

Appendix E

OF ILLINOIS

ent of  
Man and Education

A. ANDERSON  
TOR, SPRINGFIELD

NATURAL RESOURCES  
SERVATION

ANDERSON CHAIRMAN  
THOMAS PARK

TRY H. S. GUTOWSKY

ERING ROBERT H. ANDERSON

Y STANLEY K. SHAPIRO

BY LAURENCE L. SLOSS  
RN ILLINOIS UNIVERSITY  
JOHN C. GUYON

SITY OF ILLINOIS  
WILLIAM L. EVERITT

# Illinois State Water Survey

WATER RESOURCES BUILDING  
605 E. SPRINGFIELD, CHAMPAIGN

MAIL: BOX 232, URBANA, ILLINOIS 61801

AREA CODE 217  
PHONE 333-2210

WILLIAM C. ACKERMANN, Chief

Sediment Survey of  
Lake Taylorville  
Taylorville, Illinois

William Bogner

Hydrology Assistant

Illinois State Water Survey  
Urbana, Illinois  
July, 1977

Sediment Survey of Lake Taylorville  
Taylorville, Illinois

INTRODUCTION

The Illinois State Water Survey (ISWS) has performed a sedimentation survey of Lake Taylorville as part of a contract with the Illinois Institute for Environmental Quality and the Illinois Environmental Protection Agency. The results of the survey, made during the period February to May, 1977, are presented in this report.

The survey was conducted under the direction of James P. Gibb, Associate Engineer of the ISWS. Field work was performed by William C. Bogner and Steve Wirth, Hydrology Assistants of the ISWS, with the assistance of employees of the City of Taylorville, owners of the lake. Office computation were performed by Bogner, Wirth, and Gibb.

GENERAL INFORMATION

Reservoir Location - Lake Taylorville is located southeast of the city of Taylorville, Illinois in Christian County. The reservoir is owned and operated by the city as a water supply and recreational area.

Description of Dam - The dam is a 1300 foot long earth fill structure with a 270 foot wide, ungated, concrete spillway at elevation 590' MSL. Impoundment began January 1, 1962.

Watershed - The Lake Taylorville watershed (figure 1) is mainly composed of cropland and pasture. A detailed description of the watershed, including soil loss calculations is being prepared by Ming T. Lee, Associate Engineer of the ISWS as part of the present contract work.

SEDIMENT SURVEY

Survey Method - Twenty ranges (figure 2) were monumented and surveyed for normal pool water and sediment depths.

The ranges were surveyed by taking present and original depth measurements at 50 foot intervals along the rangeline. Horizontal distances were measured using a steel tape (February) or cable and meter (April, May). The depth (vertical) measurements were made using a 2 inch diameter aluminum sounding pole.

Survey Results - Tables 1 and 2 summarize the results of the sedimentation survey on Lake Taylorville. The sediment distribution is graphically illustrated by cross-sections in figures 3a, b, c and d.

