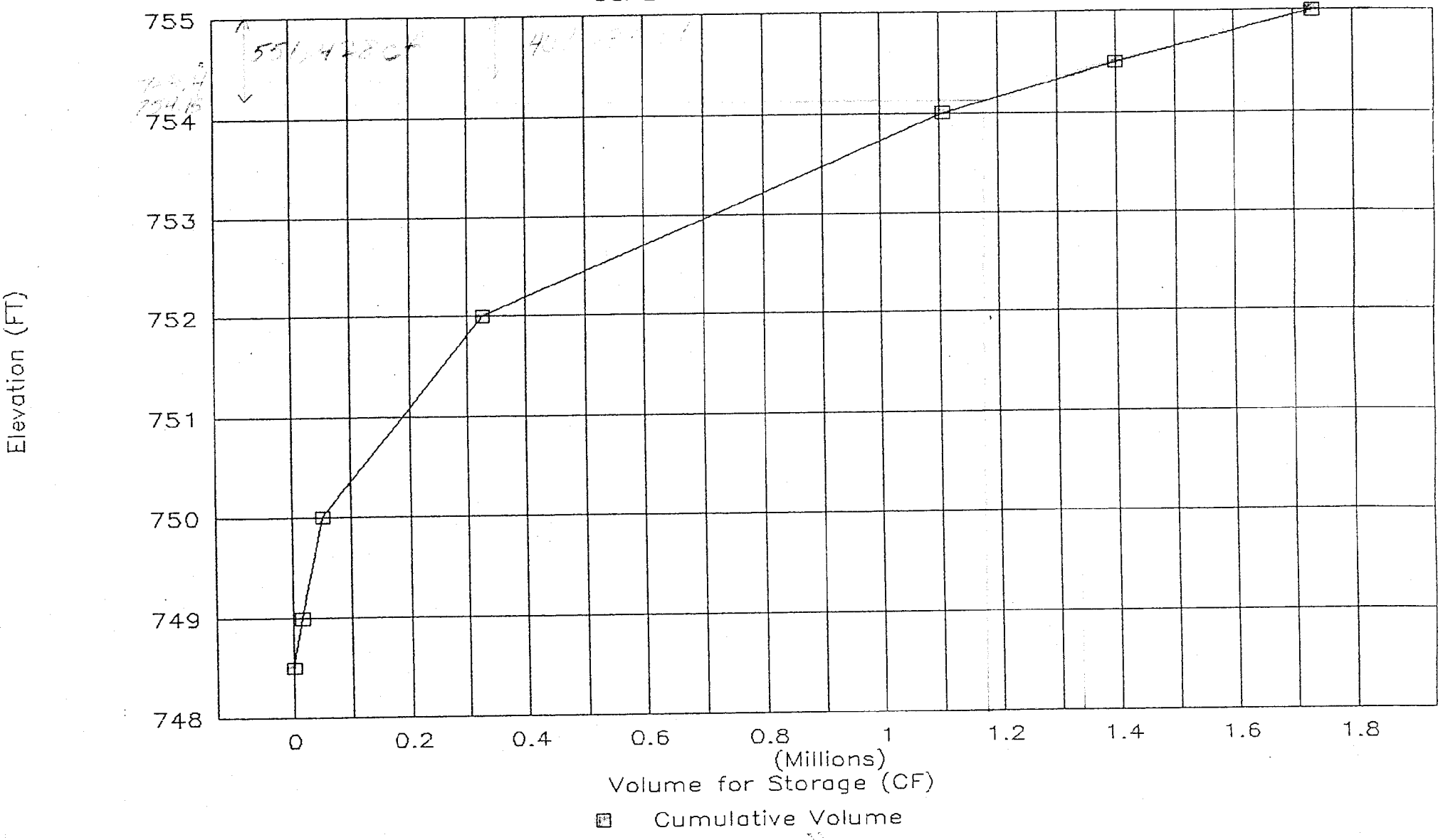
+ 577,536 = 350,137x

x = 3.22" (can handle a 1 yr-24 hr storm)

TVA 11030 (WM-7-75)

