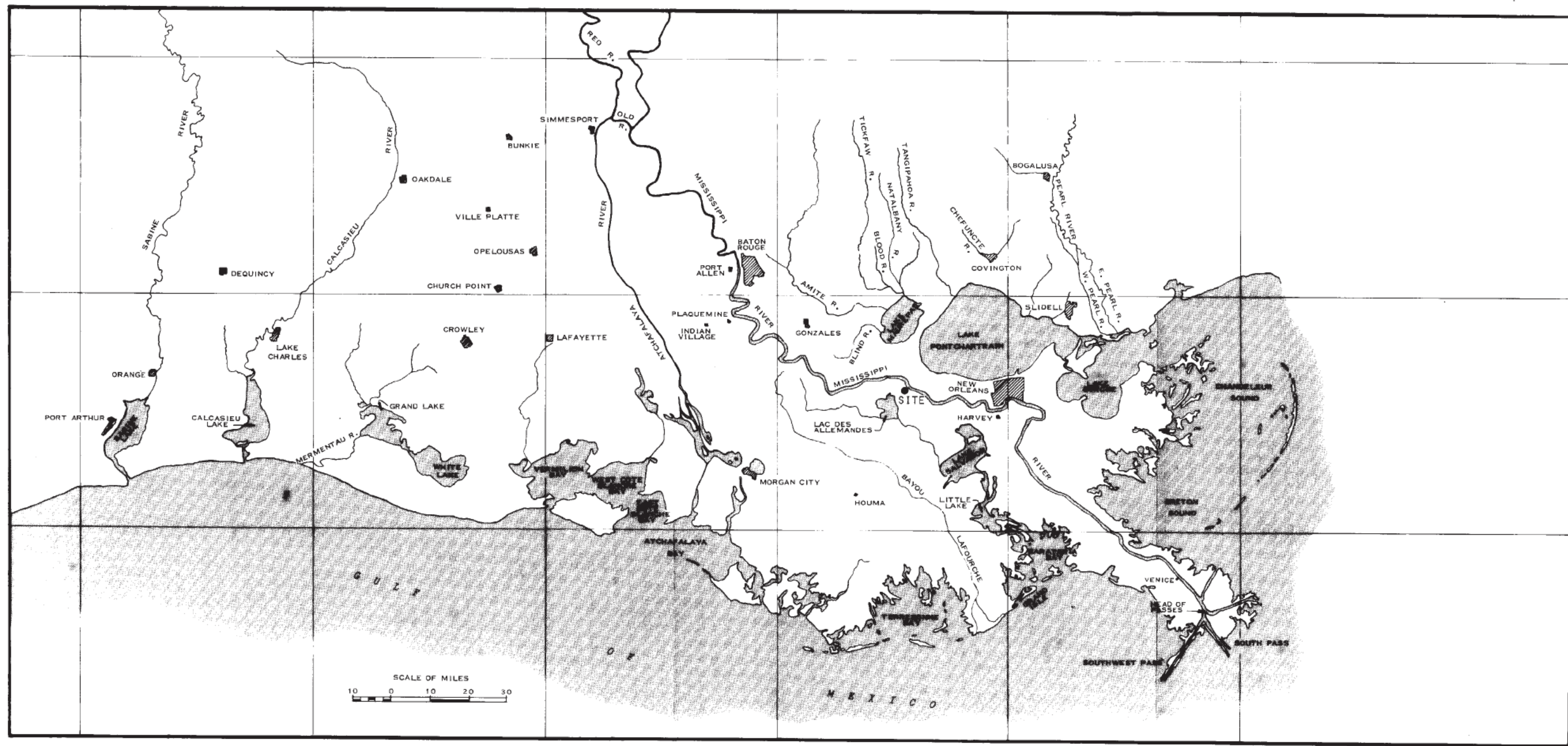


LOUISIANA  
POWER & LIGHT CO.  
Waterford Steam  
Electric Station

TOPOGRAPHIC MAP OF SITE AND VICINITY

Figure  
2.4-1



LOUISIANA POWER & LIGHT CO.  
Waterford Steam Electric Station  
REGIONAL HYDROGRAPHIC FEATURES  
FIGURE 2.4-2



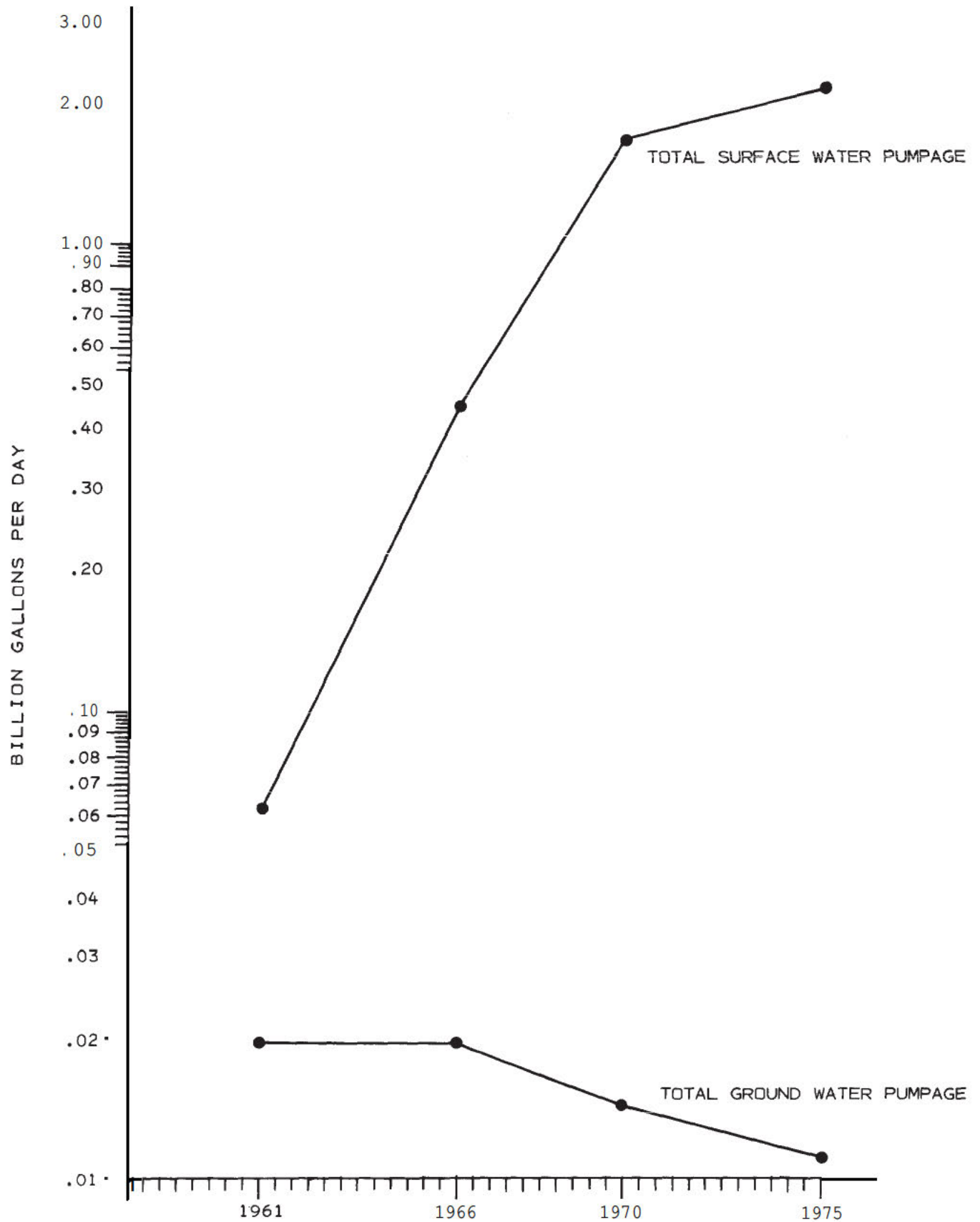
Security Related Information  
Figure Withheld Under 10 CFR 2.390

LOUISIANA POWER & LIGHT CO.  
Waterford Steam Electric Station

FLOOD CONTROL SCHEME IN THE LOWER  
MISSISSIPPI RIVER  
FIGURE 2.4-3

Security Related Information  
Figure Withheld Under 10 CFR 2.390

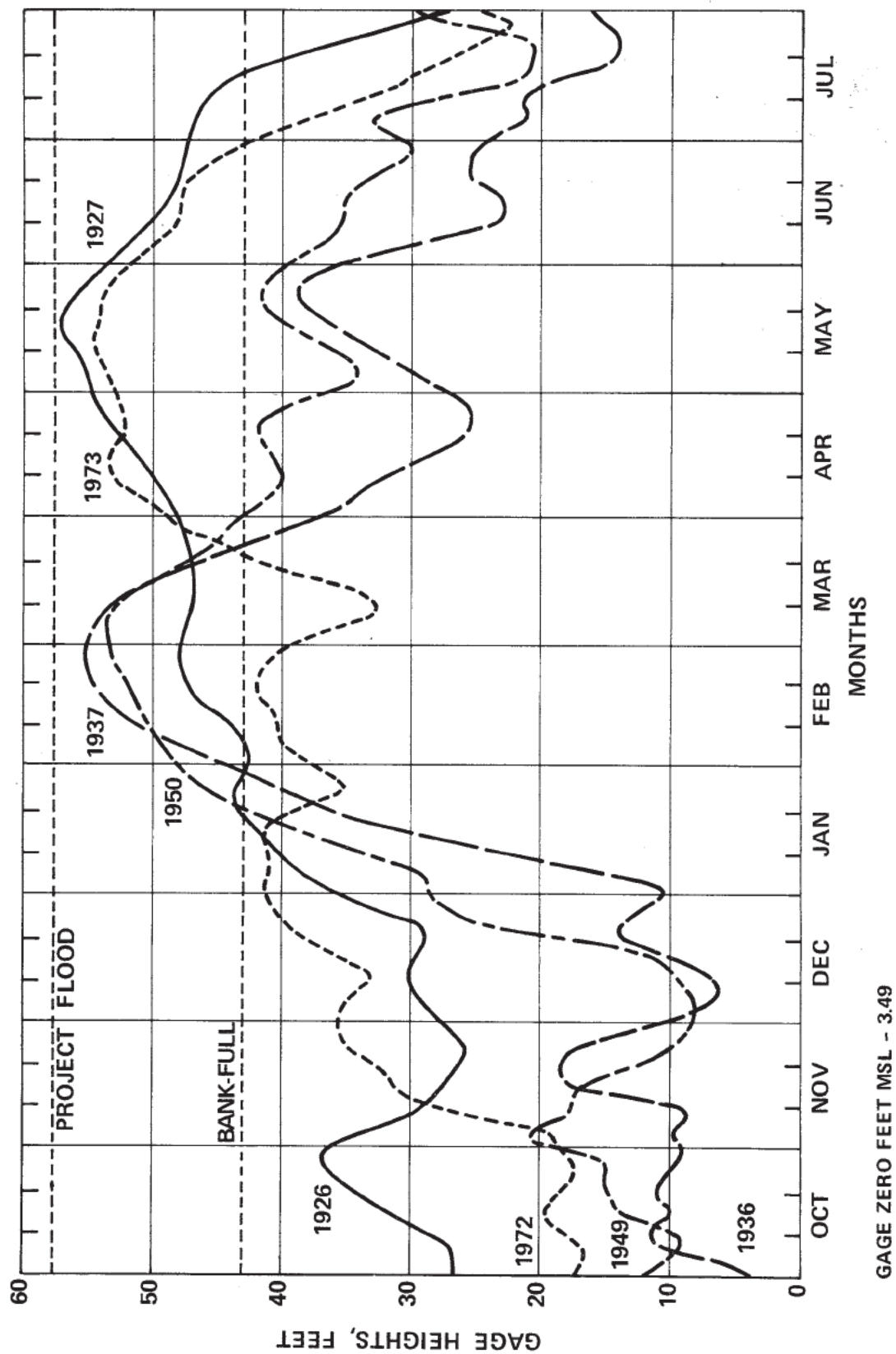




LOUISIANA  
POWER & LIGHT CO.  
Waterford Steam  
Electric Station

.SURFACE&GROUNDWATERPUMPAGETRENDS  
FOR ST. CHARLES PARISH

Figure  
2.4-5

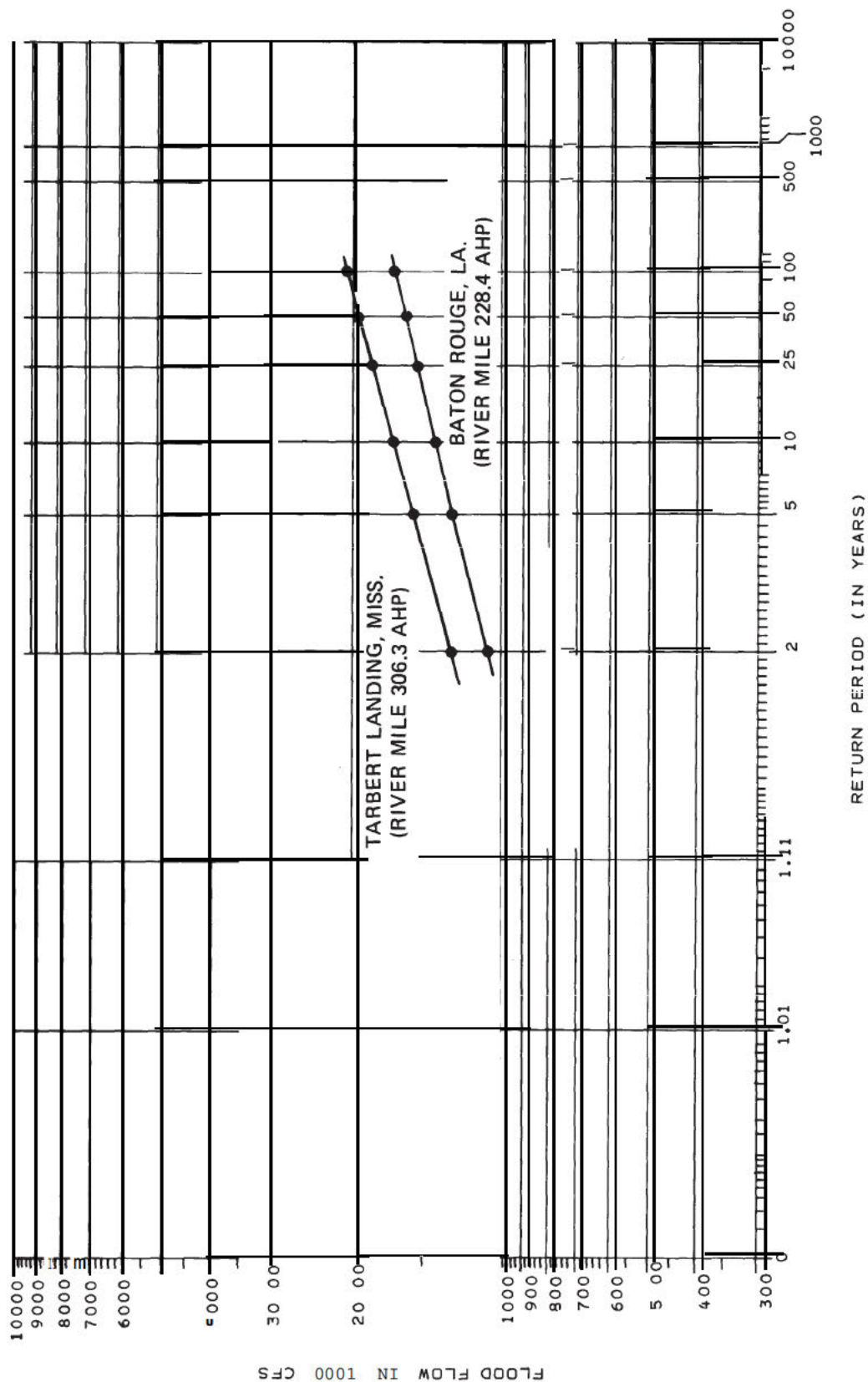


SOURCE: DEPT. OF THE ARMY, CORPS OF ENGINEERS, "MISSISSIPPI RIVER AND TRIBUTARIES, POST-FLOOD REPORT, 1973." JAN., 1974.