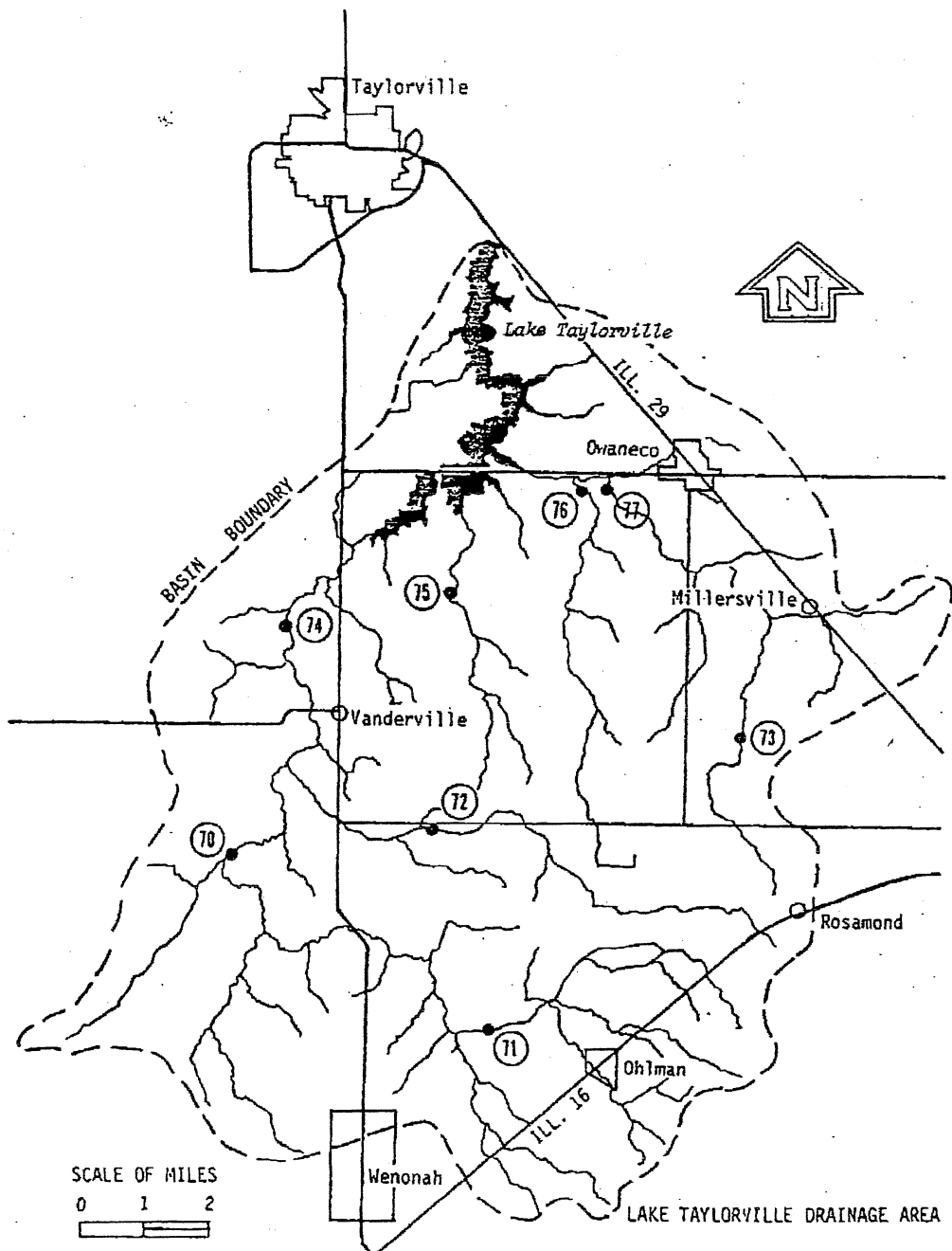
Table 1. Lake Taylorville Sedimentation Results

<u>Age</u>	Quantity	Units
January, 1962 - April, 1977	15.3	Years
<u>Watershed Area</u>		
Total Area <sup>1</sup>	131.3 84032	sq. mi. Ac.
<u>Reservoir</u>		
Area @ Spillway Level	1.8 1148	sq.mi. Ac.
Storage Capacity @ Spillway Level		
1962	9406	Ac-ft
1977	3076 7914 2587	Mil. Gal. Ac -ft Mil. Gal.
Capacity per Square Mile of Drainage Area <sup>1</sup>		
1962	71.6	Ac-ft
1977	23.4 60.3 19.7	Mil.Gal Ac.ft Mil.Gal
<u>Sedimentation</u>		
Total Sediment		
1962-1977	1492 488	Ac-ft Mil.Gal.
Average Annual Accumulation		
From Entire Watershed	97.6	Ac-ft
Per Square Mile <sup>1</sup>	0.74	Ac-ft
Per Acre <sup>1</sup>	50.6	Cu-ft
Tons per Acre <sup>1</sup>	1.0	Tons
Loss of Original Capacity		
Total	15.9	%
Per Year	1.04	%