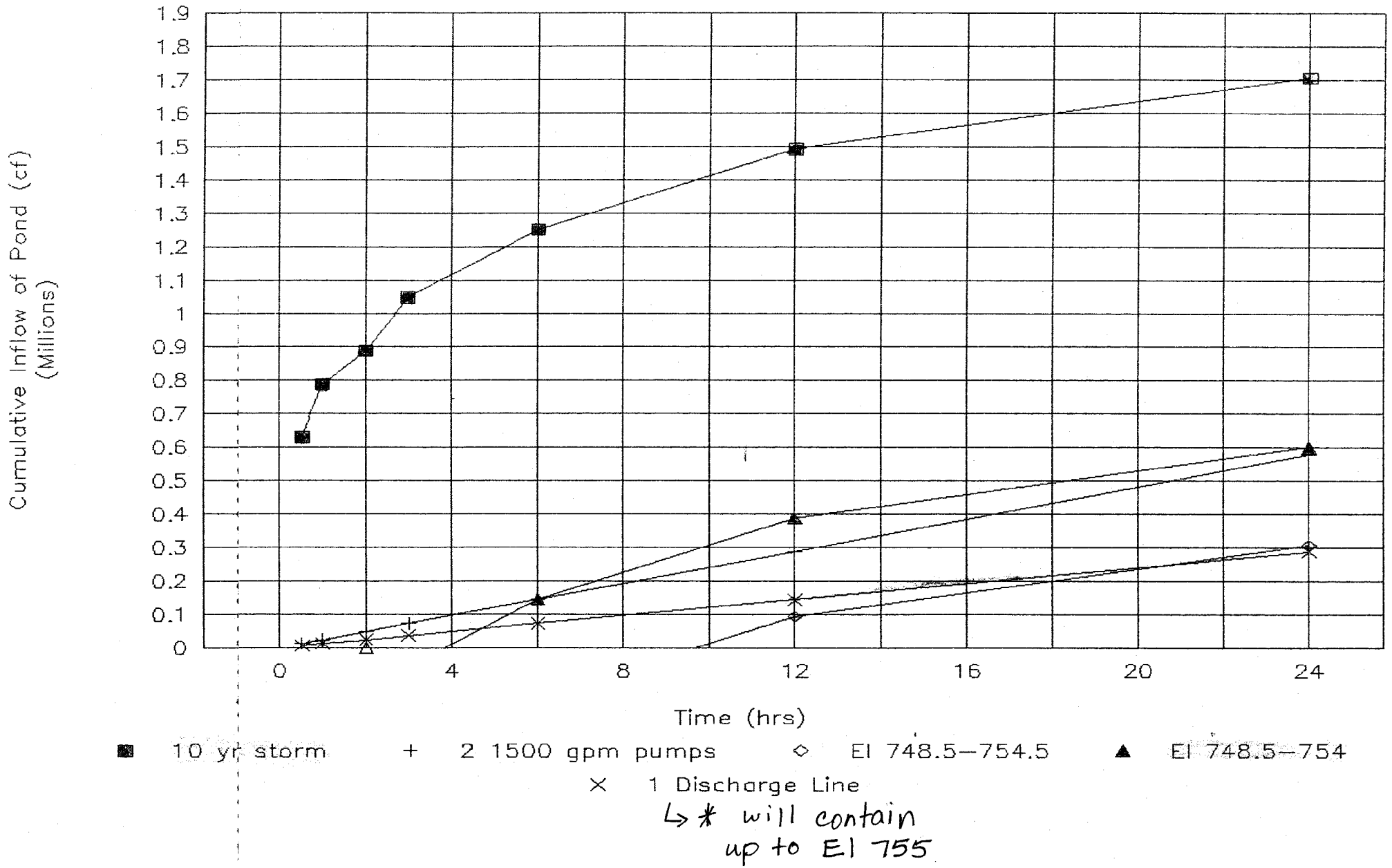
KINGSTON FOSSIL PLANT

COAL YARD RUNOFF POND



KINGSTON FOSSIL PLANT

COAL YARD RUNOFF POND



↳ * will contain up to El 755

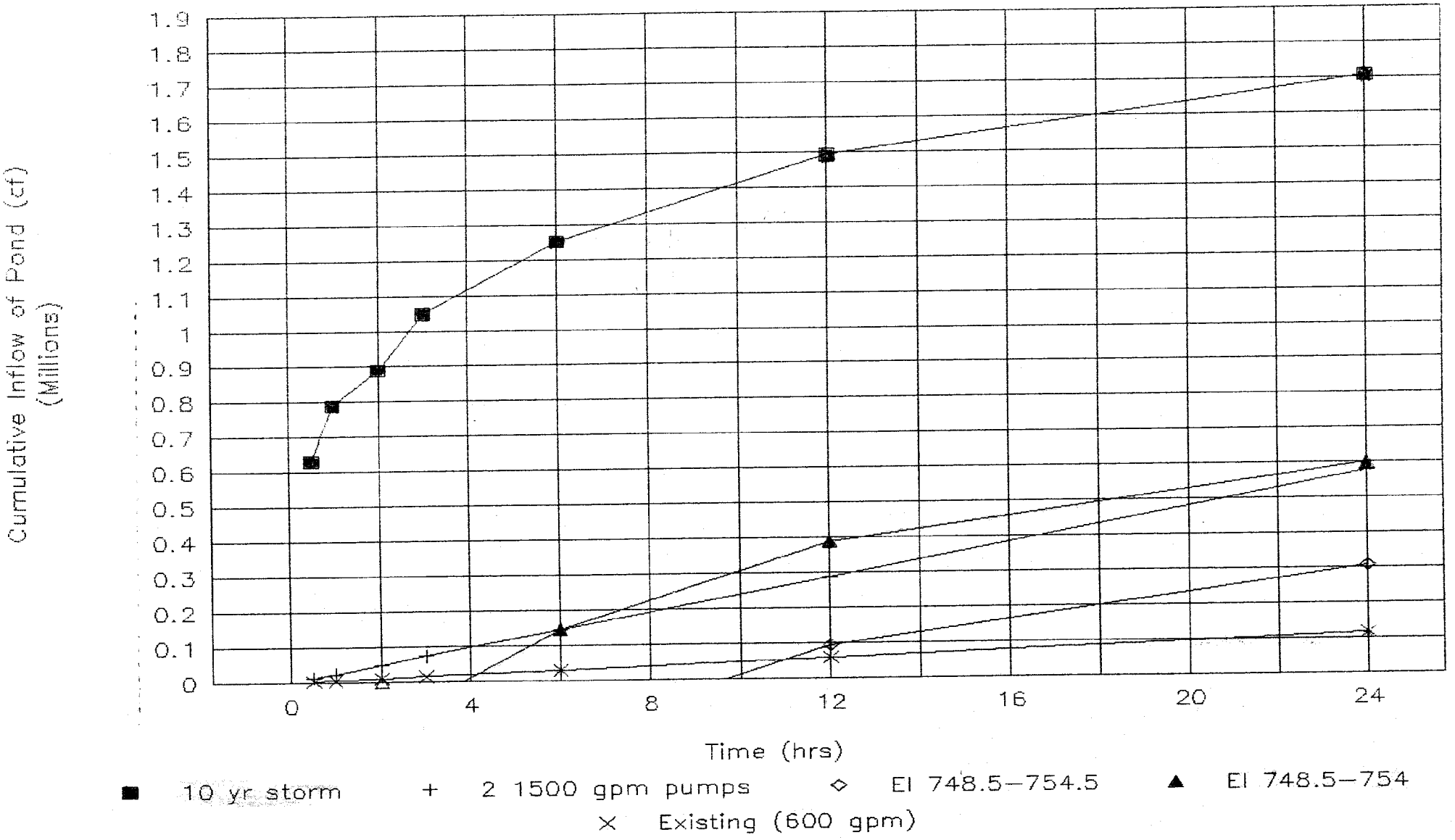
CLM 6-6-94

TVA-00006706

KINGSTON FOSSIL PLANT

46-8-9 WM

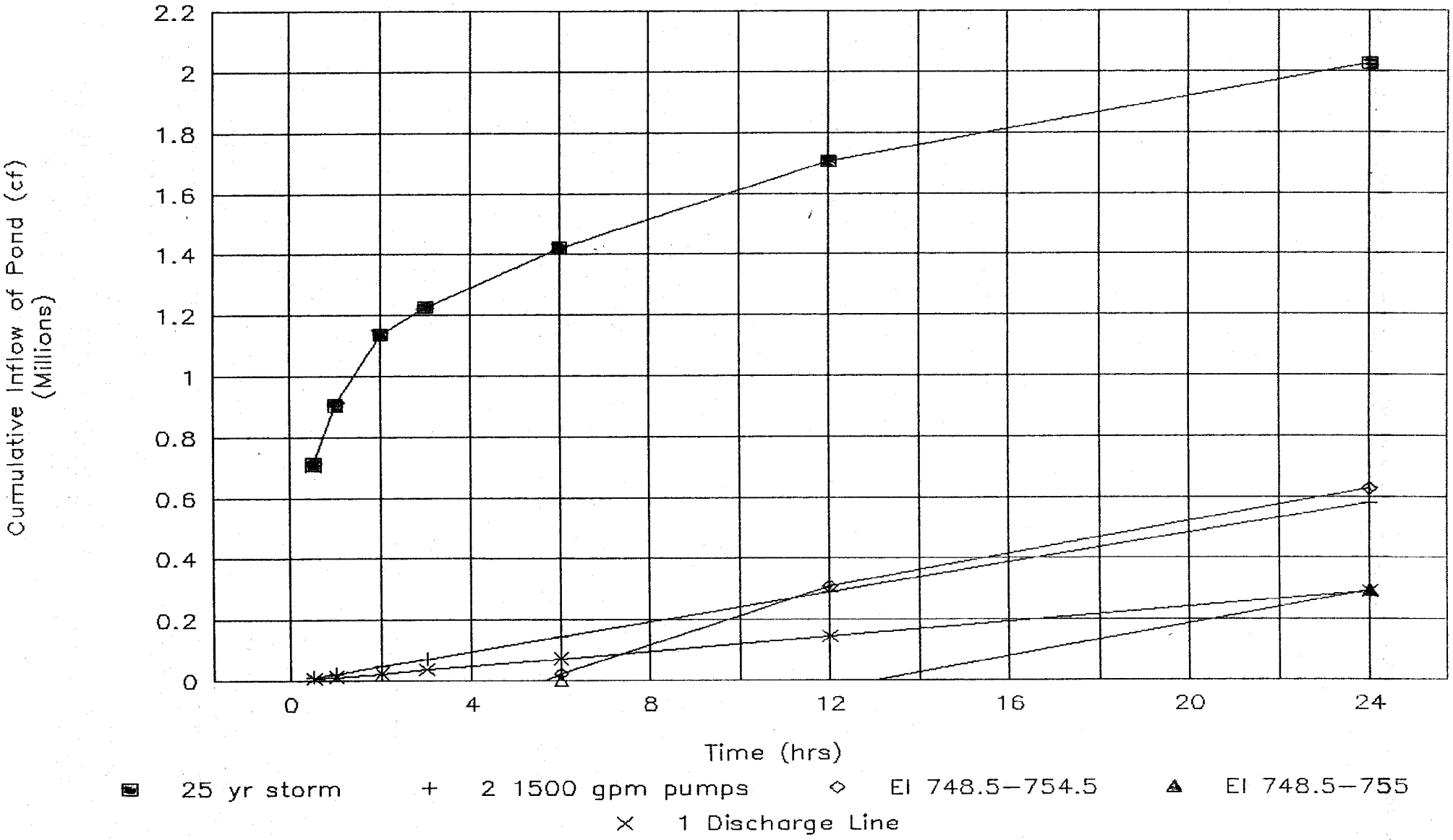
COAL YARD RUNOFF POND



The existing pump is adequate in containing a 10 YR - 24 hr flood, which does not even fall on the graph (1,733,233)

KINGSTON FOSSIL PLANT

COAL YARD RUNOFF POND



(*) DISCHARGE LINE WILL CONTAIN 25 YR STORM TO EL 755

July earliest start

May 6, 1994

KINGSTON FOSSIL PLANT

COAL YARD RUNOFF POND

COST ESTIMATE REQUEST No.: ~~KIF93-1218~~ PO ~~dated~~ Memo Dan Scott to R G Johnson March 22, 1994 (1165 940322 103)

CIVIL SITE ENGINEERING

Phase II Scope of Work:

During periods of heavy rainfall, the existing Coal Yard Runoff Pond is inadequate in containing the flood waters.

Our involvement in the Phase II study will include providing for the following:

40 — 1. Provide for earthfill in low areas and crushed stone surface on roadway where required.

2. Provide for grading of new areas, including area and roadway around pumphouse.

24 — 3. Perform a field survey in the area to obtain recent topographical data. (assume Site does this) (2 trips) @ 1 ea month

8 — 4. Develop a Phase III scope of work.

24 — 5. Make site visits as necessary to obtain plant input to the proposed scheme and to obtain necessary field information. (3 trips) → 1 each month, 2 persons

25 — Lead Scaling

121 say 125 hrs.

K.W. Burnett
Manager, Site Engineering
LP 2G-C

Phase 3 — 40 hrs.

May 6, 1994

KINGSTON FOSSIL PLANT

COAL YARD RUNOFF POND

COST ESTIMATE REQUEST No.: Memo- Dan Scott to R G Johnson dated March 22, 1994 (B65 940322 103)

CIVIL SITE ENGINEERING

Phase II Scope of Work:

During periods of heavy rainfall, the existing Coal Yard Runoff Pond is inadequate in containing the flood waters.