LOUISIANA  
POWER & LIGHT CO.  
Waterford Steam  
Electric Station

STAGE HYDROGRAPH AT RED RIVER LANDING, LA.

Figure  
2.4-6



NOTE:  
DETERMINED BY LOG-PEARSON  
TYPE III DISTRIBUTION.

LOUISIANA  
POWER & LIGHT CO.  
Waterford Steam  
Electric Station

FLOOD FREQ. AT T'ARBERT LANDING & BATON ROUGE,  
MISS. RIVER BY LOG-PEARSON TYPE III DISTRIBUTION

Figure  
2.4-7

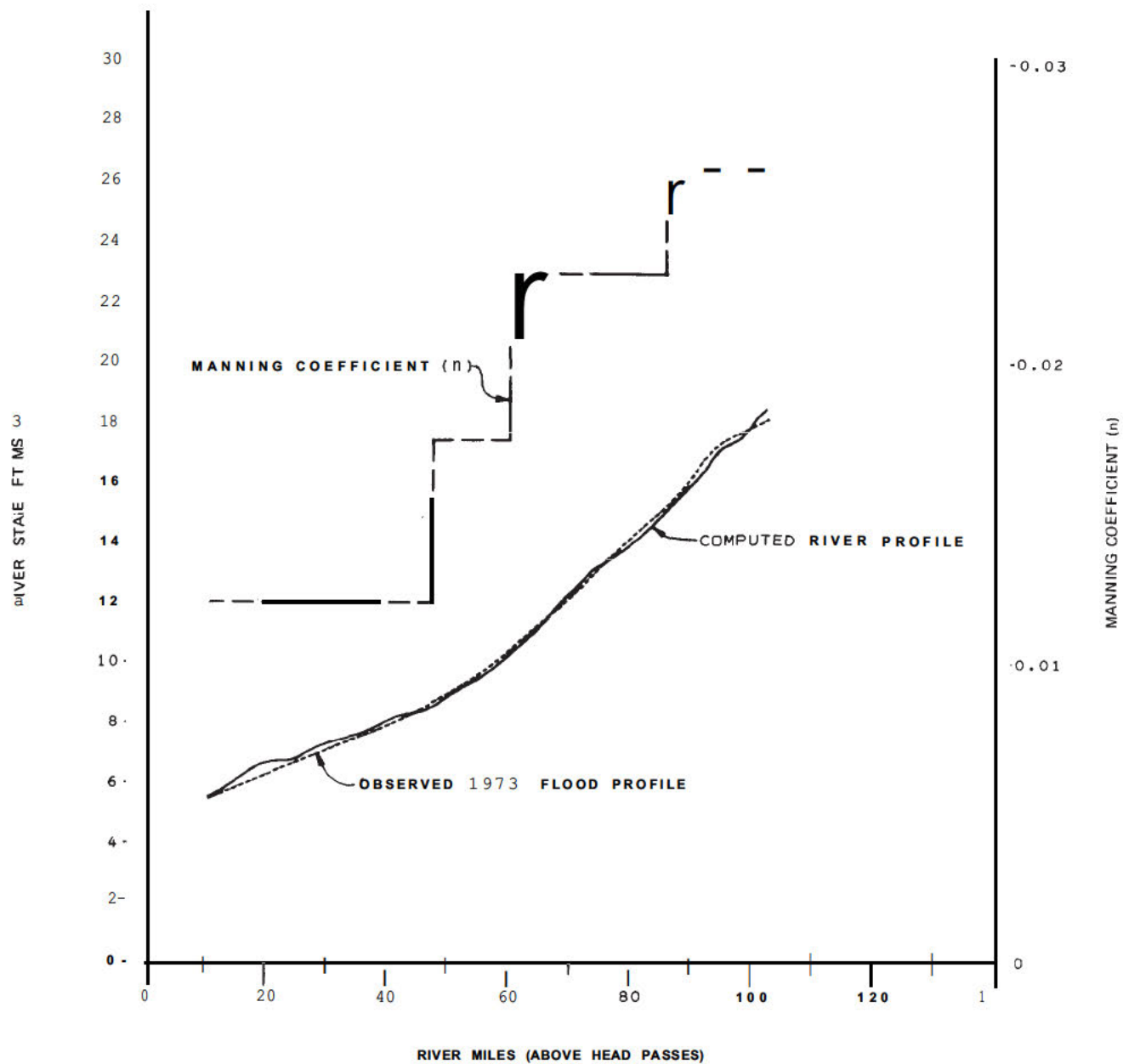
Revision 11 (05/01)

