



United States Department of the Interior

U.S. GEOLOGICAL SURVEY
Reston, Virginia 22092

198 APR 1004

APR 7 1994

NOTE FROM THE DIRECTOR, U.S. GEOLOGICAL SURVEY

We are pleased to provide to you the fourth and fifth reports in a series by the U.S. Geological Survey (USGS) on the record flooding that occurred during summer 1993 in the Upper Mississippi River drainage basin. These reports describe and analyze selected aspects of the floods and provide the basis for further investigation by the USGS and others. Future reports in the series will address aspects of the flooding related to duration and volumes of streamflow, sediment loads, scour at bridges, geomorphic changes, and water quality.

Please feel free to contact Philip Cohen, Chief Hydrologist, USGS, at 703/648-5215 for additional information on these reports or other information on the flooding that occurred in the Upper Mississippi River Basin.

Gordon P. Eaton

2 Enclosures

Previously distributed reports in this series are:

1. USGS Circular 1120A "Flood Discharges in the Upper Mississippi River Basin, 1993."
2. USGS Circular 1120B "Precipitation in the Upper Mississippi River Basin, January 1 Through July 31, 1993."
3. USGS Circular 1120C "Occurrence and Transport of Agricultural Chemicals in the Mississippi River Basin, July Through August 1993."

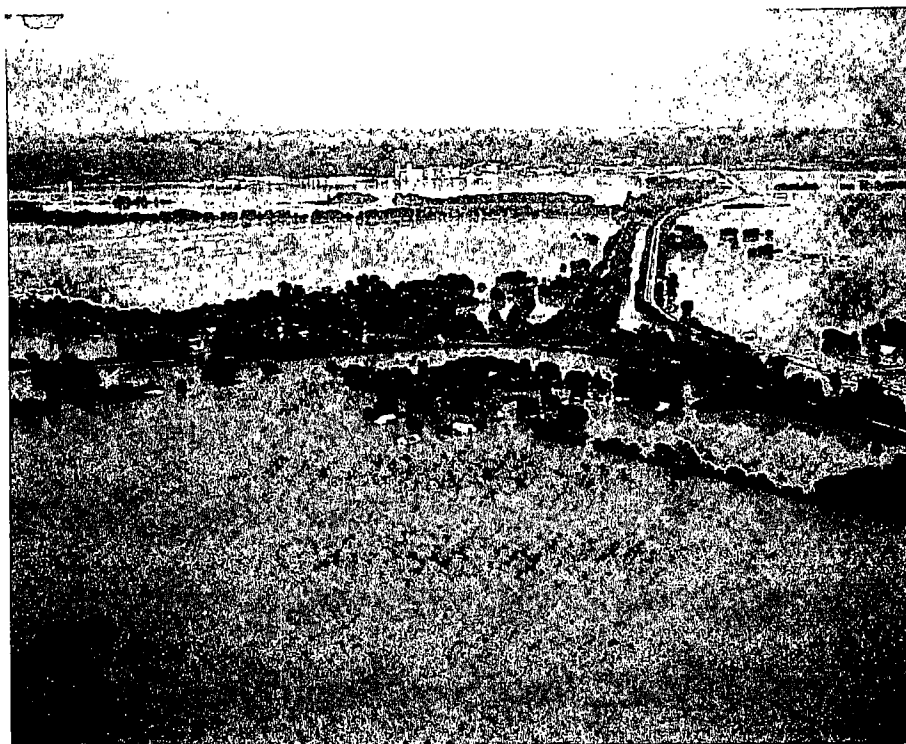
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MAJOR IONS
NUTRIENTS
AND
TRACE ELEMENTS



IN THE
MISSISSIPPI RIVER
NEAR THEBES, ILLINOIS
JULY THROUGH SEPTEMBER
1 . 9 . 9 . 3

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E F F E C T S
O F
R E S E R V O I R S
O N
F L O O D
D I S C H A R G E S