Our involvement in the Phase II study will include providing for the following:

1. Provide for earthfill in low areas and crushed stone surface on roadway where required.

2. Provide for grading of new areas, including area and roadway around pumphouse.

3. Perform a field survey in the area to obtain recent topographical data.

4. Provide for removal of pumphouse and platform.

5. Develop a Phase III scope of work.

6. Make site visits as necessary to obtain plant input to the proposed scheme and to obtain necessary field information.

K.W. Burnett
Manager, Site Engineering
LP 2G-C

FOSSIL ENGINEERING DESIGN-COST ESTIMATE
PAGE 1 OF 1
DATE 5-9-94
SITE ENGINEERING

ESTIMATE No KIF93-1218-PO
PROJECT KINGSTON FOSSIL PLANT
DESCRIPTION COAL YARD RUNOFF POND
ACCOUNT NO.
QUANTITIES BY Cherie Mount Checked By

ITEM	DESCRIPTION	QUANTITY	UNIT
1	REMOVALS		
	(A) PUMPHOUSE	1	each
	(B) PUMP PLATFORM	1	each
2	EARTHFILL	700	CY
3	CRUSHED STONE SURFACE (6" thick)	230	ton

KINGSTON FOSSIL PLANT
COAL YARD RUNOFF POND

SHEET ____ OF ____

COMPUTED CLM DATE 5-9-94

CHECKED ____ DATE ____

FILL QUANTITIES

1) ROAD AROUND PUMPING STATION (@ ≈753' → 756'±)

3' { 2½' depth earthfill
   ½' crushed stone surface } for road

20' road width

300' length

(+ room to turn around)
10' width
20' length

EARTHFILL -
(2.5' x 20' x 300') + (2.5' x 10' x 20') = 15,500 CF
= 575 CY

CRUSHED STONE SURFACE (6" thick)
(.5' x 20' x 300') + (.5' x 10' x 20') = 3100 CF

≤ 125-135 lb/CF 135 lb/CF x 3100 CF = 418,500 lbs
= 210 tons

2) 20' x 20' area around pumphouse

EARTHFILL
20' x 20' x 3' = 1200 CF
= 45 CY

TOTAL EARTHFILL = 620 CY ⇒ 700 CY
TOTAL CRUSHED STONE SURFACE = 210 tons ⇒ 230 tons

TVA 11030 (WM-7-75)

KINGSTON FOSSIL PLANT (KIF) - COAL YARD RUNOFF POND

Drainage

Calculate the Ordinates to Plot the Cumulative Inflow to the Storage Area for a (100, 50, 25, 10) yr-24 hr Storm

Time (hr)	Rainfall Storms (in) 100 yr	50 yr	25 yr	10 yr	Conv. to ft	Drainage Area (SF)	Runoff coeff.	Volume (CF) 100 yr	50 yr	25 yr	10 yr
					24						
.5	2.505	2.2	2	1.77	1.223 0.0833	5795280	0.7	846497	743430	675846	598123
1	3.1	2.8	2.55	2.22	1.56 0.0833	5795280	0.7	1047561	946184	861703	750189
2	3.6	3.4	3.2	2.5	1.98 0.0833	5795280	0.7	1216522	1148937	1081353	844807
3	4.2	3.75	3.45	2.95	2.08 0.0833	5795280	0.7	1419276	1267210	1165834	996872
6	4.9	4.7	4	3.52	2.52 0.0833	5795280	0.7	1655822	1588237	1351691	1189488
12	5.9	5.5	4.8	4.2	2.96 0.0833	5795280	0.7	1993744	1858575	1622029	1419276
24	6.6	6.3	5.7	4.8	3.50 0.0833	5795280	0.7	2230290	2128913	1926160	1622029
					RAILROAD AREA						
						293250	0.5	30596	26870	24428	21619
						293250	0.5	37863	34199	31145	27115
						293250	0.5	43970	41527	39084	30535
						293250	0.5	51298	45802	42138	36031
						293250	0.5	59848	57405	48855	42993
						293250	0.5	72062	67176	58627	51298
						293250	0.5	80611	76947	69619	58627
					TOTAL			877092	770301	700273	619742
								1085424	980383	892848	777303
								1260492	1190465	1120437	875342
								1470574	1313012	1207971	1032903
								1715670	1645642	1400547	1232481
								2065806	1925752	1680656	1470574
								2310902	2205861	1995779	1680656

KINGSTON FOSSIL PLANT - (KIF)

CLM 4-21-94

RAINFALL DATA (US Weather Bureau Technical Paper No. 40)

Rainfall Duration (hr)	100 yr Rainfall Depth (in)	Rainfall rate (in/hr)	50 yr Rainfall Depth (in)	Rainfall rate (in/hr)	25 yr Rainfall depth (in)	Rainfall rate (in/hr)	10 yr Rainfall depth (in)	Rainfall rate (in/hr)
0.5	2.505	5.01	2.2	4.4	2	4	1.77	3.54
1	3.1	3.1	2.8	2.8	2.55	2.55	2.22	2.22
2	3.6	1.8	3.4	1.7	3.2	1.6	2.5	1.25
3	4.2	1.4	3.75	1.25	3.45	1.15	2.95	0.983
6	4.9	0.817	4.7	0.783	4	0.667	3.52	0.587
12	5.9	0.492	5.5	0.458	4.8	0.4	4.2	0.35
24	6	0.275	6.3	0.263	5.7	0.238	4.8	0.2