LOUISIANA POWER & LIGHT CO.  
Waterford Steam Electric Station

ROOF DRAINAGE  
FIGURE 2.4-8

Security Related Information  
Figure Withheld Under 10 CFR 2.390

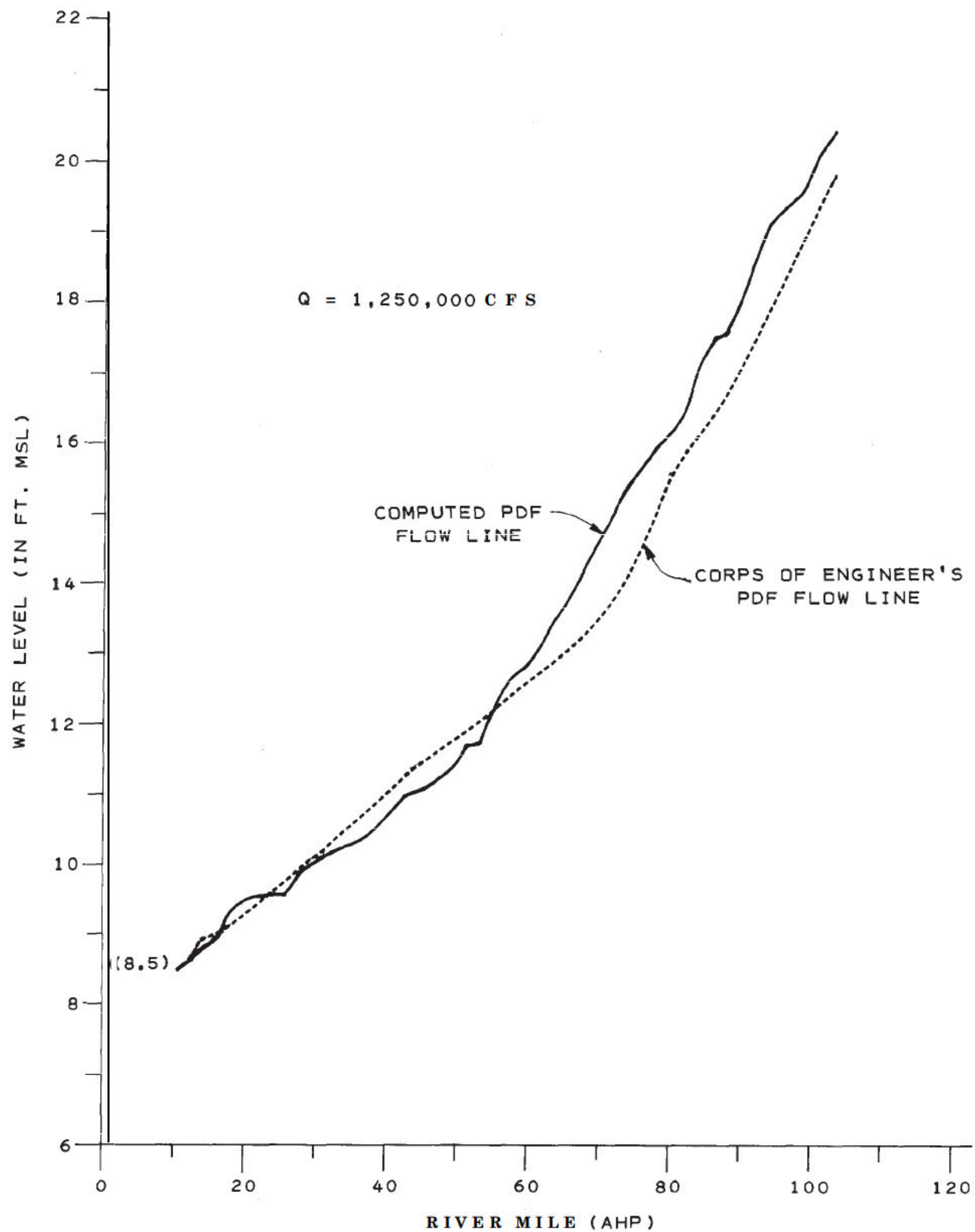




LOUISIANA  
POWER & LIGHT CO.  
Waterford Steam  
Electric Station

DETERMINATION OF MANNING ROUGHNESS COEFFICIENT

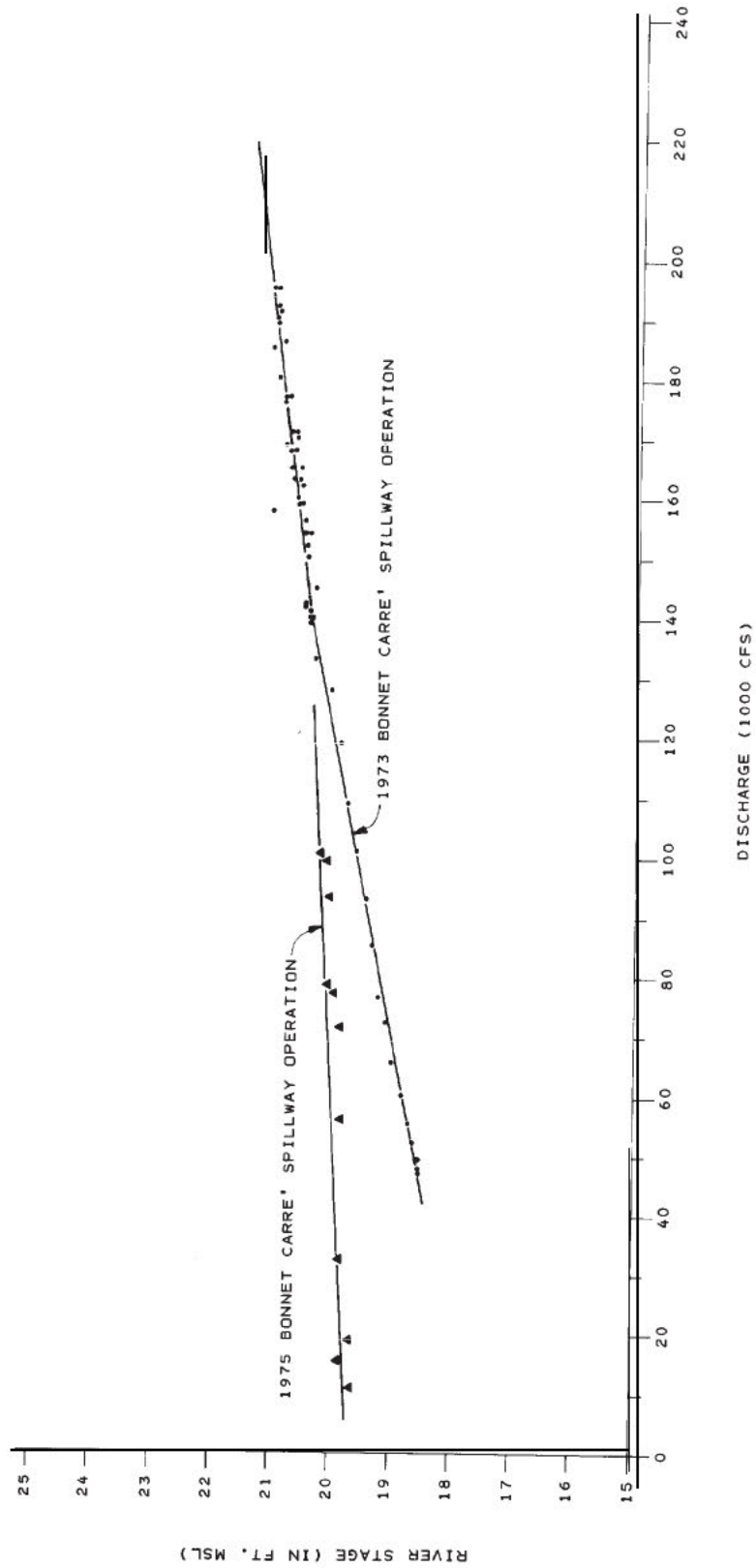
Figure  
2.4-9



LOUISIANA  
POWER & LIGHT CO.  
Waterford Steam  
Electric Station I

PROJECT DESIGN FLOOD FLOW LINE FROM  
VENICE TO NEW ORLEANS

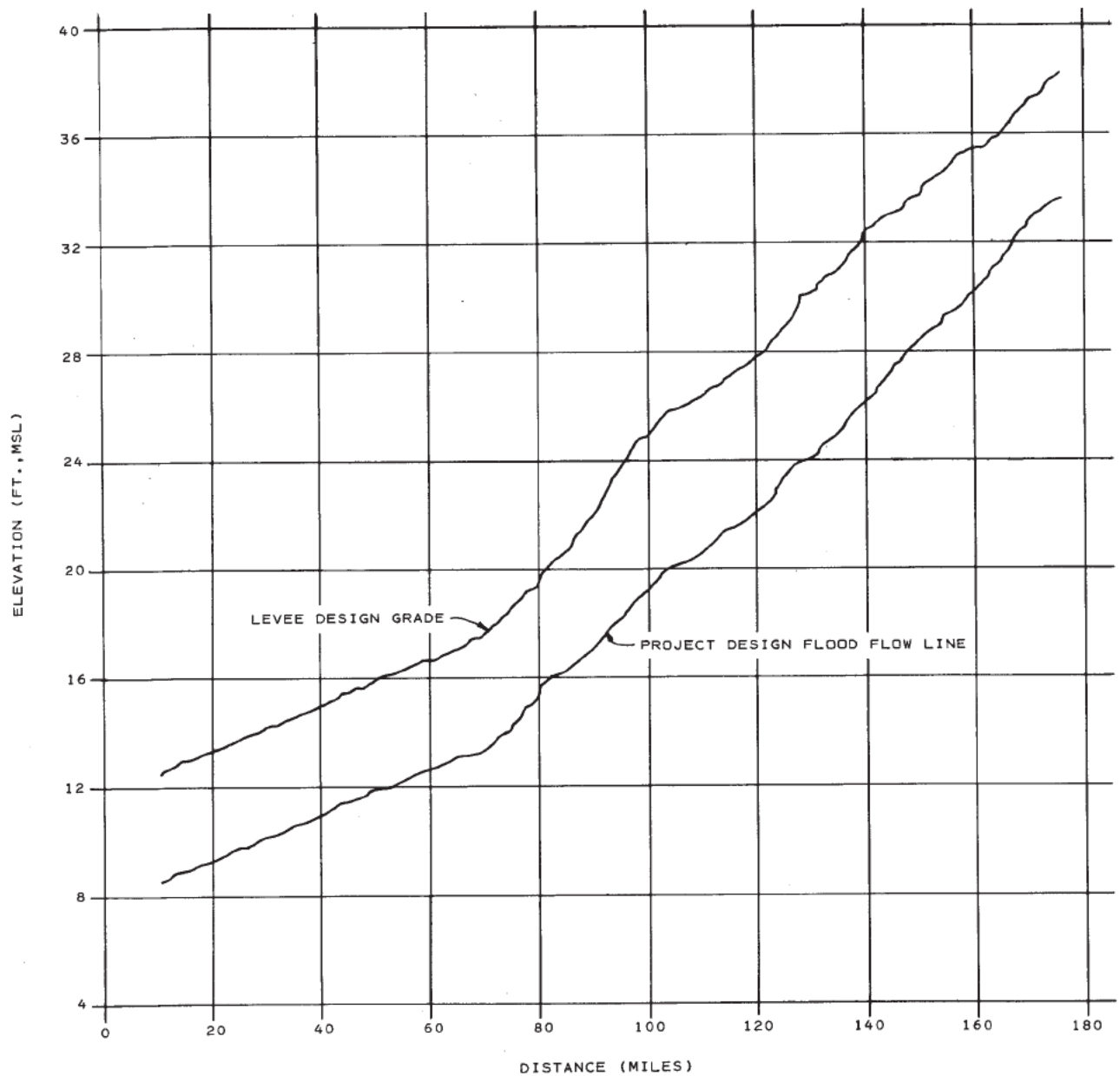
Figure  
2.4-10

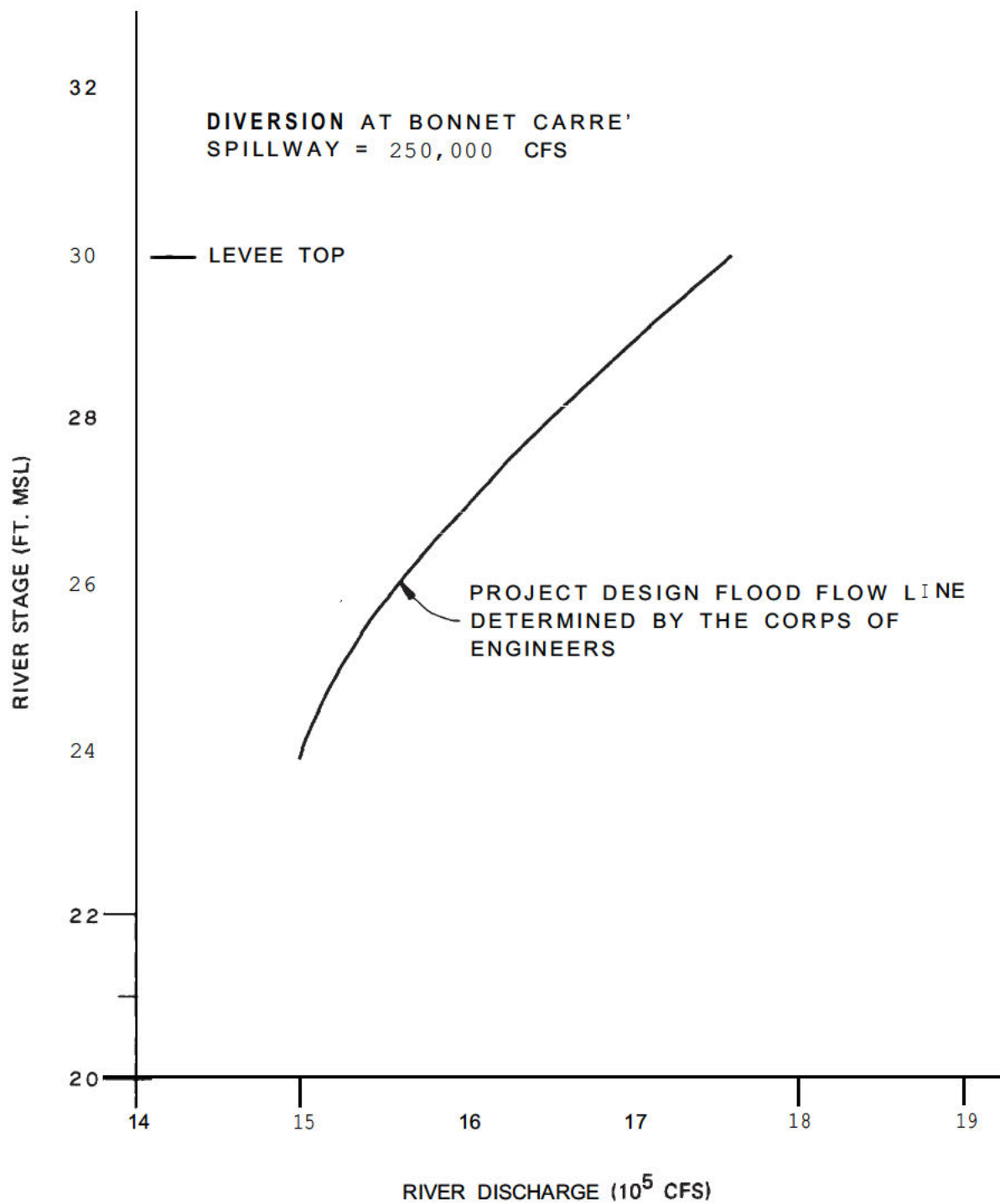


LOUISIANA  
POWER & LIGHT CO.  
Waterford Steam  
Electric Station

# BONNET CARRE-SPILLWAY OPERATION

Figure  
2.4-I 1



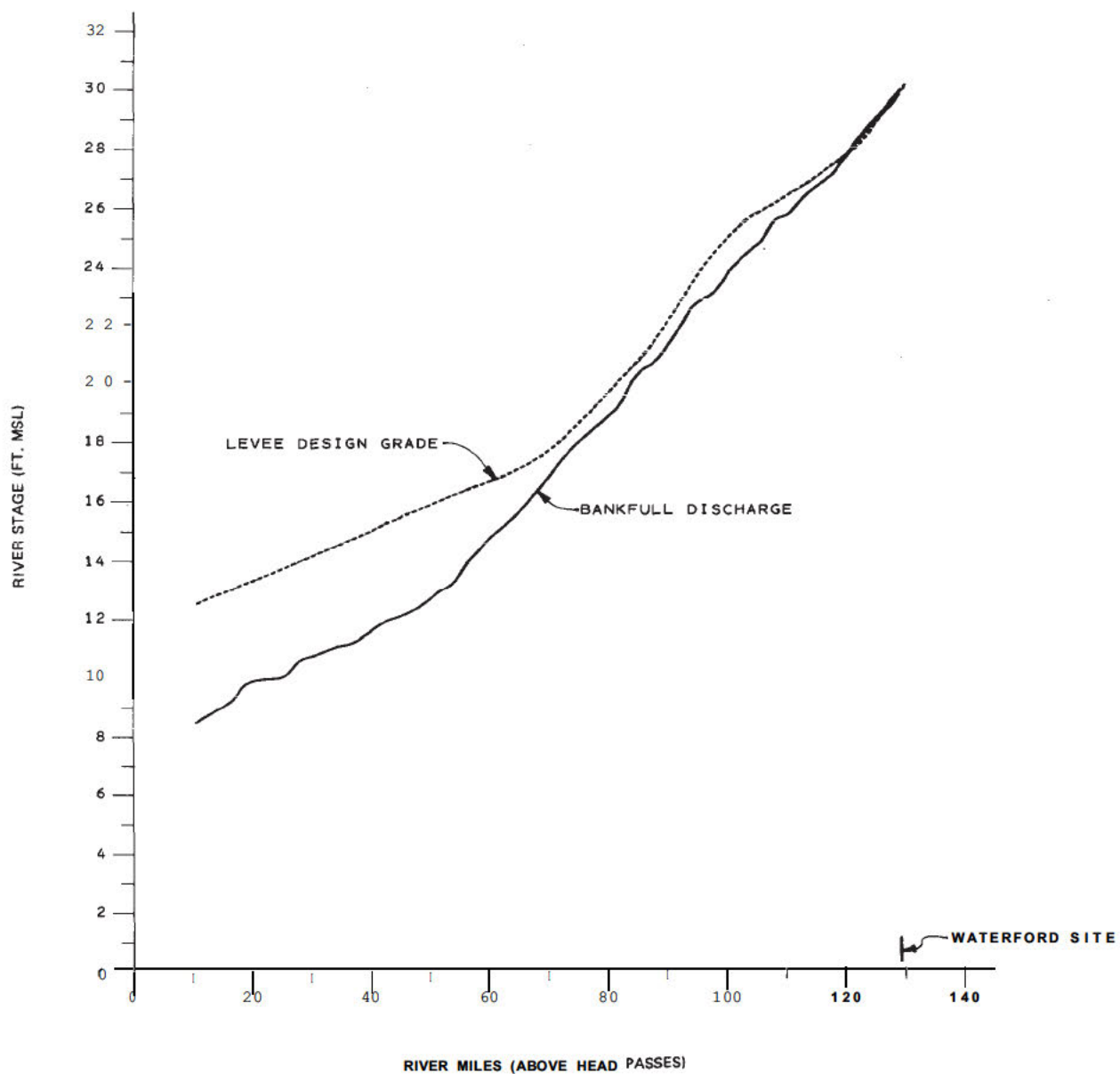


LOUISIANA  
POWER & LIGHT CO.  
Waterford Steam  
Electric Station

FLOOD STAGE - DISCHARGE CURVE AT  