<sup>1</sup>Including area of lake

Table 2. Lake Taylorville  
Sedimentation Results by Segment

Segment	Volume		Capacity Loss	
	1962 (ac-ft)	1977 (ac-ft)	Total (%)	per year (%)
1	505.6	462.6	8.5	0.56
2	1664.7	1519.6	8.7	0.57
3	56.9	48.7	14.4	0.94
4	1094.9	988.1	9.8	0.64
5	1256.9	1118.0	11.1	0.73
6	598.9	531.7	11.2	0.73
7	488.0	420.9	13.8	0.90
8	378.3	323.3	14.5	0.95
9	28.1	21.1	24.9	1.63
10	819.8	694.4	15.3	1.00
11	19.0	14.7	22.6	1.48
12	473.7	389.8	17.7	1.17
13	646.3	516.1	20.1	1.31
14	111.7	61.5	36.0	2.35
15	33.6	13.3	60.4	3.95
16	204.2	153.3	24.9	1.63
17	426.4	300.4	29.5	1.93
18	328.3	208.1	36.6	2.39
19	162.7	86.4	46.9	3.07
20	80.7	33.7	58.2	3.80
21	27.1	8.5	68.6	4.48
Total	9405.8	7914.2	15.9	1.04



Location of Sampling Points  
Lake Taylorville Watershed

Figure 1

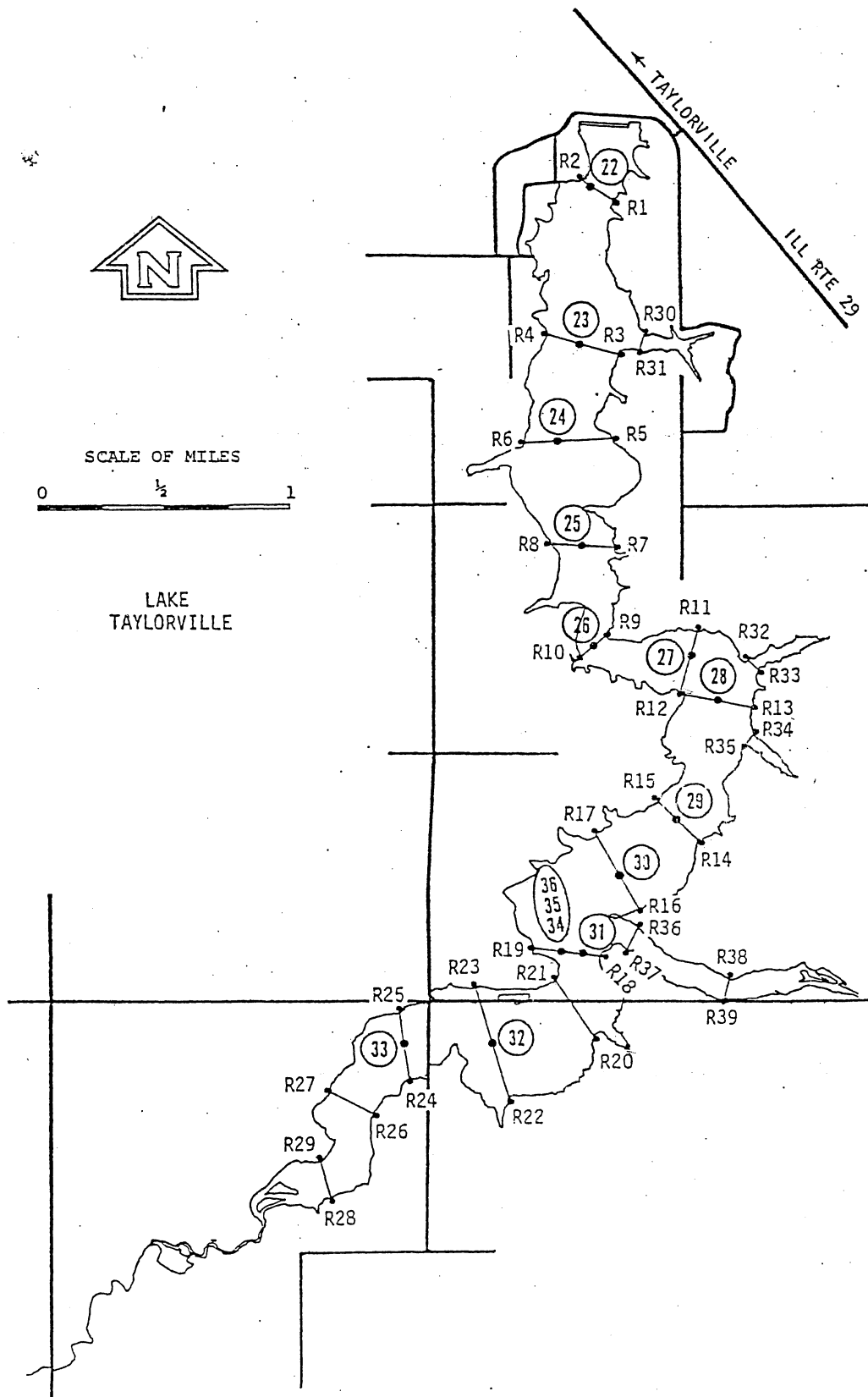
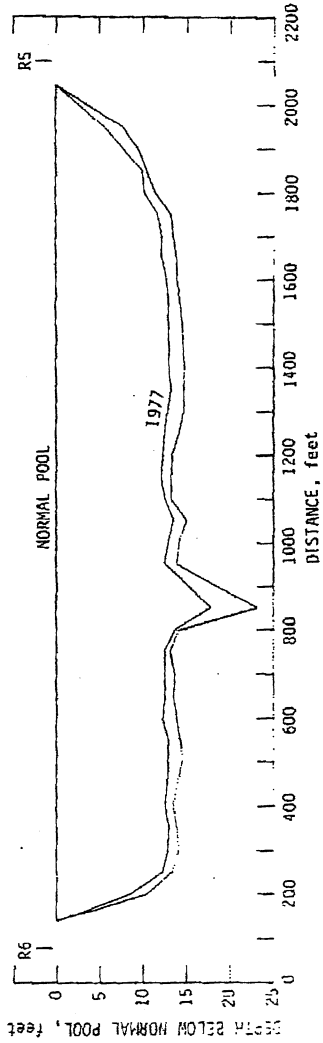
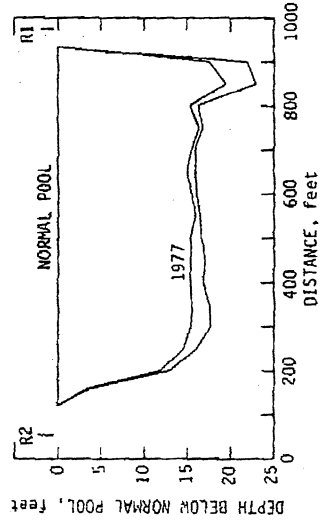
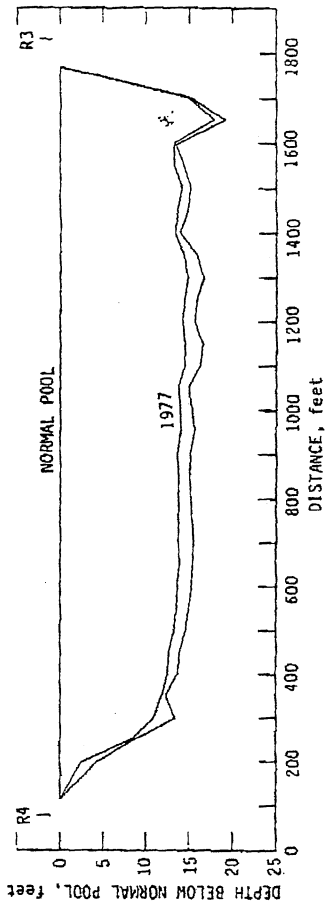