Index

1yr 24hr 2.6

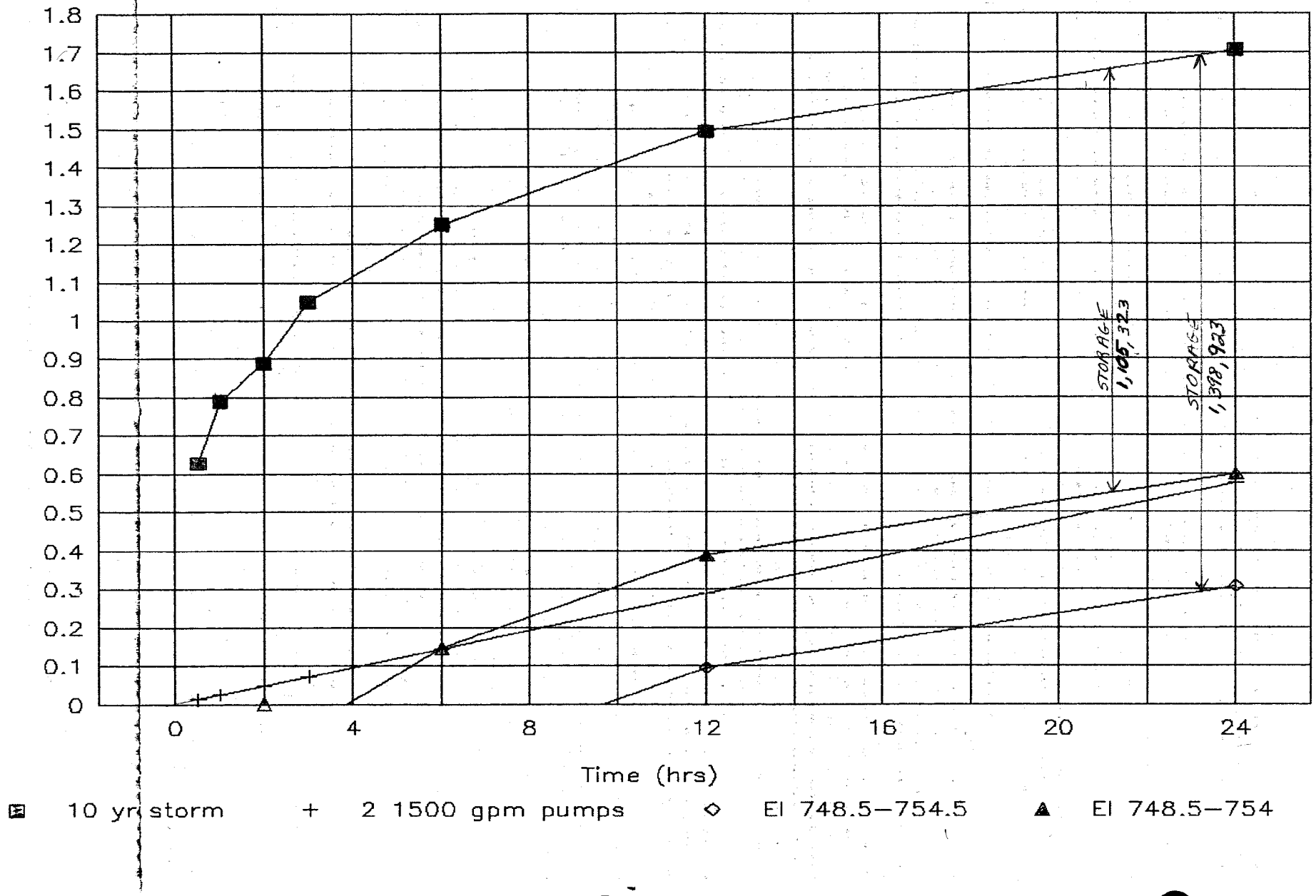
2yr 24hr 3.25

5yr 24hr 3.9

TVA-00006714

KINGSTON FOSSIL PLANT

COAL YARD RUNOFF POND

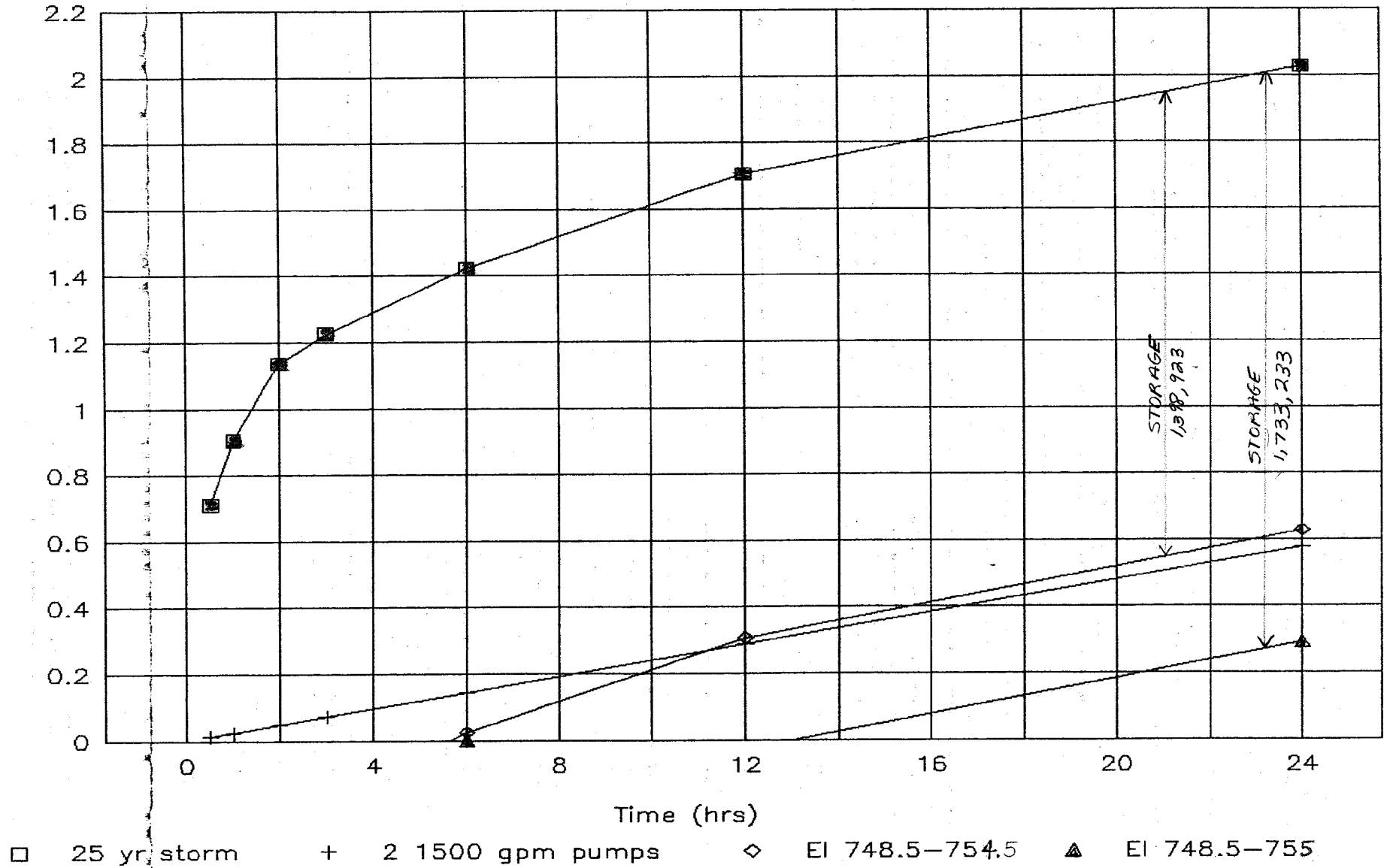


CLM 5-10-94

TVA-00006716

KINGSTON FOSSIL PLANT

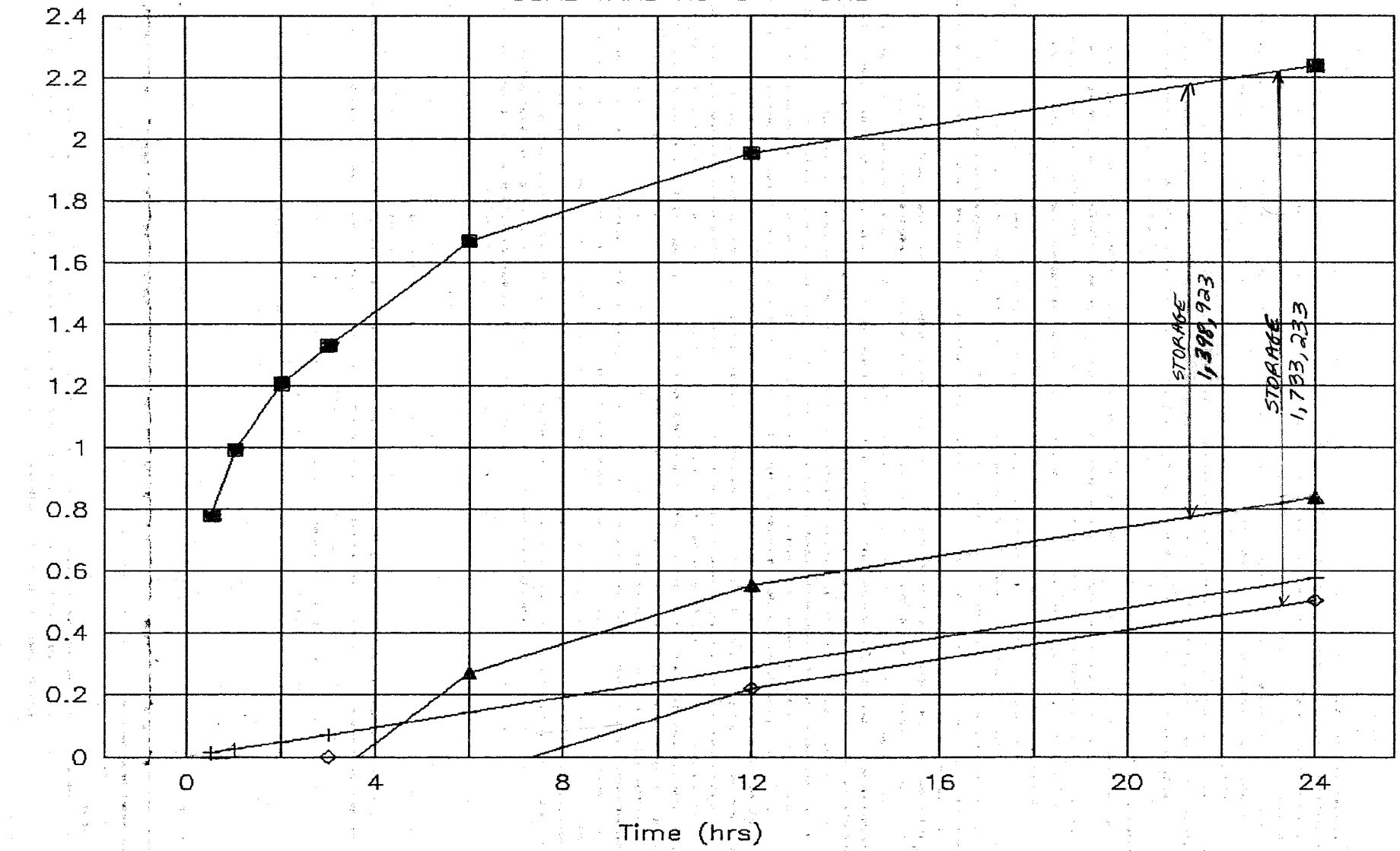
COAL YARD RUNOFF POND



cm 5-10-94

KINGSTON FOSSIL PLANT

COAL YARD RUNOFF POND

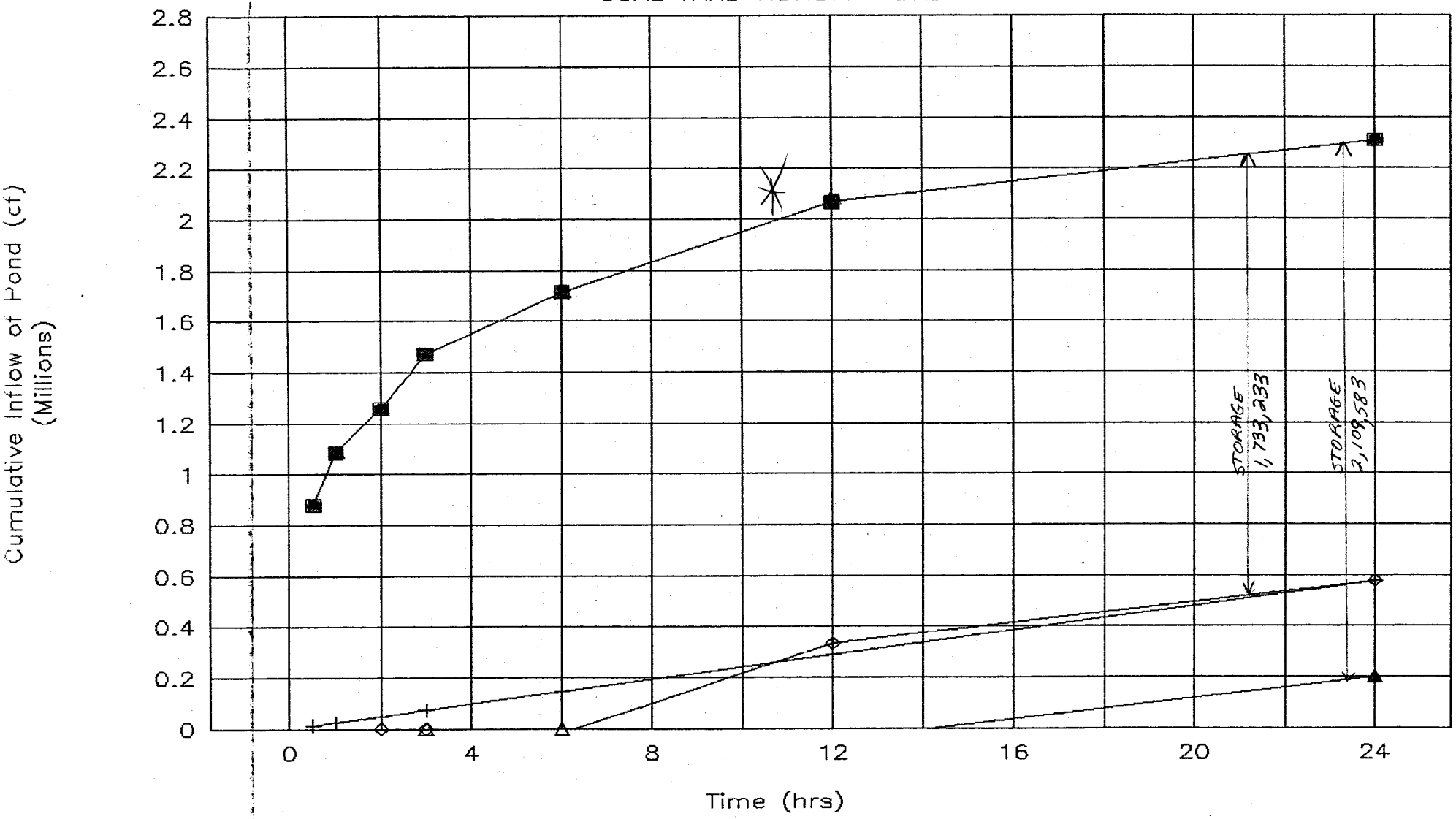


TVA-00006717

CLN 5-16-94

KINGSTON FOSSIL PLANT

COAL YARD RUNOFF POND



TVA-00006718

KINGSTON FOSSIL PLANT
COAL YARD RUNOFF POND

SHEET ____ OF ____

COMPUTED CLM DATE 5-5-94

CHECKED ____ DATE ____

Calculate Storage Elevation (748.5 - 755.5)

@ 748.5 748 20,650
749 31,075 25863 = 748.5

EL	AREA(SF)	AVG AREA(SF)	DEPTH (FT)	VOLUME(CF)
748.5	25863			
		28469	.5	14,235
749	31075			
		36288	1	36,288
750	41500			
		137450	2	274900
752	233,400			
		389,950	2	779,900
754	546,500			
		627,900	1	627,900
755	709,300			

→ 1,733,233 CF

752,700 .5 376,350

755.5 796,100

→ 2,109,583 CF

833,050 .5 416,525

(EST)
756 870,000