WATERFORD SITE

Figure  
2.4-13





LOUISIANA  
POWER & LIGHT CO.  
Waterford Steam  
Electric Station

COMPUTED RIVER PROFILE WITH  
FULL LEVEE DISCHARGE

Figure  
2.4-14

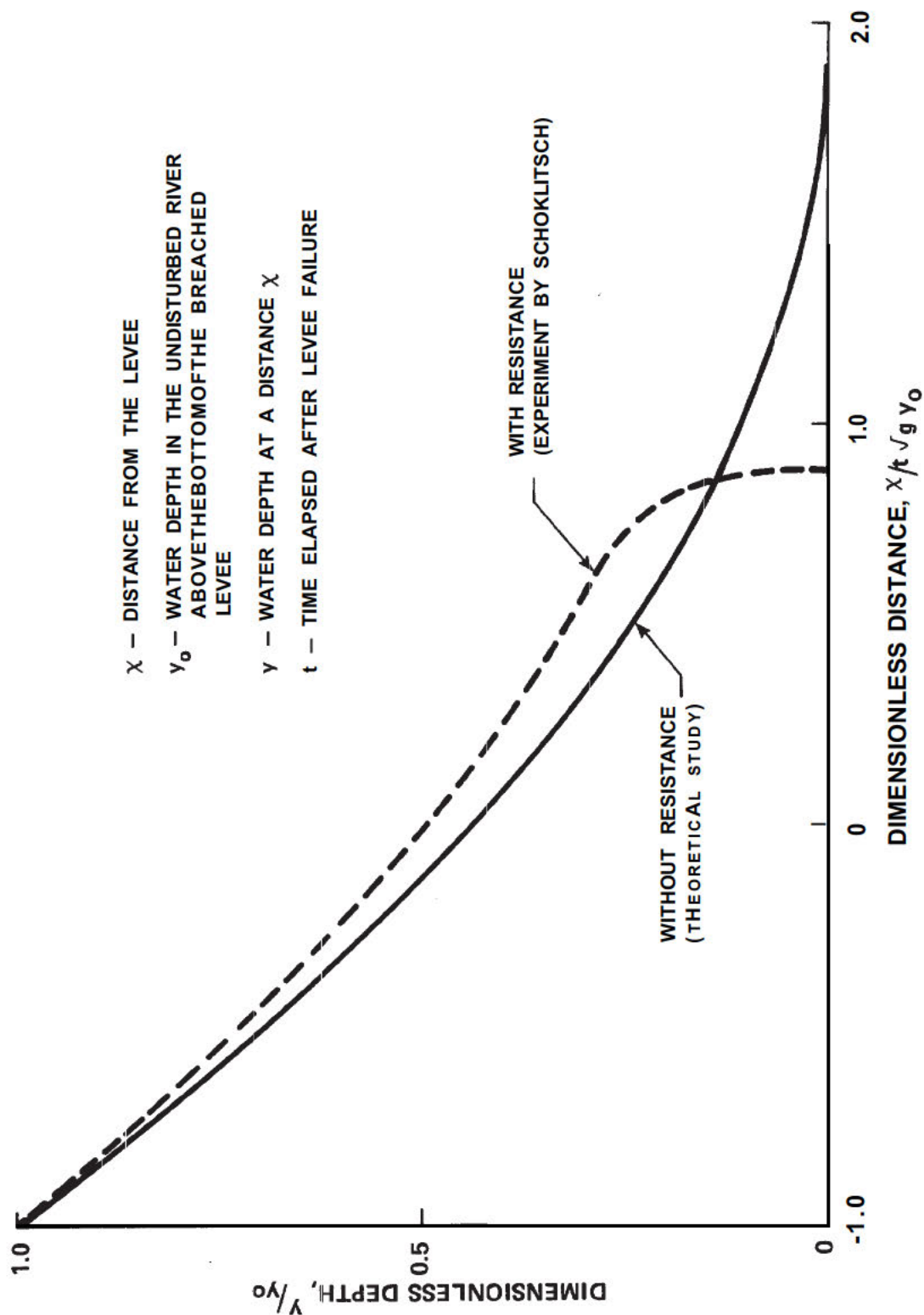
FIGURES 2.4-15 THROUGH 2.4-19  
HAVE BEEN INTENTIONALLY  
DELETED

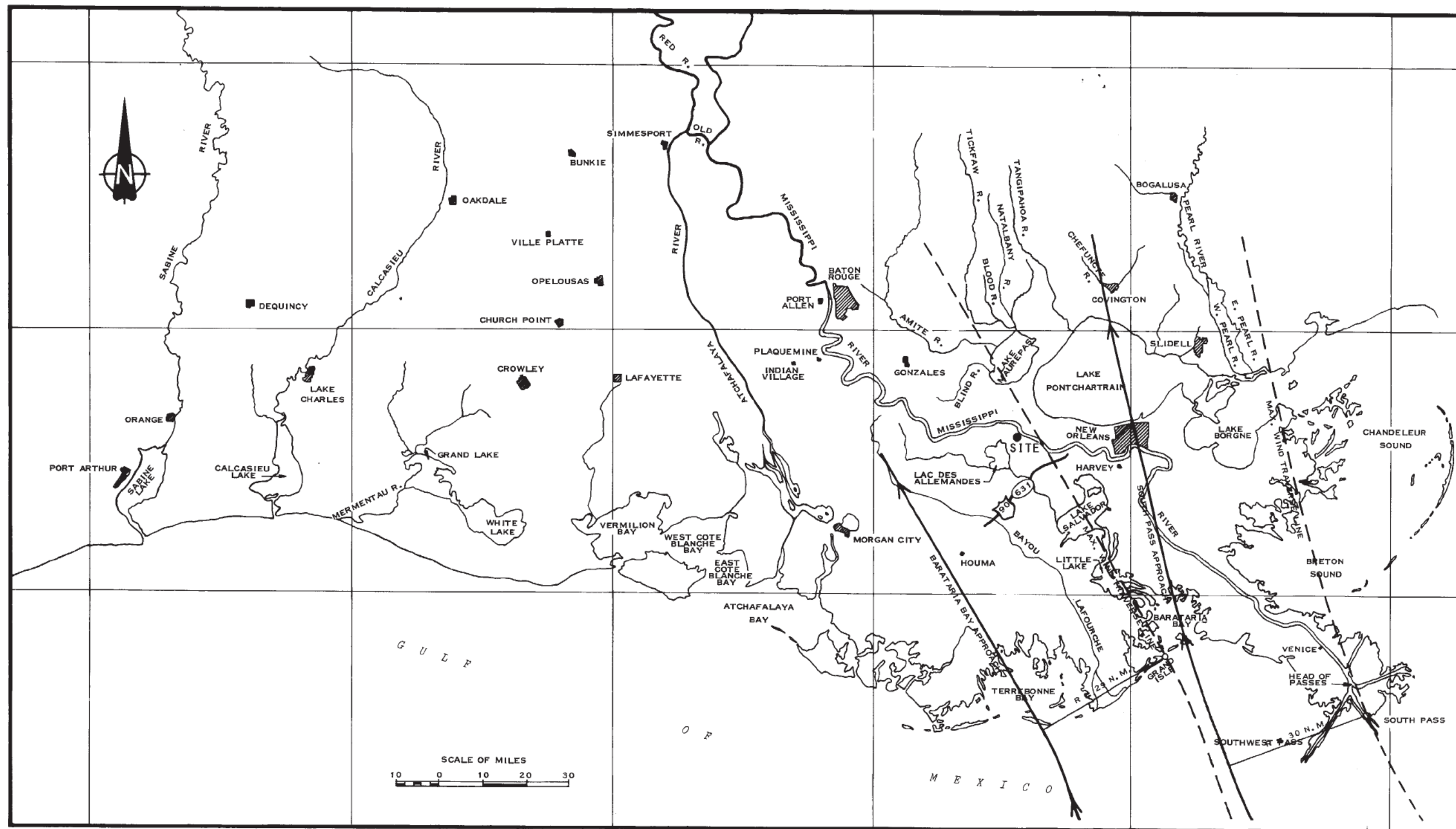
Security Related Information  
Figure Withheld Under 10 CFR 2.390

LOUISIANA POWER & LIGHT CO.  
Waterford Steam Electric Station

WATERFORD 3 – SITE AREA

FIGURE 2.4-20



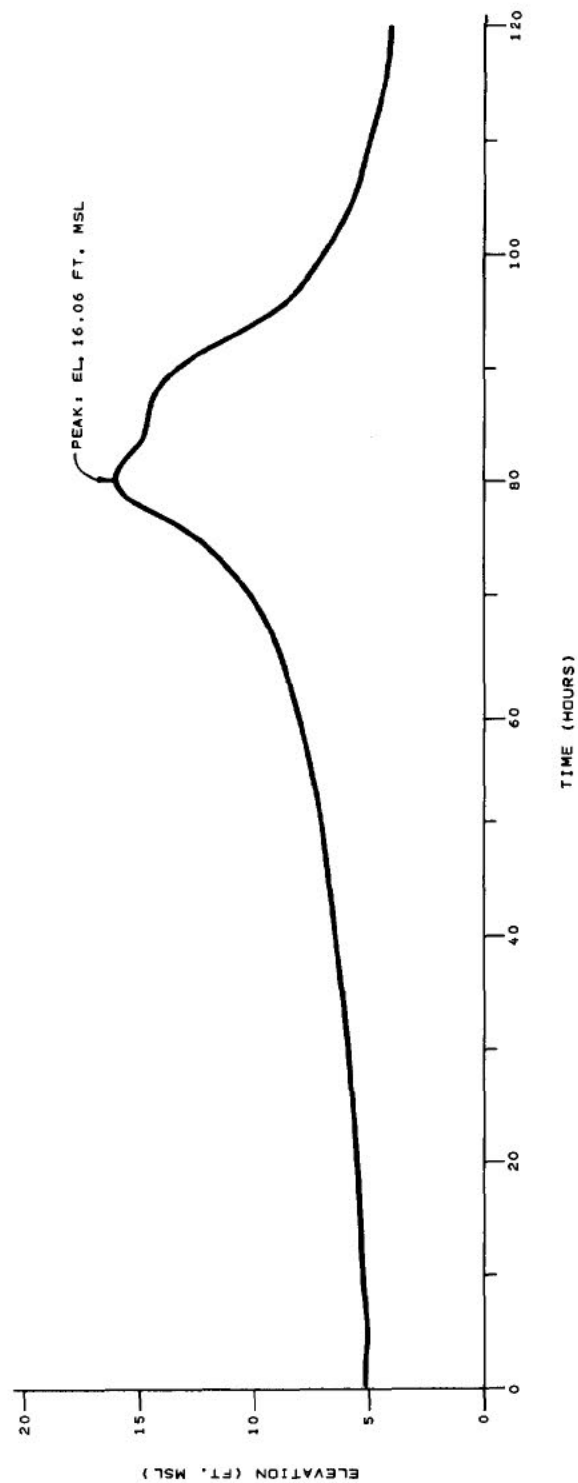


LOUISIANA POWER & LIGHT CO.  
Waterford Steam Electric Station

CRITICAL PMH PATHS

FIGURE 2.4-22

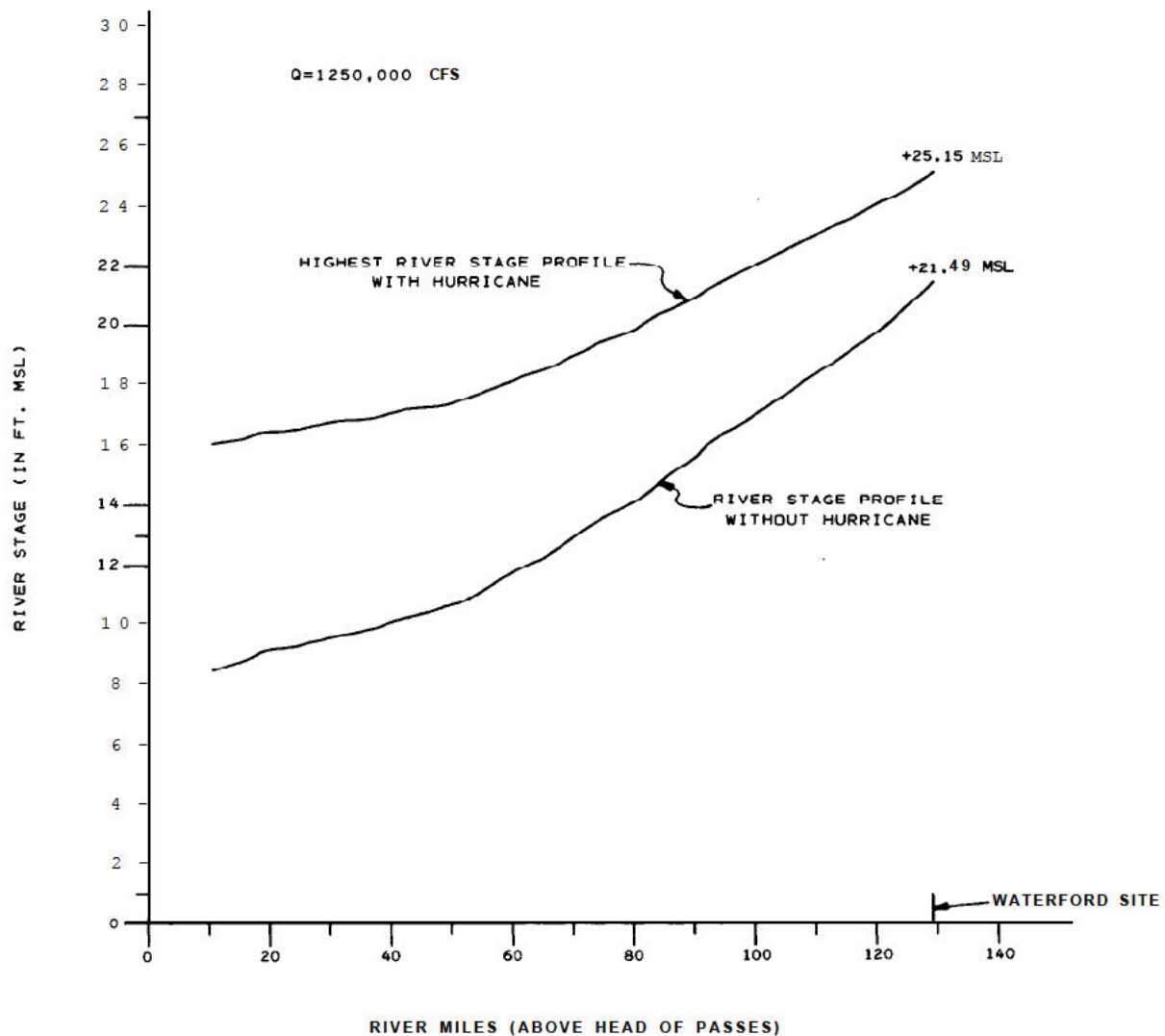


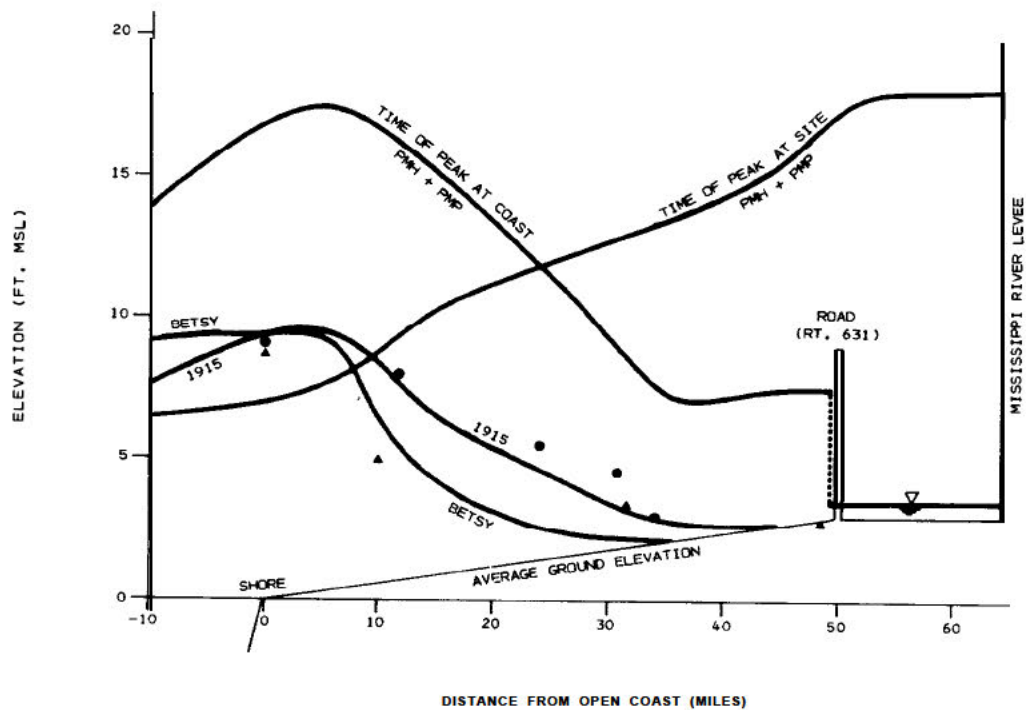


LOUISIANA  
POWER & LIGHT CO.  
Waterford Steam  
Electric Station

OPEN COAST SURGE HYDROGRAPH  
MOUTH OF MISSISSIPPI RIVER

Figure  
2.423





LEGEND :