Figure 2



LAKE TAYLORVILLE

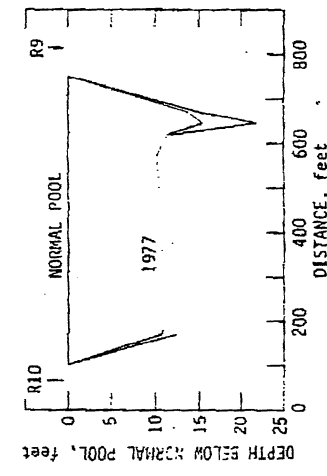
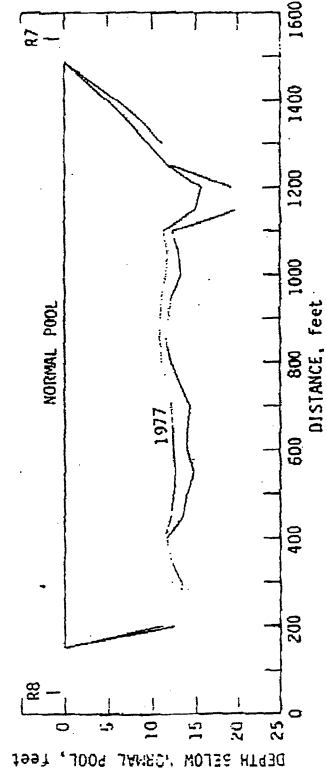


Figure 3a

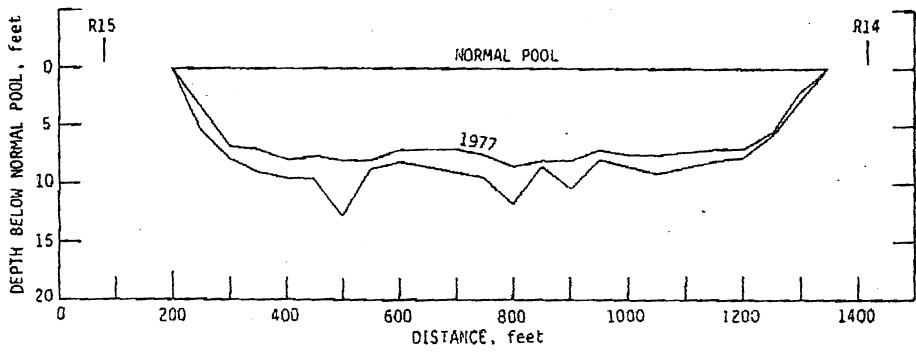
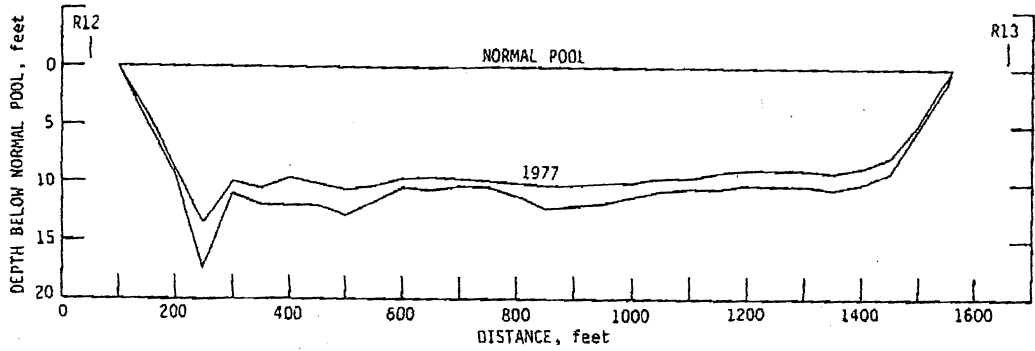
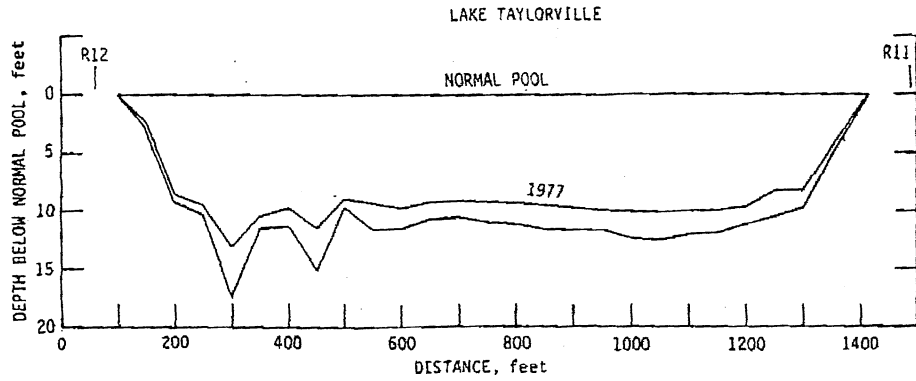