→ 2,526,108 CF

TVA 11030 (WM-7-75)

KINGSTON FOSSIL PLANT
COAL YARD RUNOFF POND

SHEET _____ OF _____

COMPUTED CLM DATE 5-6-94

CHECKED _____ DATE _____

Calculate storage Elevation (10 yr) (748.5 - 754.5)

EL	AREA (SF)	AVG AREA (SF)	DEPTH (FT)	VOLUME (CF)
748.5	25863			
		28469	.5	14,235
749	31075			
		36288	1	36,288
750	41500			
		137450	2	274,900
752	233,400			
		389,950	2	779,900
754	546,500			
		587,200	.5	293,600
754.5	627,900			

1,398,923

TVA 11030 (WM-7-75)

KINGSTON FOSSIL PLANT
COAL YARD RUNOFF POND

SHEET ____ OF ____

COMPUTED CLM DATE 5-6-94

CHECKED ____ DATE ____

STORAGE
EL 755

77.61	76.74	00.97
54.80	00.97	77.61
22.81	24.03	23.36

$23.41 in^2 = 234{,}000 ft^2$

EL 755

91.95	44.44	96.25
44.44	96.65	48.97
47.51	47.79	47.28

$47.53 in^2 = 475{,}300 ft^2$

$709{,}300 ft^2$

EI 755.5

49.50	14.87	43.70
78.95	43.70	73.36
29.45	28.83	29.66

$29.31 in^2 = 293{,}100 ft^2$

EI 755.5

22.02	72.06	22.80
72.06	22.80	72.91
50.04	50.74	50.11

$50.30 in^2 = 503{,}000 ft^2$

$796{,}100 ft^2$

@ 756
EST = $875{,}000 ft^2$