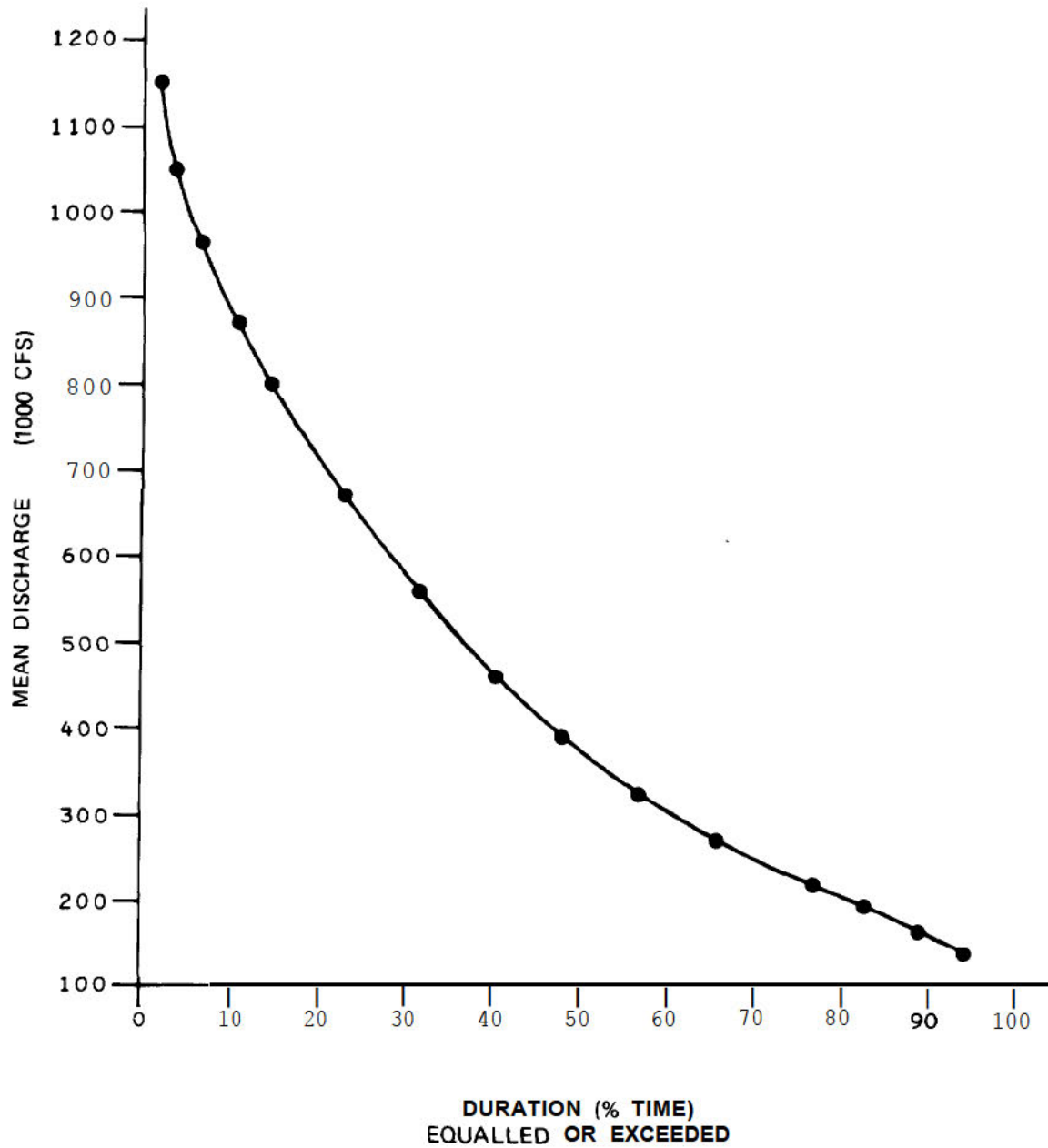
HISTORICAL HURRICANES, MAXIMUM FLOOD

▲ B E T S Y , O B S E R V E D

● 1915, O B S E R V E D

— C O M P U T E D

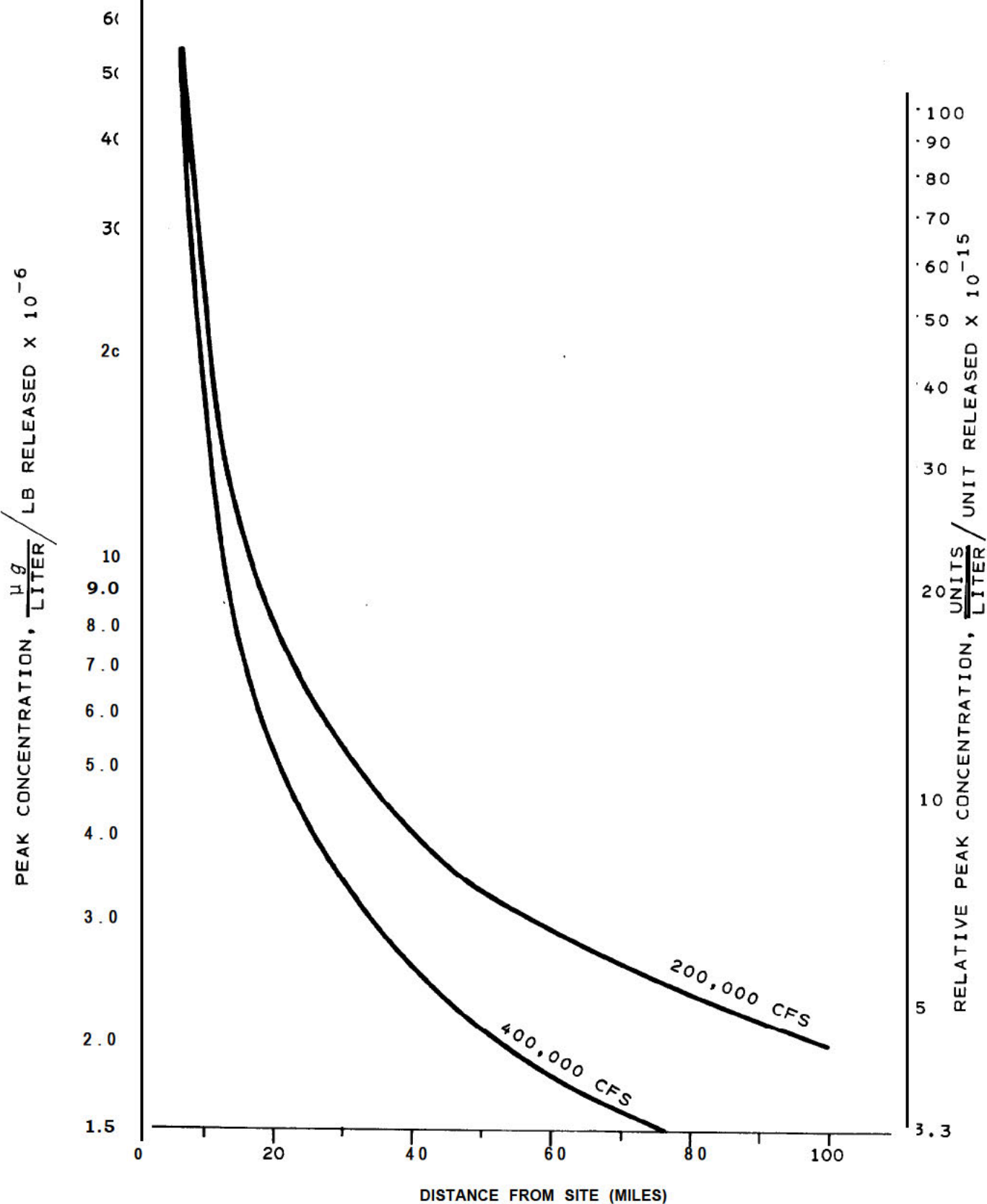
NOTE:  
COMBINED DATA FROM TARBERT LANDING  
AND RED RIVER LANDING 1930-1975.



LOUISIANA  
POWER & LIGHT CO.  
Waterford Steam  
Electric Station

FLOW DURATION CURVE AT SITE

Figure  
2.4-26

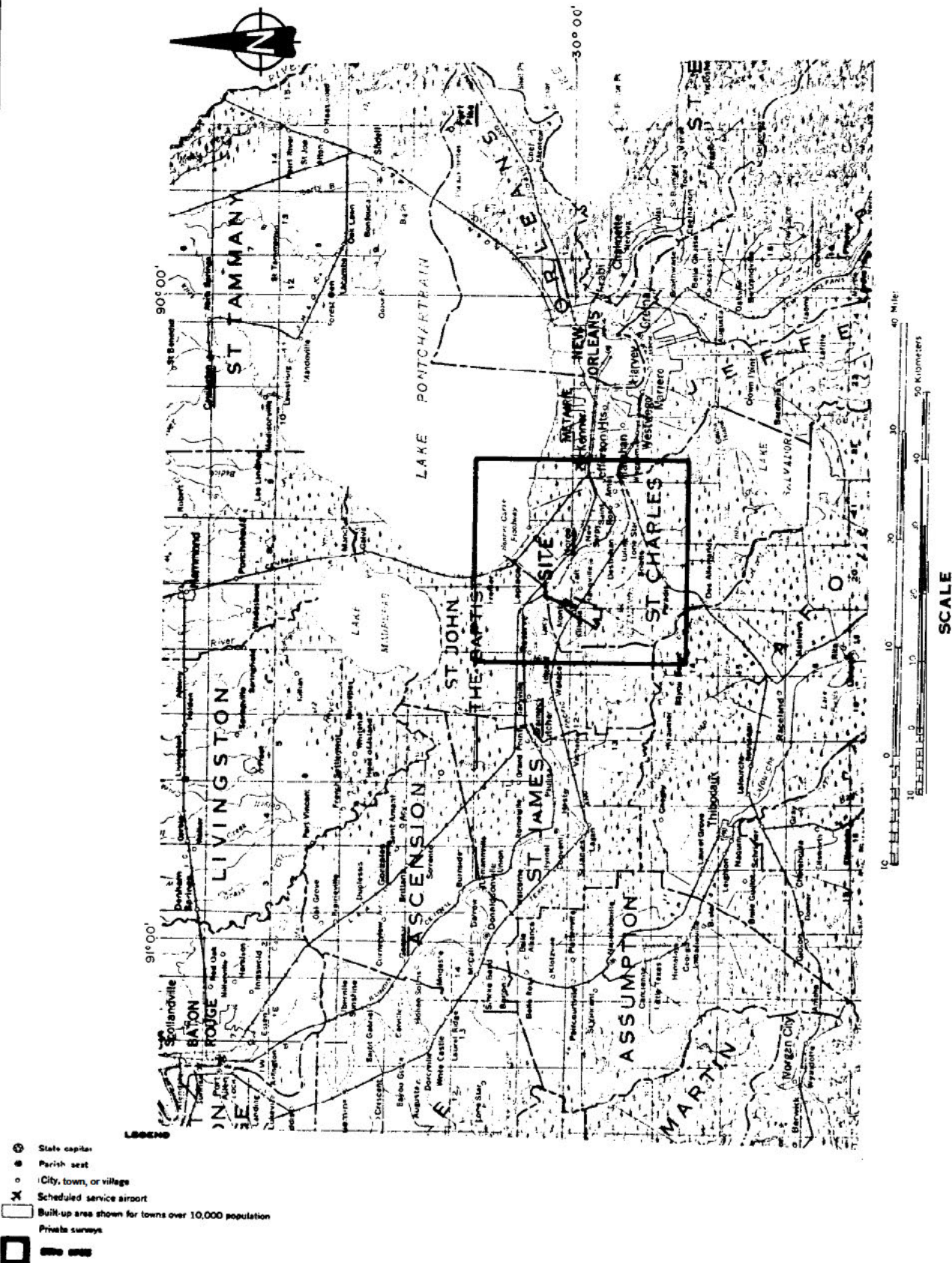


LOUISIANA  
POWER & LIGHT CO.  
Waterford Steam  
Electric Station

PEAK CONCENTRATION VS DOWNSTREAM DISTANCE

Figure  
2.4-27

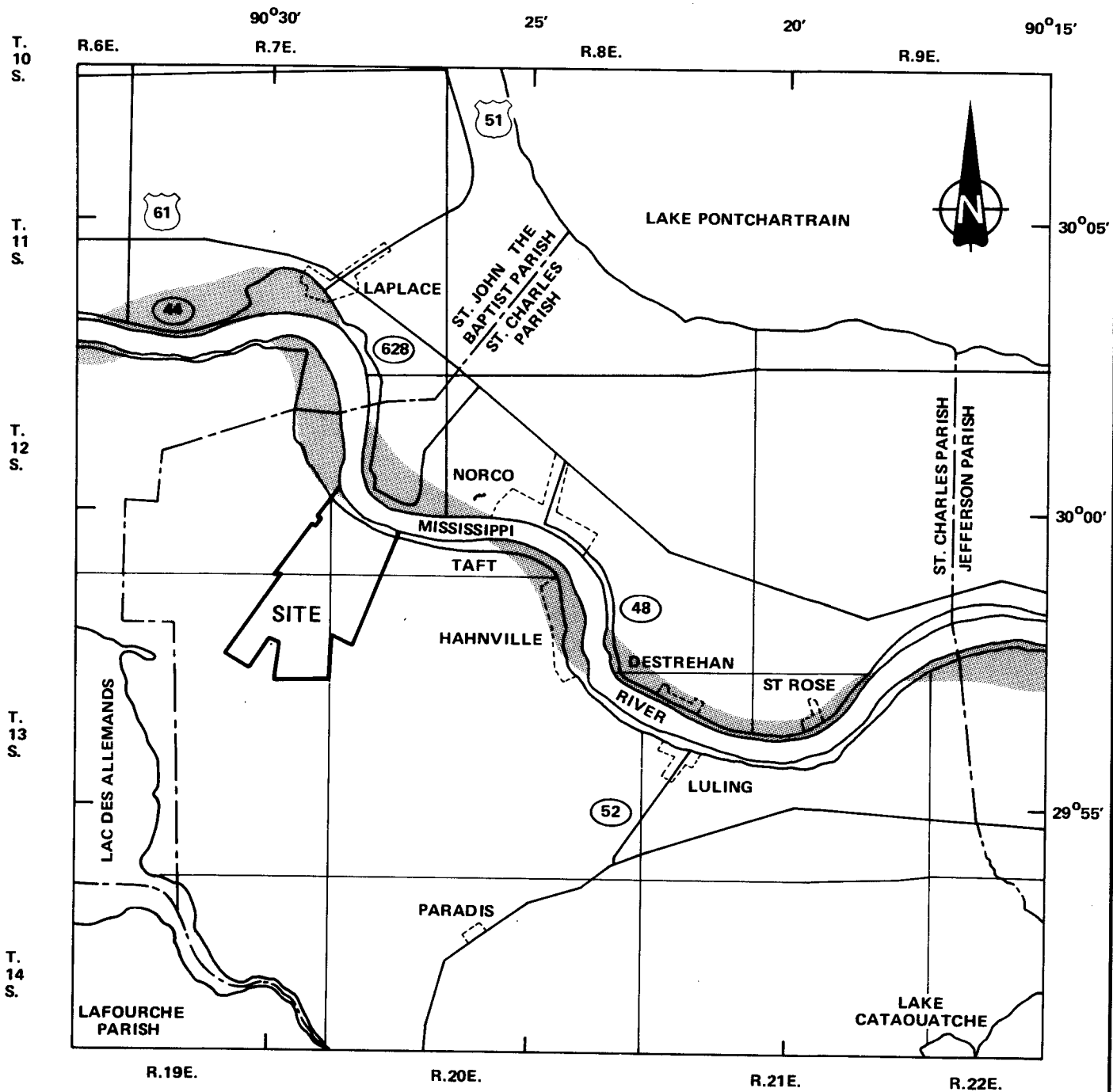




LOUISIANA  
POWER & LIGHT CO.  
Waterford Steam  
Electric Station

LOCATION MAP OF GROUNDWATER  
REGION, SITE AREA, AND SITE

Figure  
2.4-28



SOURCE: MODIFIED FROM HOSMAN, R. L.  
 "GROUNDWATER RESOURCES  
 OF THE NORCO AREA, LOUISIANA."  
 U.S. GEOLOGICAL SURVEY, WATER  
 RESOURCES BULLETIN NUMBER 18,  
 1972.

0 2 4  
 SCALE IN MILES

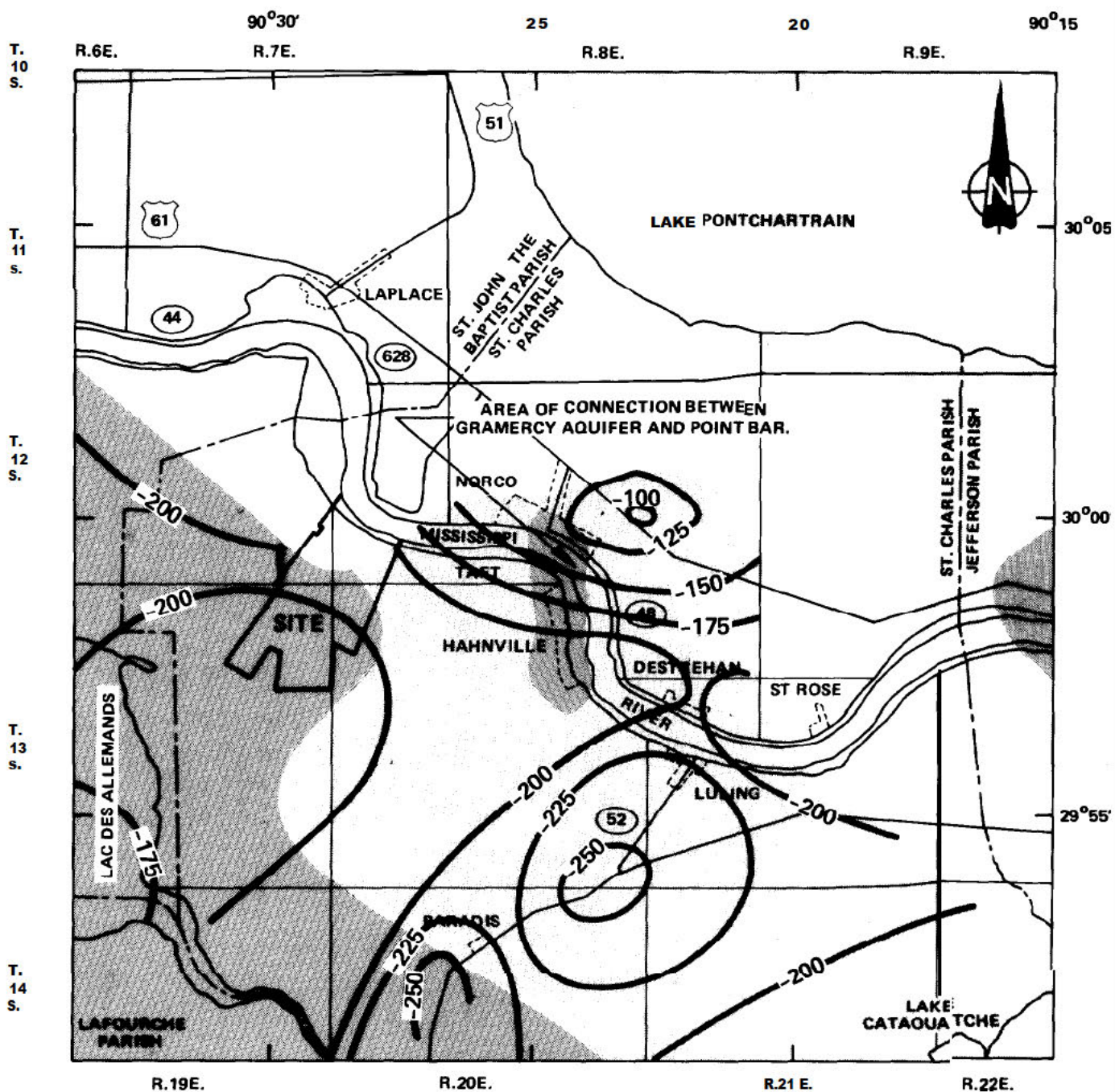
LEGEND:  
 MISSISSIPPI RIVER POINT BAR

LOUISIANA  
 POWER & LIGHT CO.  
 Waterford Steam  
 Electric Station

POINT BAR DEPOSITS OF MISSISSIPPI RIVER

Figure  
 2.4-29





SOURCE: MODIFIED FROM HOSMAN, R. L.  
"GROUNDWATER RESOURCES  
OF THE NORCO AREA, LOUISIANA."  
U.S. GEOLOGICAL SURVEY, WATER  
RESOURCES BULLETIN NUMBER 18,  
1972.