Figure 3b

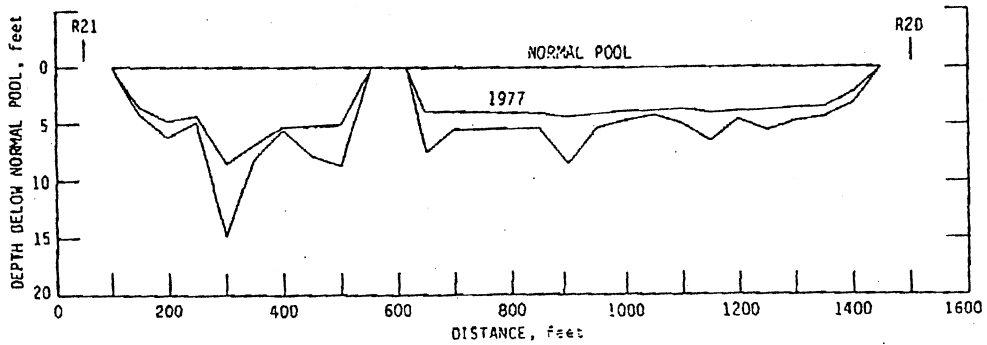
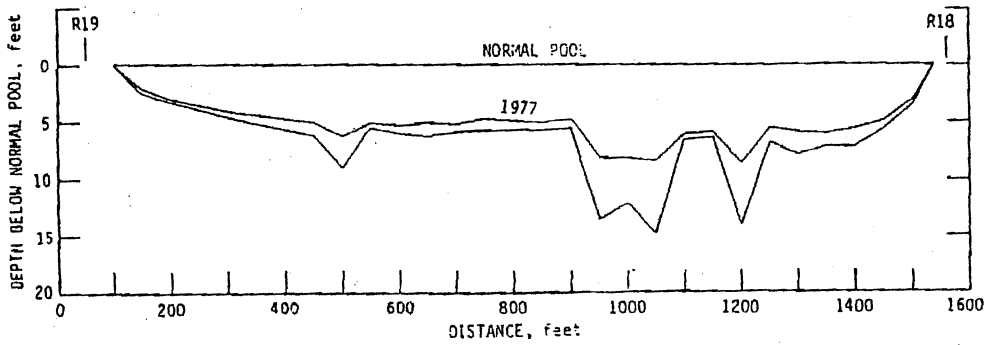
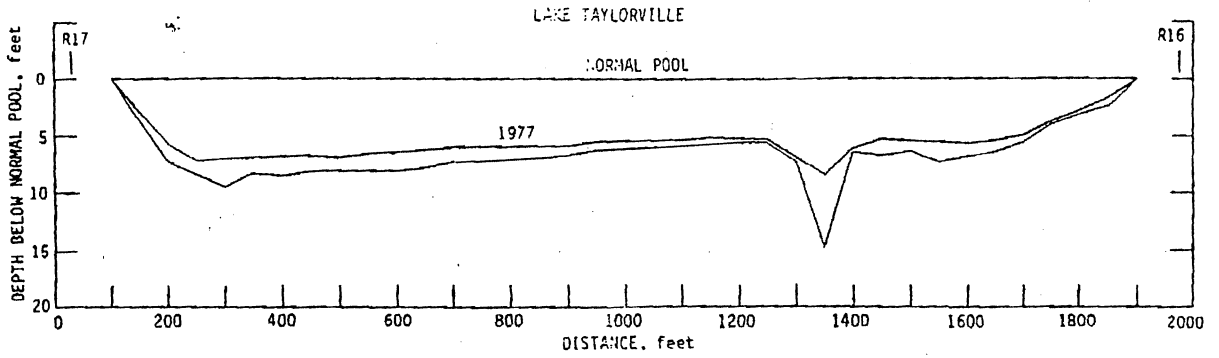
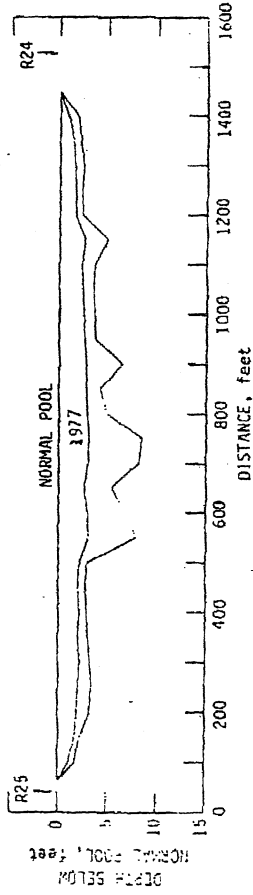