I N T H E
K A N S A S
A N D
M I S S O U R I
R I V E R B A S I N S

1 . 9 . 9 . 3

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PRECIPITATION



IN THE
UPPER MISSISSIPPI
RIVER BASIN
JANUARY 1 THROUGH JULY 31
1 . 9 . 9 . 3

U.S. GEOLOGICAL SURVEY CIRCULAR 1120-B

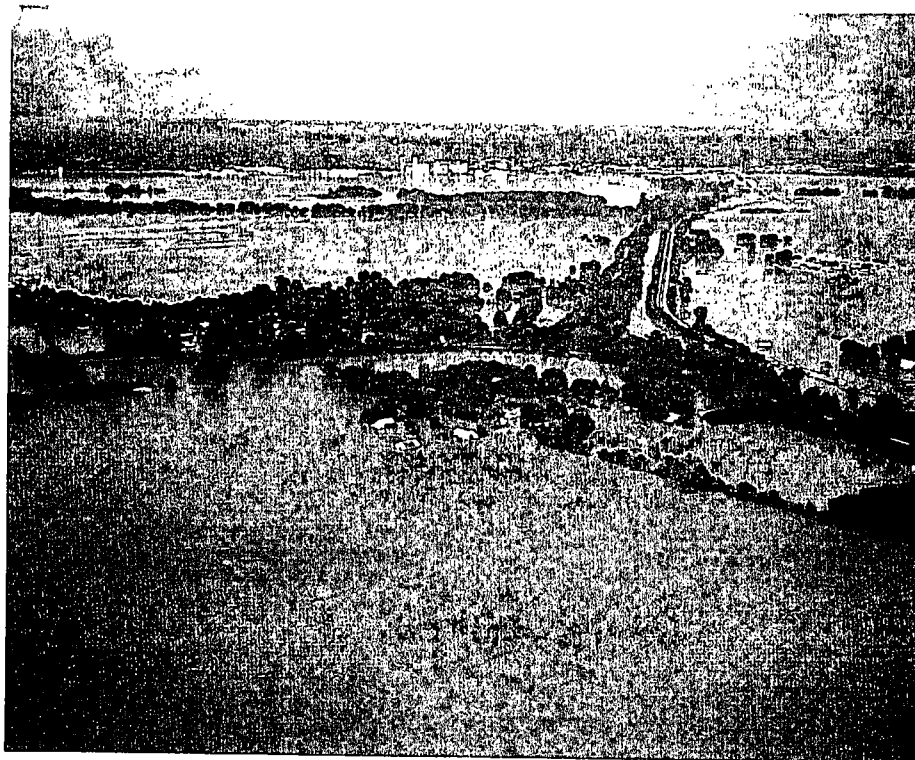
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O C C U R R E N C E
AND
T R A N S P O R T
OF
A G R I C U L T U R A L
C H E M I C A L S



I N T H E
M I S S I S S I P P I
R I V E R B A S I N

J U L Y T H R O U G H A U G U S T
1 . 9 . 9 . 3

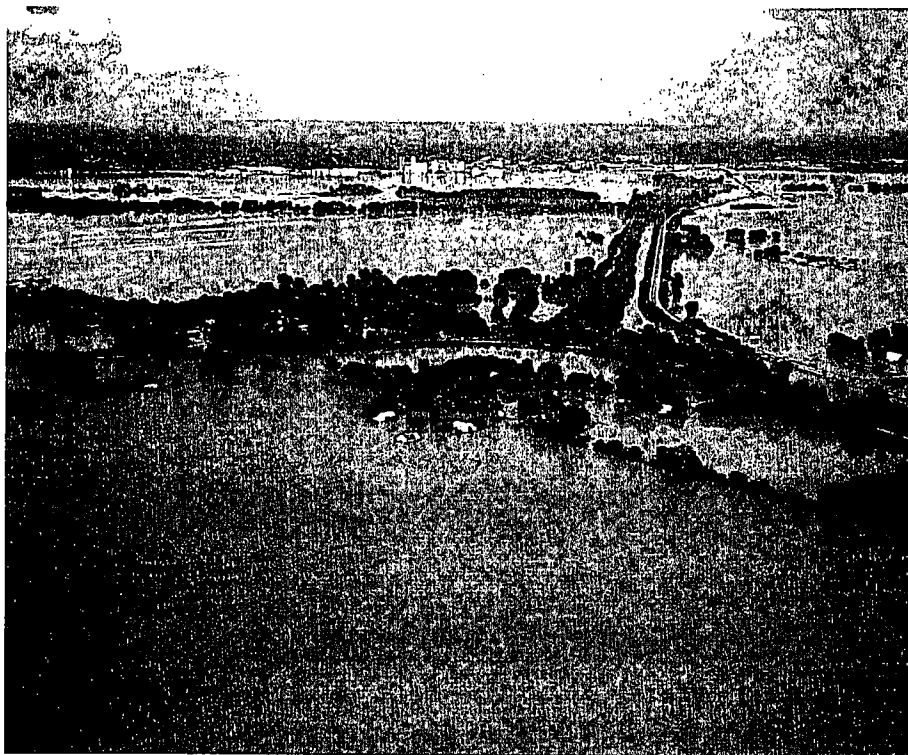
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F L O O D
D I S C H A R G E S



IN THE
UPPER MISSISSIPPI
RIVER BASIN

1 . 9 . 9 . 3

U.S. GEOLOGICAL SURVEY CIRCULAR 1120-A