0 2 4  
SCALE IN MILES

LEGEND:

- -200 — STRUCTURE CONTOUR SHOWING ALTITUDE OF  
TOP OF AQUIFER, CONTOUR INTERVAL 25 FEET.  
DATUM IS MEAN SEA LEVEL.
- AREA WHERE GRAMERCY AQUIFER IS CONTINUOUS.
- AREA WHERE GRAMERCY AQUIFER SPLIT, THIN, OR  
ABSENT.
- AREA WHERE AQUIFER CONTAINS SALTY WATER.

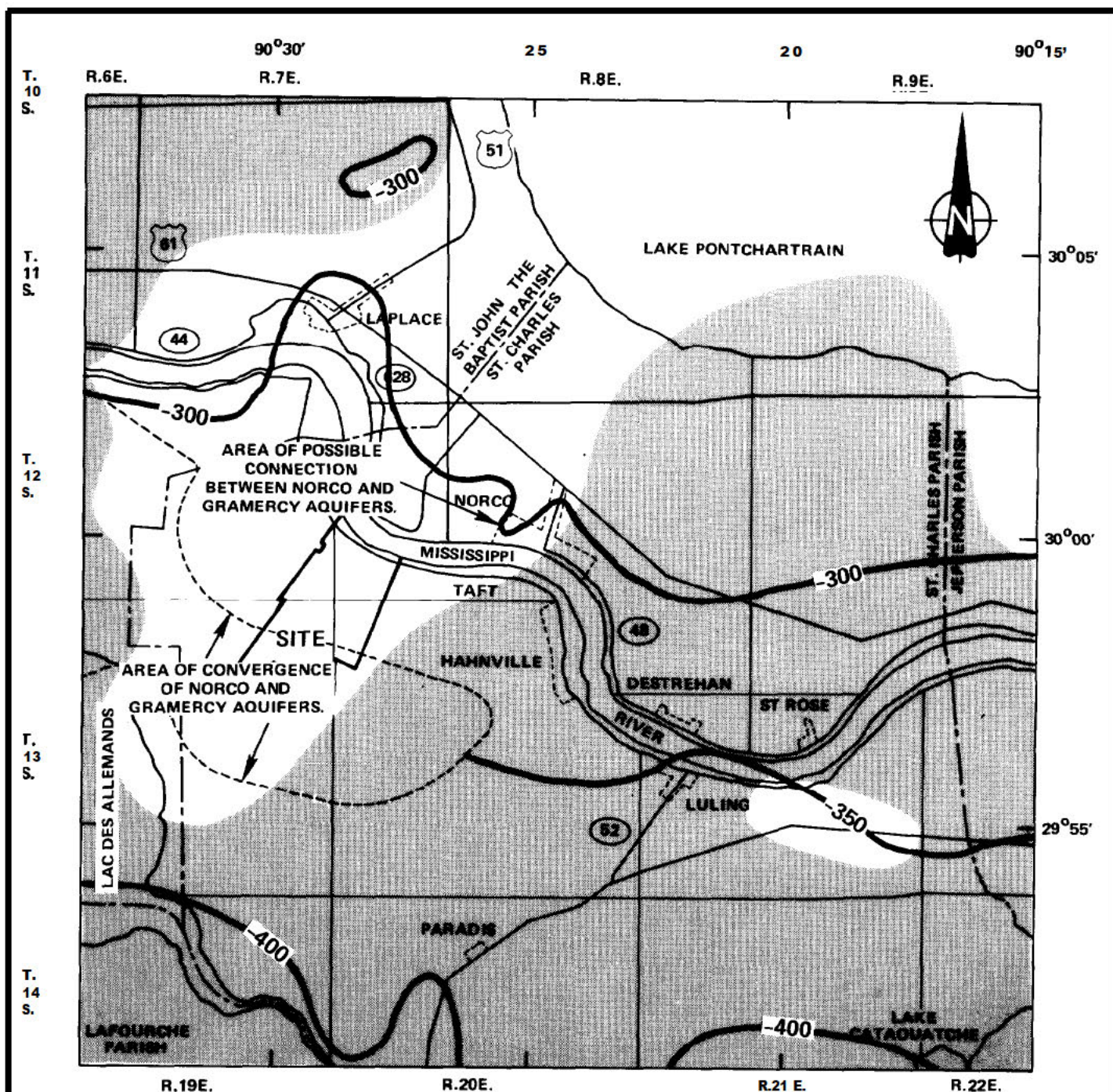
LOUISIANA  
POWER & LIGHT CO.  
Waterford Steam  
Electric Station

CONFIGURATION OF THE TOP OF THE  
GRAMERCY AQUIFER

Figure

2.4-30





SOURCE: MODIFIED FROM HOSMAN, R. L.  
 "GROUNDWATER RESOURCES  
 OF THE NORCO AREA, LOUISIANA."  
 U.S. GEOLOGICAL SURVEY, WATER  
 RESOURCES BULLETIN NUMBER 18.  
 1972.

0 2 4  
 SCALE IN MILES

LEGEND:

— -400 — STRUCTURE CONTOUR SHOWING ALTITUDE  
 OF TOP OF AQUIFER CONTOUR INTERVAL  
 50 FEET. DATUM IS MEAN SEA LEVEL.



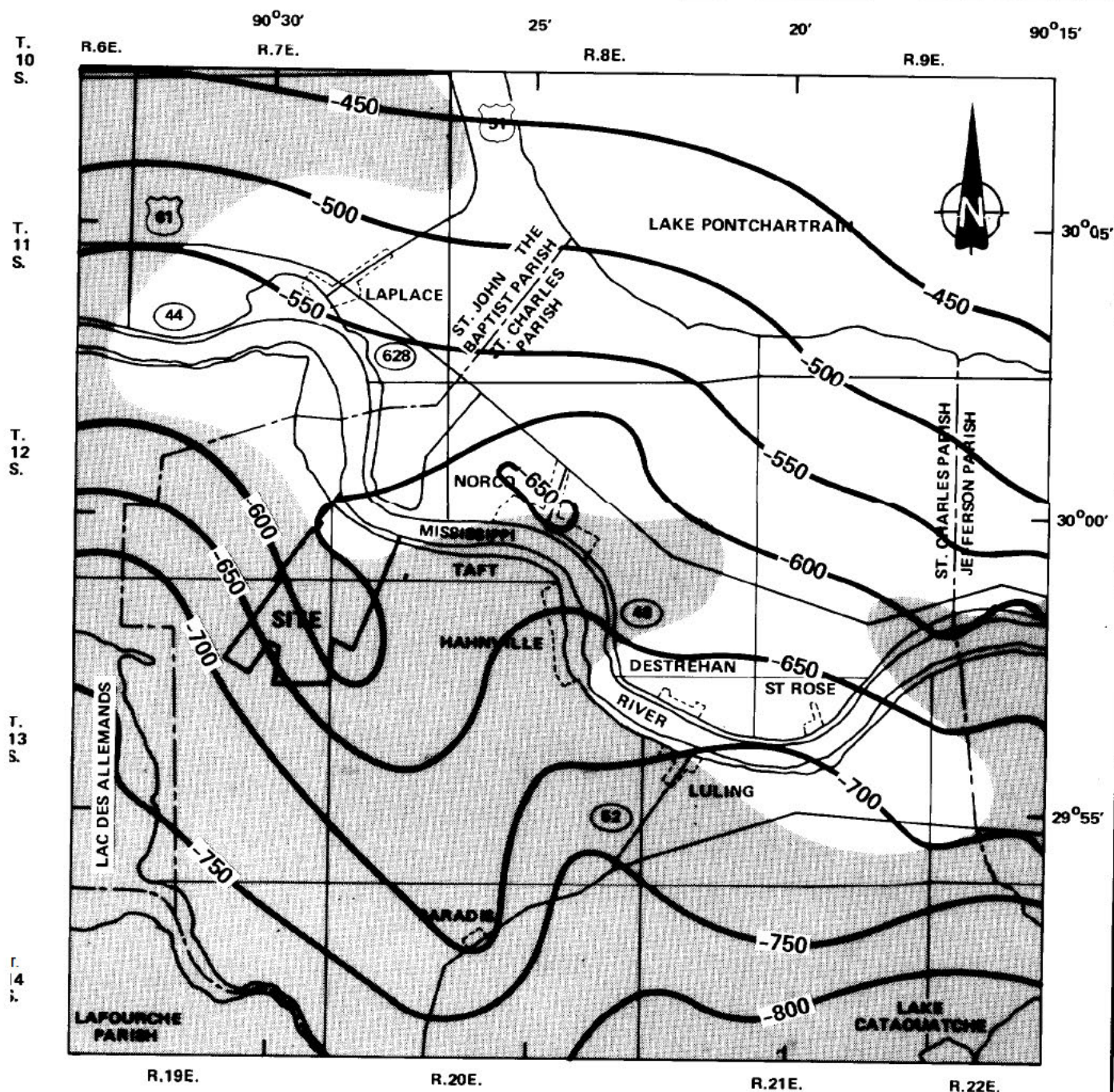
AREA WHERE AQUIFER CONTAINS SALTY  
 WATER.

LOUISIANA  
 POWER & LIGHT CO.  
 Waterford Steam  
 Electric Station

CONFIGURATION OF THE TOP OF THE  
 NORCO AQUIFER

Figure  
 2.4-31





SOURCE: MODIFIED FROM HOSMAN, R. L.  
 "GROUNDWATER RESOURCES  
 OF THE NORCO AREA, LOUISIANA."  
 U.S. GEOLOGICAL SURVEY, WATER  
 RESOURCES BULLETIN NUMBER 18,  
 1972.

0 2 4  
 SCALE IN MILES

LEGEND:  
 -700- STRUCTURE CONTOUR SHOWING  
 ALTITUDE OF TOP OF AQUIFER:  
 CONTOUR INTERVAL 50 FEET.  
 DATUM IS MEAN SEA LEVEL.

AREA WHERE AQUIFER CONTAINS  
 SALTY WATER.

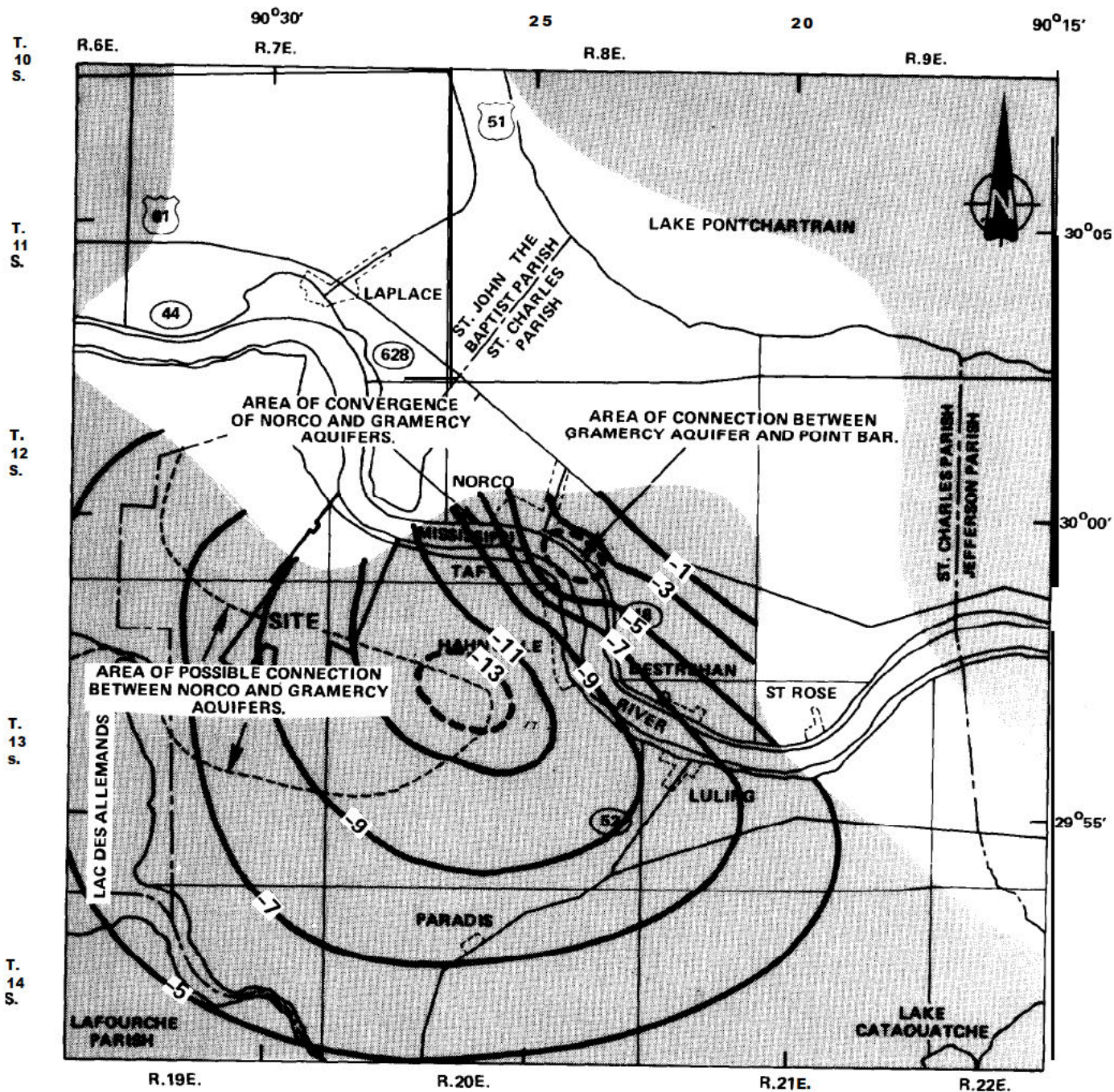
LOUISIANA  
 POWER & LIGHT CO.  
 Waterford Steam  
 Electric Station

CONFIGURATION OF THE TOP OF THE  
 GONZALES-NEW ORLEANS AQUIFER

Figure  
 2.4-32







SOURCE: MODIFIED FROM HOSMAN, R. L.  
 "GROUNDWATER RESOURCES  
 OF THE NORCO AREA, LOUISIANA."  
 U.S. GEOLOGICAL SURVEY, WATER  
 RESOURCES BULLETIN NUMBER 18,  
 1972.