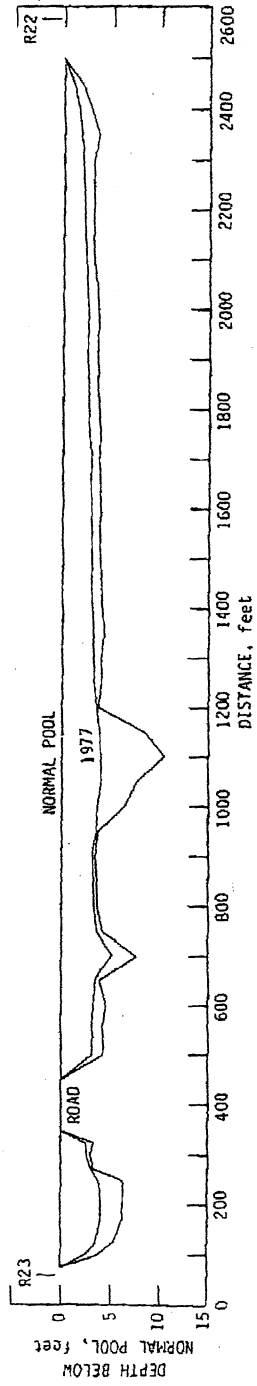


Figure 3c



LAKE TAYLORVILLE

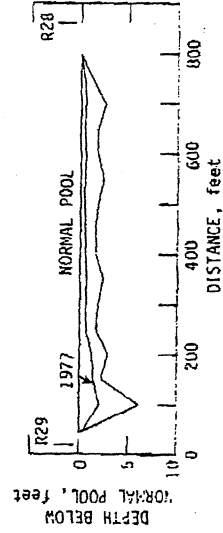
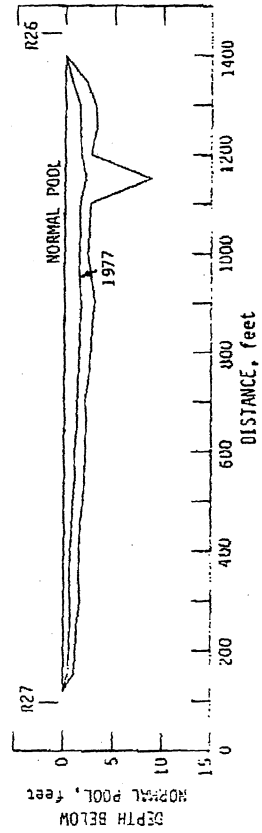


Figure 3d