TVA 11030 (WM-7-75)

KINGSTON FOSSIL PLANT
COAL YARD RUNOFF POND

Drainage

COMPUTED CLM DATE 5-5-94

CHECKED _____ DATE _____

Meeting @ Kingston on 5/4/94
SAID TO DO AS LITTLE EXCAVATION AS POSSIBLE
use 2 1500gpm pumps w/separate discharge lines

DRAINAGE AREA

Due to (PLUGGED PIPES) INCREASE IN DRAINAGE AREA

(1) Railroad tracks
(runoff coeff. = .5)

Sheet M-7

98.34 − 15.35 = 17.01
15.35 − 31.83 = 16.48

16.745 in² = 167,450 ft²

Sheet M-6

4.43" × 2.84" = 12.58 in² = 125,800 ft²

(keep separate) DRAINAGE ADJ. 293,250 ft²

(2) Rest of DRAINAGE AREA

Sheet M-7

03.36 − 39.72 = 36.36 in²

\+ 75.00 − 82.41 = 7.41 in²

\+ 2.75 in × 7.55 in = 20.763 in²

(−) $\frac{4.7\text{ in} \times 3.1\text{ in}}{2}$ = 7.285 in ⇒ 57.248 in²

= 572,480 ft²

TVA 11030 (WM-7-75)

KINGSTON FOSSIL PLANT
COAL YARD RUNOFF POND

SHEET ____ OF ____

COMPUTED CLM DATE 5-5-94

cont DRAINAGE CALCULATIONS

CHECKED ____ DATE ____

sheet M-6

$$\begin{array}{r} 26.87 \\ +2.93 \\ \hline 16.06\ in \end{array} = 16.06\ in^2 = 160{,}600\ ft^2$$