0 2 4  
 SCALE IN MILES

LEGEND:  
 -5- POTENTIOMETRIC CONTOUR SHOWING  
 ALTITUDE OF WATER LEVEL, FALL 1969.  
 CONTOUR INTERVAL 2 FEET.  
 DATUM IS MEAN SEA LEVEL.

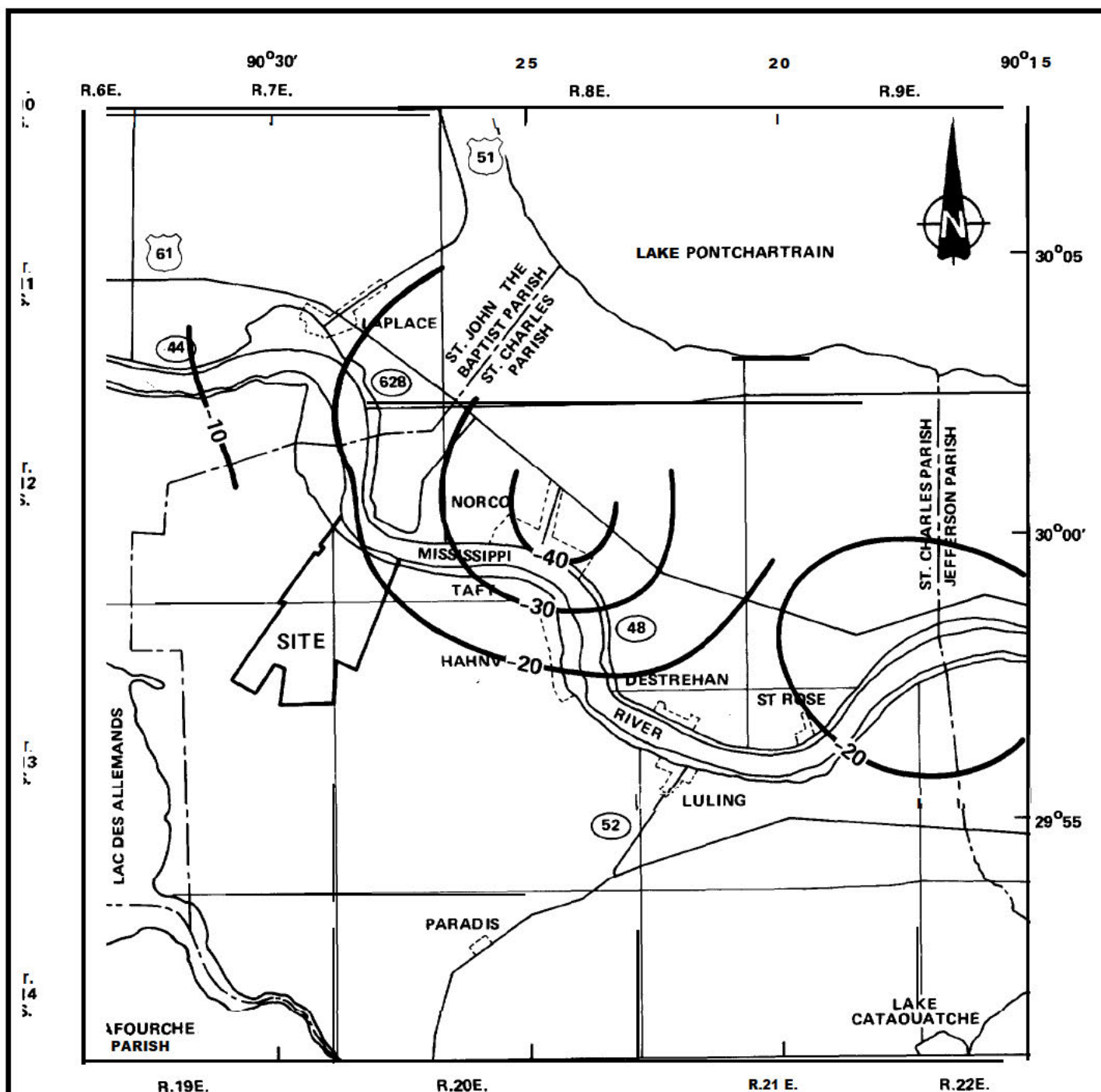
□ AREA UNDERLAIN BY CONTINUOUS  
 GRAMERCY AQUIFER.

LOUISIANA  
 POWER & LIGHT CO.  
 Waterford Steam  
 Electric Station

CONFIGURATION OF THE POTENTIOMETRIC SURFACE  
 IN THE GRAMERCY AQUIFER, FALL 1960

Figure  
 2.4-34





SOURCE: MODIFIED FROM HOSMAN, R. L.  
"GROUNDWATER RESOURCES  
OF THE NORCO AREA, LOUISIANA."  
U.S. GEOLOGICAL SURVEY, WATER  
RESOURCES BULLETIN NUMBER 18,  
1972.

0 2 4  
SCALE IN MILES

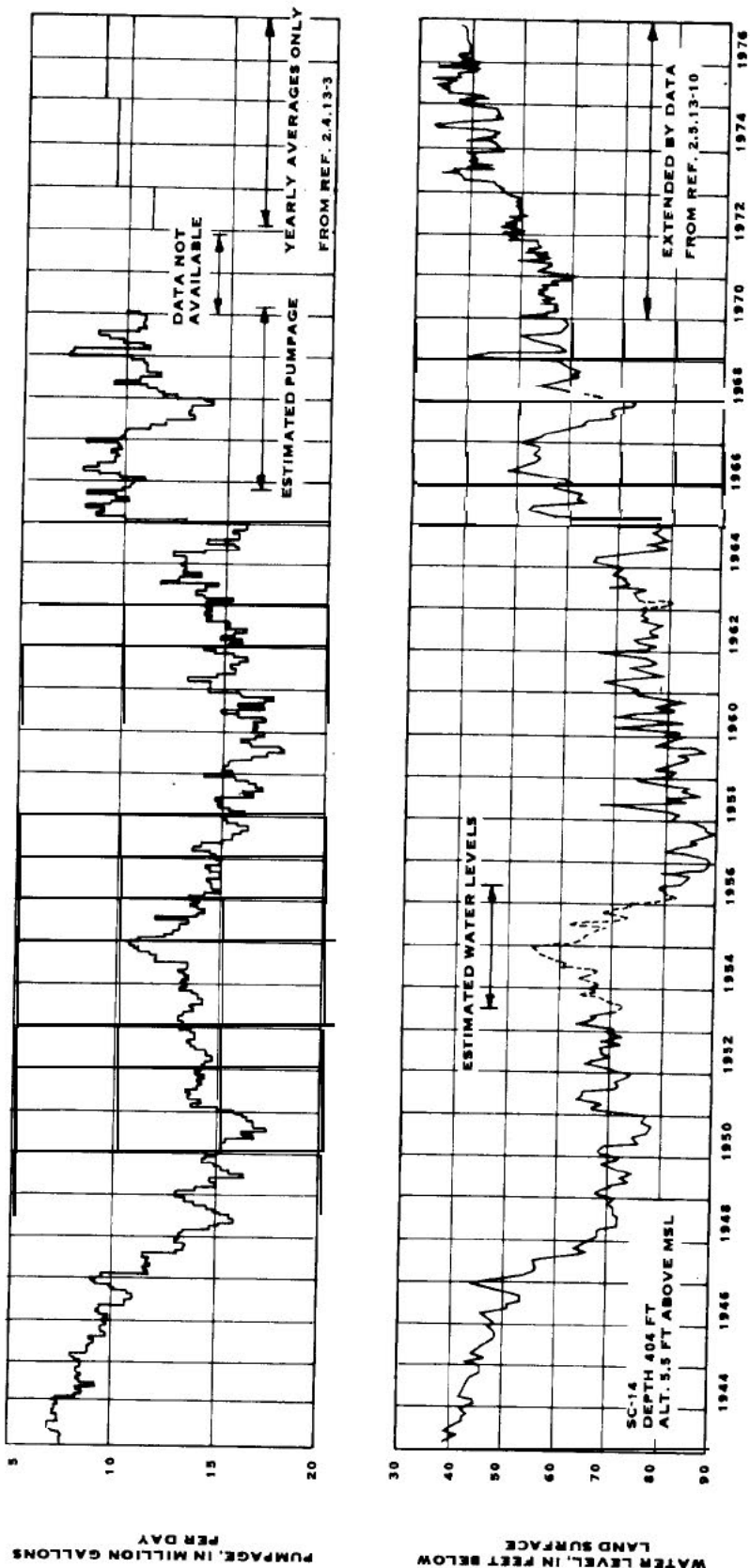
LEGEND:

— -20 — POTENTIOMETRIC CONTOURS SHOWING  
ALTITUDE OF WATER LEVEL. CONTOUR  
INTERVAL 10 FEET. DATUM IS MEAN  
SEA LEVEL.

LOUISIANA  
POWER & LIGHT CO.  
Waterford Steam  
Electric Station

CONFIGURATION OF THE POTENTIOMETRIC SURFACE  
IN THE NORCO AQUIFER, FALL 1965

Figure  
2.4-35

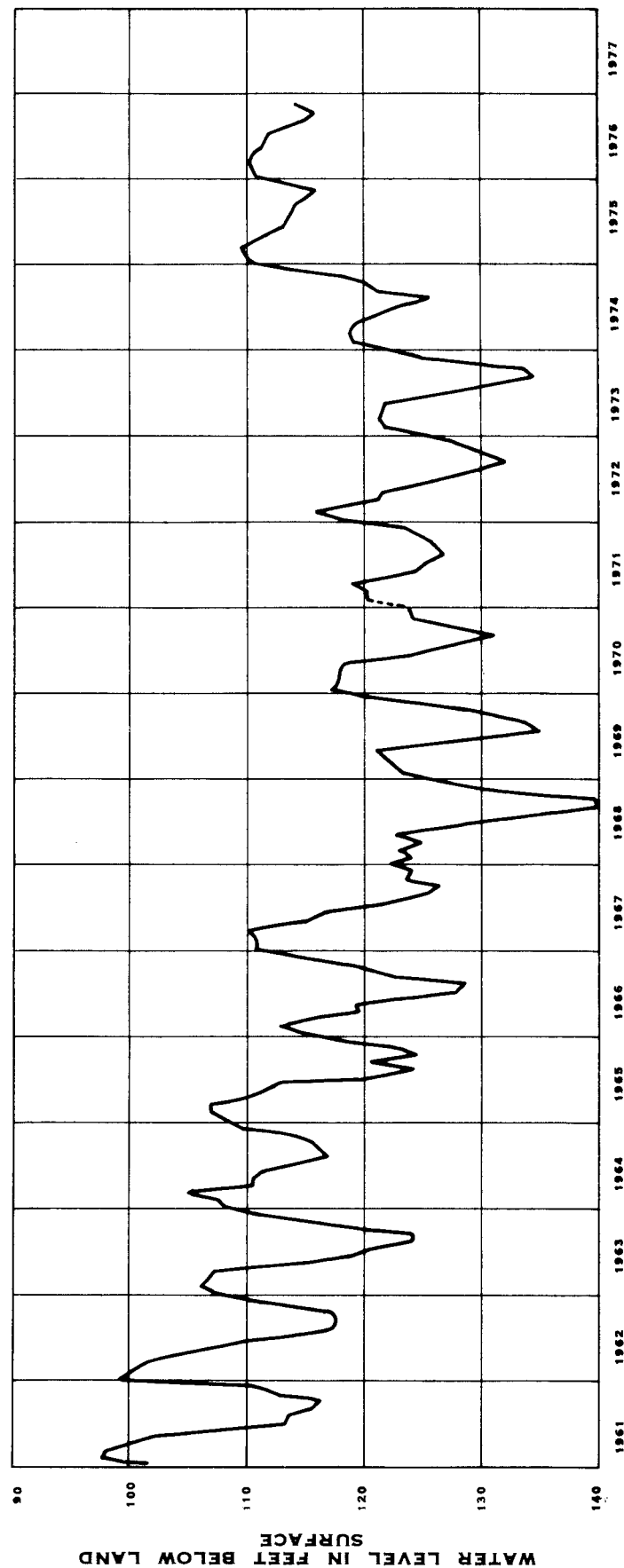


LOUISIANA  
POWER & LIGHT CO.  
Waterford Steam  
Electric Station

WATER LEVEL AND PUMPAGE NORCO  
AQUIFER AT NORCO

Figure  
2.4-36





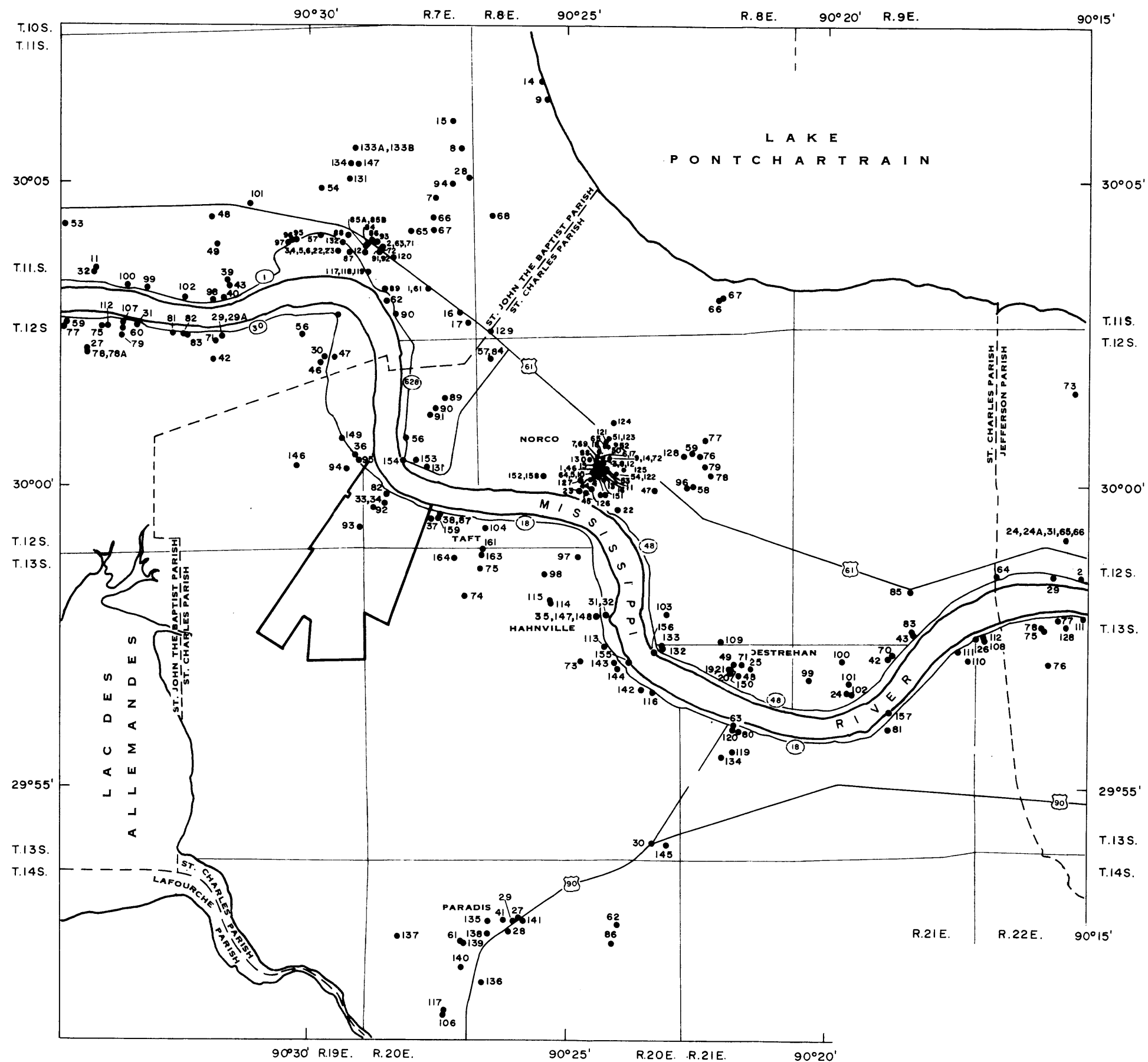
WELL OR - 42  
IN NEW ORLEANS

SOURCE: REF. 2.4.13-10

LOUISIANA  
POWER & LIGHT CO.  
Waterford Steam  
Electric Station

WATER LEVELS IN GONZALES-NEW ORLEANS AQUIFER

Figure  
2.4-38



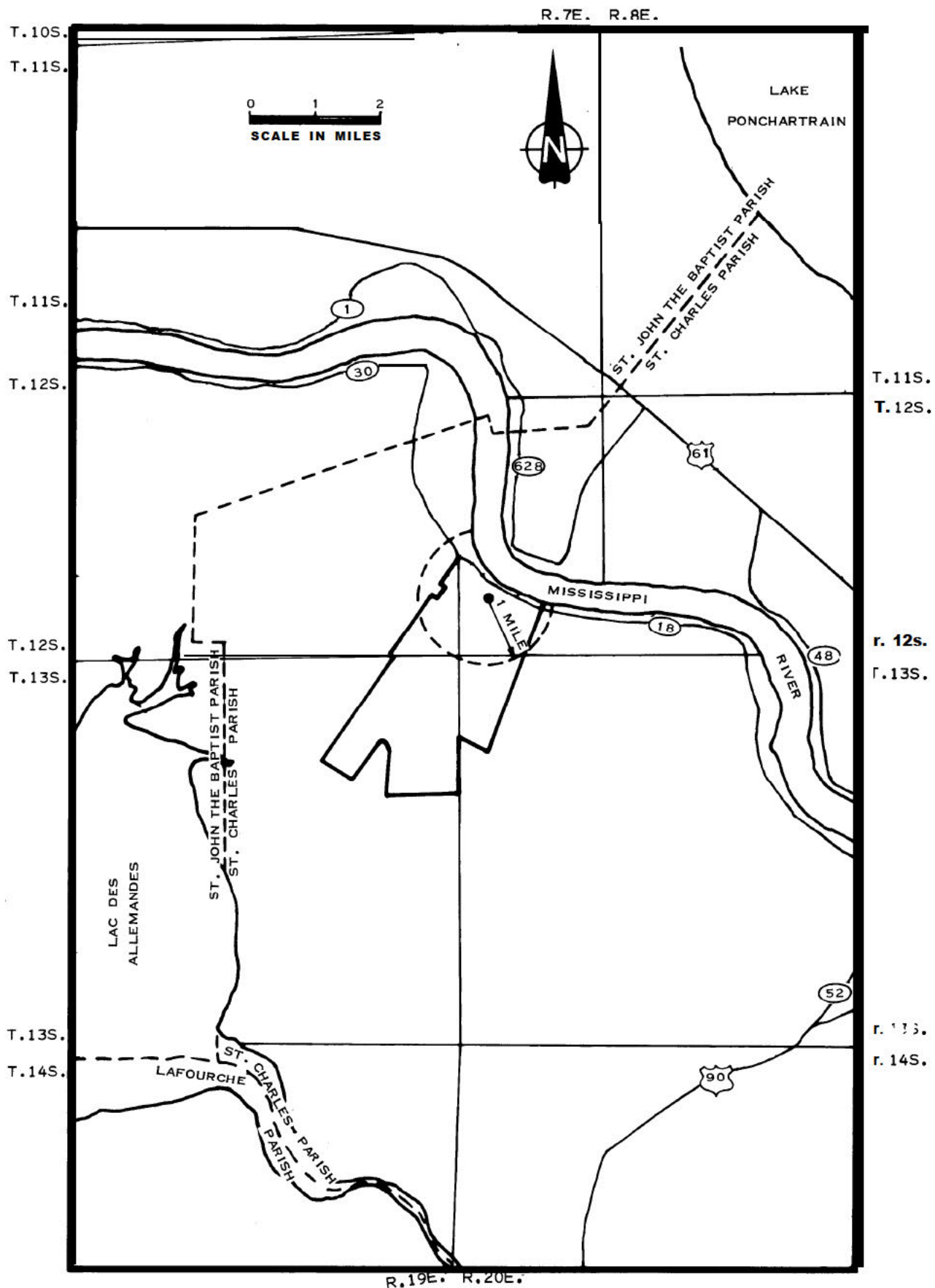
SOURCE: REF. 2.4.13-10

0 1 2  
SCALE IN MILES

LOUISIANA POWER & LIGHT CO.  
Waterford Steam Electric Station

WATER WELLS AND TEST HOLES  
IN SITE AREA  
FIGURE 2.4-39

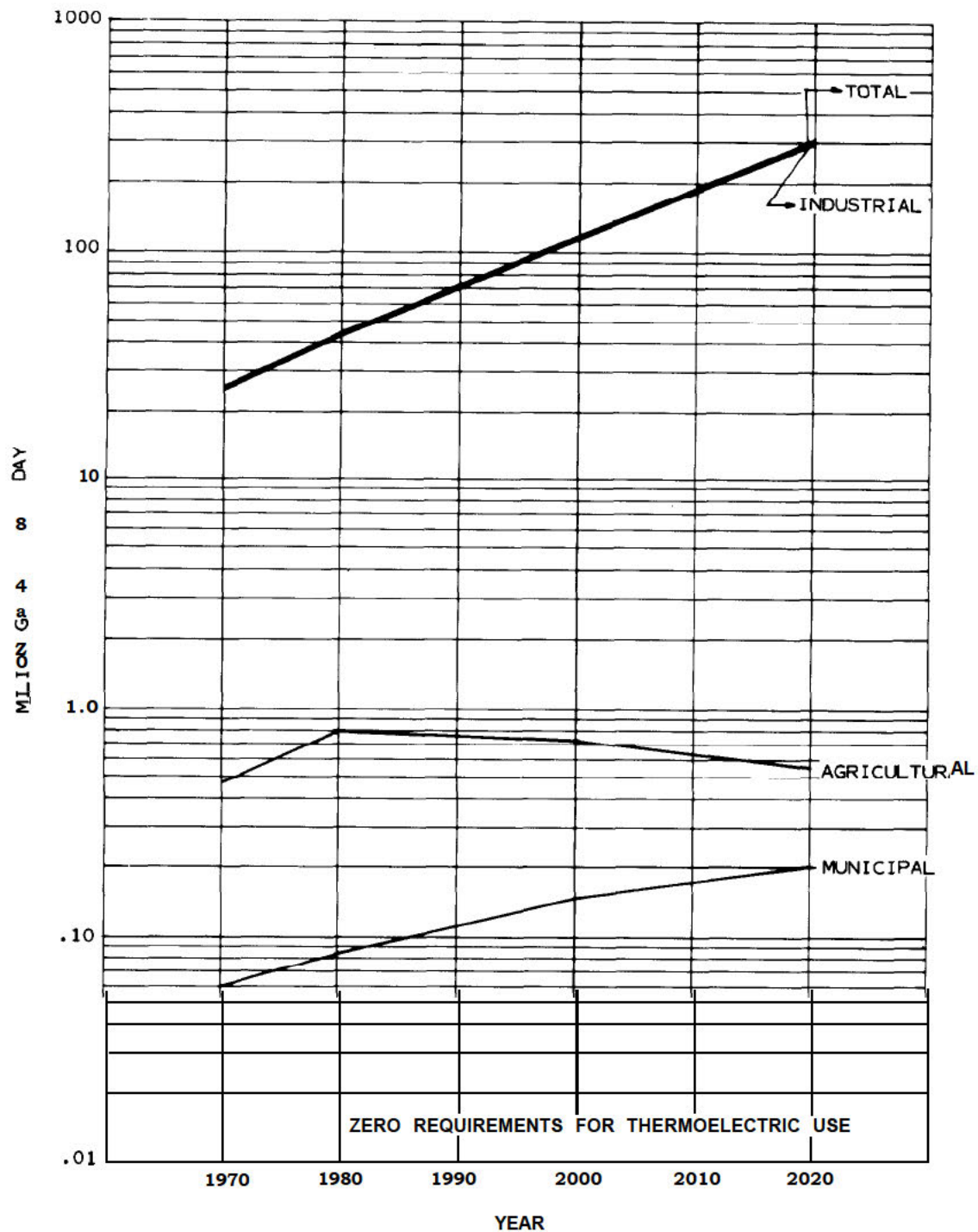




LOUISIANA  
POWER & LIGHT CO.  
Waterford Steam  
Electric Station

AREA OF DETAILED WELL SURVEY

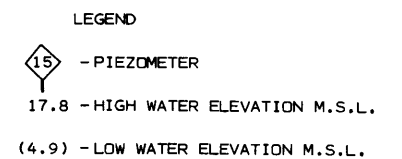
Figure  
2.4-40



LOUISIANA  
POWER & LIGHT CO.  
Waterford Steam  
Electric Station

AVERAGE MONTHLY GROUND WATER REQUIREMENTS  
FOR ST. JAMES, ST. CHARLES AND ST. JOHN THE  
BAPTIST PARISHES; 1970 - 2020

Figure  
2.4-41



**LEGEND**

B64 EXPLORATION BORINGS

34 FROM U.S. GEOLOGICAL SURVEY  
DATA FOR WELLS IN ST. CHARLES  
PARISH.

(NORCO)

← AQUIFER DEVELOPED

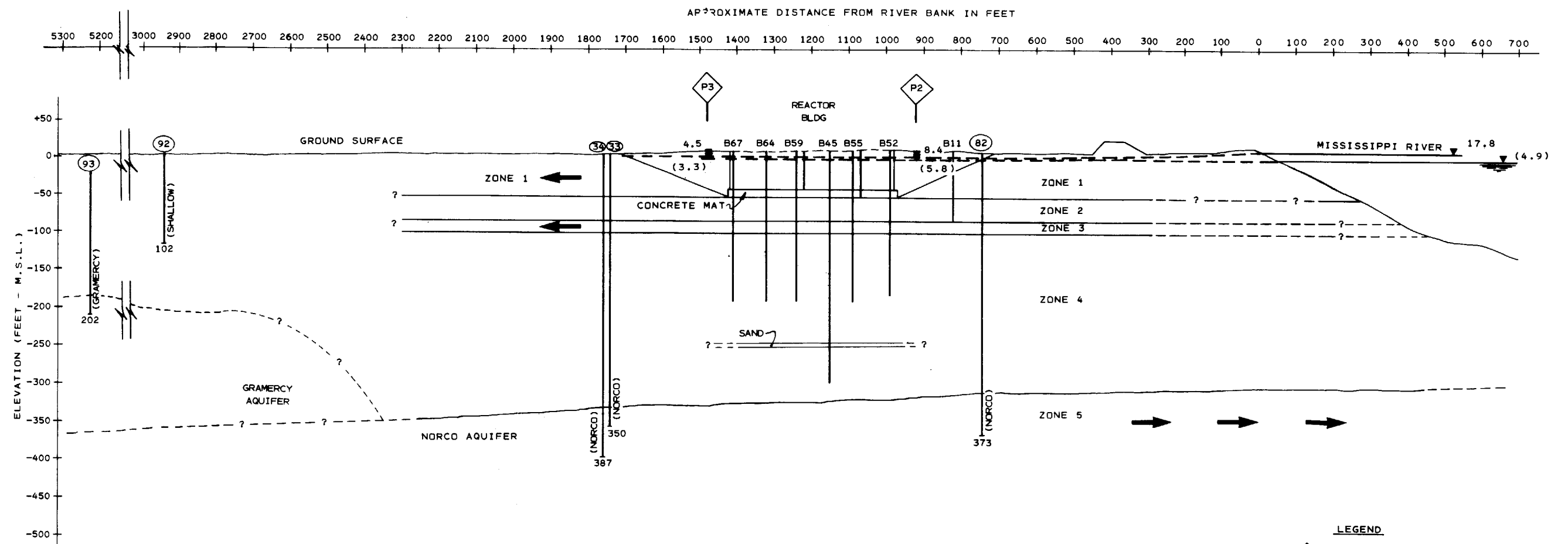
171 ← DEPTH OF WELL

➡ GENERAL DIRECTION OF GROUND WATER

**LOUISIANA POWER & LIGHT CO.**  
**Waterford Steam Electric Station**

**PIEZOMETRIC SURFACE IN  
EL.-77 FT SAND**

**FIGURE 2.4-42**



**LEGEND**

P2 - PIEZOMETER

8.4 - HIGH WATER ELEVATION M.S.L.

(5.8) - LOW WATER ELEVATION M.S.L.

ZONE	AGE	DESCRIPTION	PERMEABILITY (CM/SEC)
1	RECENT	CLAY, SILT, AND SAND. DISCONTINUOUS AND UNRESPONSIVE TO FLUCTUATIONS IN RIVER LEVEL.	$1.5 \times 10^{-6}$
2	PLEISTOCENE	UNIFORM STIFF/VERY STIFF SILTY CLAY AND CLAY WITH OCCASIONAL SAND LENSES. FISSURED (ALL STRATA BELOW THIS ARE CONTINUOUS AND RESPONSIVE TO RIVER LEVEL FLUCTUATIONS).	$1 \times 10^{-8}$
3	PLEISTOCENE	MEDIUM DENSE SAND, SOME CLAY.	$3 \times 10^{-5}$
4	PLEISTOCENE	STIFF CLAY, BUT CONTACT WITH ZONE 3 AT 42-50 P.C.F. AND SOFT.	—
5	PLEISTOCENE	VERY DENSE SILTY SAND. DRILLED FROM 330 TO 500, IT CORRELATES WELL WITH REGIONAL DATA AS THE <u>NORCO AQUIFER</u> .	—

**LEGEND**

B64 EXPLORATION BORINGS

34 FROM U.S. GEOLOGICAL SURVEY DATA FOR WELLS IN ST. CHARLES PARISH.

(NORCO) - AQUIFER DEVELOPED

171 - DEPTH OF WELL

→ GENERAL DIRECTION OF GROUND WATER

LOUISIANA POWER & LIGHT CO.

Waterford Steam Electric Station

ASSUMED PIEZOMETRIC SURFACE  
IN RECENT MATERIAL

FIGURE 2.4-43