HARRIMAN QUADRANGLE TOPO

66.19	66.51	66.90	$= 7.39\ in^2$
66.51	66.90	67.29	
.38	.39	.39	

$1\ in = 2000'$

$1\ in^2 = 4{,}000{,}000\ ft^2$

$= 1{,}560{,}000\ ft^2$

TOTAL DRAINAGE ADJUSTMENT

$= 2{,}293{,}080\ ft^2$

TVA 11030 (WM-7-75)

KINGSTON FOSSIL PLANT
COAL YARD RUNOFF POND

SHEET ____ OF ____

COMPUTED CLM DATE 4-28-94

CHECKED ____ DATE ____

El ~~747~~ dumped to 754.5 (to meet 7.5' max to pump start)

Volume for STORAGE (NO EXCAVATION)

El	AREA (SF)	AVG AREA (SF)	DEPTH (FT)	VOLUME (CF)
747	18325			
		19488	1	19488
748	20650			
		31075	2	62150
750	41500			
		137,450	2	274900
752	233,400			
		389,950	2	779900
754	546500			
		597,000	.5	298,500
754.5	647,500			
				1,434,938 CF

to 754' = 1,136,438 CF

TVA 11030 (WM-7-75)

KINGSTON FOSSIL PLANT
COAL YARD RUNOFF POND

SHEET _____ OF _____

COMPUTED CLM DATE 4-26-94

CHECKED _____ DATE _____

EL 754.5

Area1 93.98 14.65 Area2 89.01 33.18
14.65 35.06 33.18 77.44
20.67 20.41 44.16 44.26

20.54 in² 44.21 in²

64.75 in²
= 647,500 ft²

Calculate TOTAL VOLUME TO EL 754.5

145 up to 754 (previously calculated) = 1,168,700 CF

EL	AREA(SF)	AVG AREA(SF)	DEPTH(ft)	VOL(CF)
754	546,500	597,000	.5	298,500
754.5	647,500			

TOTAL = 1,168,700 CF + 298,500 CF = 1,467,200 CF

TVA 11030 (WM-7-75)

KINGSTON FOSSIL PLANT
COAL YARD RUNOFF POND

SHEET ____ OF ____

COMPUTED CLM DATE 4-23-94

CHECKED ____ DATE ____

Volume for Storage (continued) actual

EL	AREA (SF)	AVG AREA (SF)	DEPTH (FT)	VOLUME (CF)
745	14,200			
		15,100	1	15,100
746	16,000			
		18,325	2	36,650
748	20,650			
		31,075	2	62,150
750	41,500			
		137,450	2	274,900
752	233,400			
		389,950	2	779,900
754	546,500			
			total	1,168,700 CF

TVA 11030 (WM-7-75)

KINGSTON FOSSIL PLANT
COAL YARD RUNOFF POND

SHEET ____ OF ____

COMPUTED CLM DATE 4-22-94

CHECKED ____ DATE ____

VOLUME FOR STORAGE actual

El 745 to El 754

El 745

20.80 23.49
22.20 24.91
1.4 1.42

1.41 in² = 14,200 ft²

El 746

24.80 26.41
26.41 26.00
1.61 1.59

1.60 in² = 16,000 ft²

El 748

28.47 26.41
30.54 28.47
2.07 2.06

2.065 in² = 20,650 ft²

El 750

77.10 81.25 85.37
81.25 85.37 89.56
4.15 4.12 4.19

4.15 in² = 41,500 ft²

El 752

(1) 0612
0996
3.84

(2) 62.89 82.67
82.67 63.45
19.78 19.22

= 23.34 in² = 233,400 ft²

El 754

(1) 74.10 08.06
01.26 34.19
27.16 26.13
26.65

(2) 80.34 49.59
66.75 63.46
13.59 13.89
13.59

(3) 86.06 00.40
00.40 14.87
14.34 14.47
14.41

54.65 in² = 546,500 ft²

TVA 11030 (WM-7-75)

KINGSTON FOSSIL PLANT
COAL YARD RUNOFF POND

SHEET 1 OF

COMPUTED CLM DATE 4-21-94

CHECKED DATE

DRAINAGE AREA CALCULATIONS

Sheet 46IK530 M-8

Area 1

43.02	73.10	02.05
73.10	02.05	31.80
30.08	28.95	29.75

Drainage

AVG = 29.59 in² => 295,900 ft²

Area 2

18.18	44.86
44.86	72.18
26.68	27.32

AVG = 27 in² => 270,000 ft²

565,900 ft²

Sheet 46IK530 M-7

Area 1

80.41	00.29	60.36
40.35	60.36	20.09
40.06	39.93	40.27

AVG = 40.09 in² => 400,867 ft²

Area 2

10.10	09.50	09.50
59.89	59.50	59.50
49.79	50.00	50.00

AVG = 49.90 in² => 498,950 ft²

899,817 ft²

TVA 11030 (WM-7-75)

KINGSTON FOSSIL PLANT
COAL YARD RUNOFF POND

SHEET 2 OF

COMPUTED CLM DATE 4-22-94
CHECKED / DATE

DRAINAGE AREA CALCULATIONS

Sheet 461K530L-7

Area 1

91.78	23.49	
14.64	45.71	
22.86	22.22	

AVG = 22.54 in^2 => 225,400 ft^2

Area 2

05.46	40.21	
40.21	75.04	
34.75	34.83	

AVG 34.79 in^2 => 347,900 ft^2
573,300 ft^2

Sheet 461K530L-8

Area 1

36.53	75.10	84.23
84.23	22.44	31.77
47.70	47.34	47.54

AVG 47.53 in^2 => 475,300 ft^2

Area 2

11.62 in × 6.59 in = 76.58 in^2

-.75 in (.53 in)/2 = 76.38 in^2 => 763,800 ft^2

Area 3

81.76	58.65	36.94
58.65	36.94	14.55
23.11	21.77	22.36

AVG 22.41 in^2 => 224,100 ft^2
1,463,200 ft^2

TVA 11030 (WM-7-75)