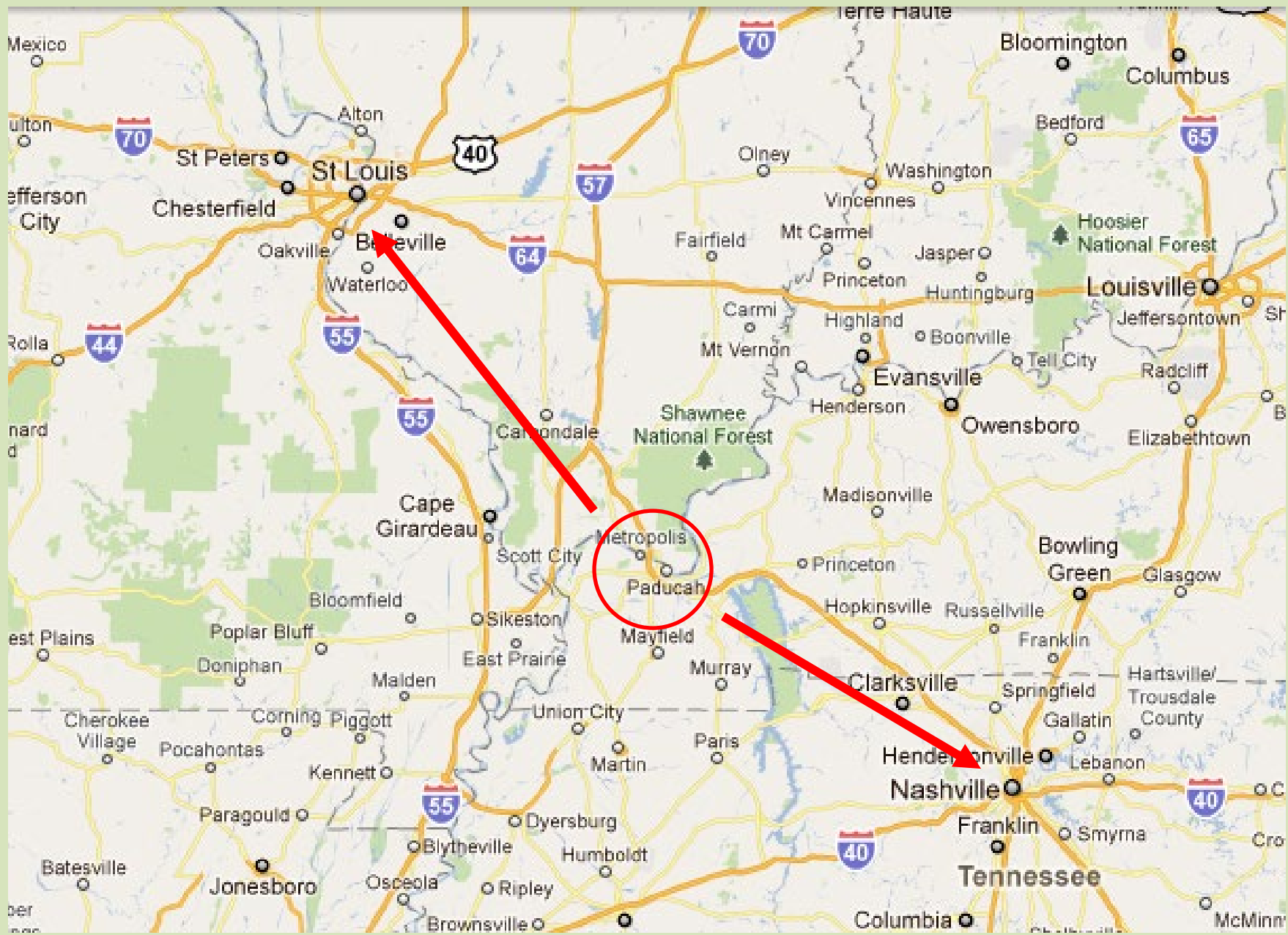


The Story of the Paducah Gaseous Diffusion Plant

Megatons to Megawatts









CENTER FOR MARITIME EDUCATION
THE MARINE'S CHURCH INSTITUTE

CENTER FOR MARITIME EDUCATION
THE MARINE'S CHURCH INSTITUTE

ONE CENTRAL & CLAY PLAZA
DURHAM, NC 27601

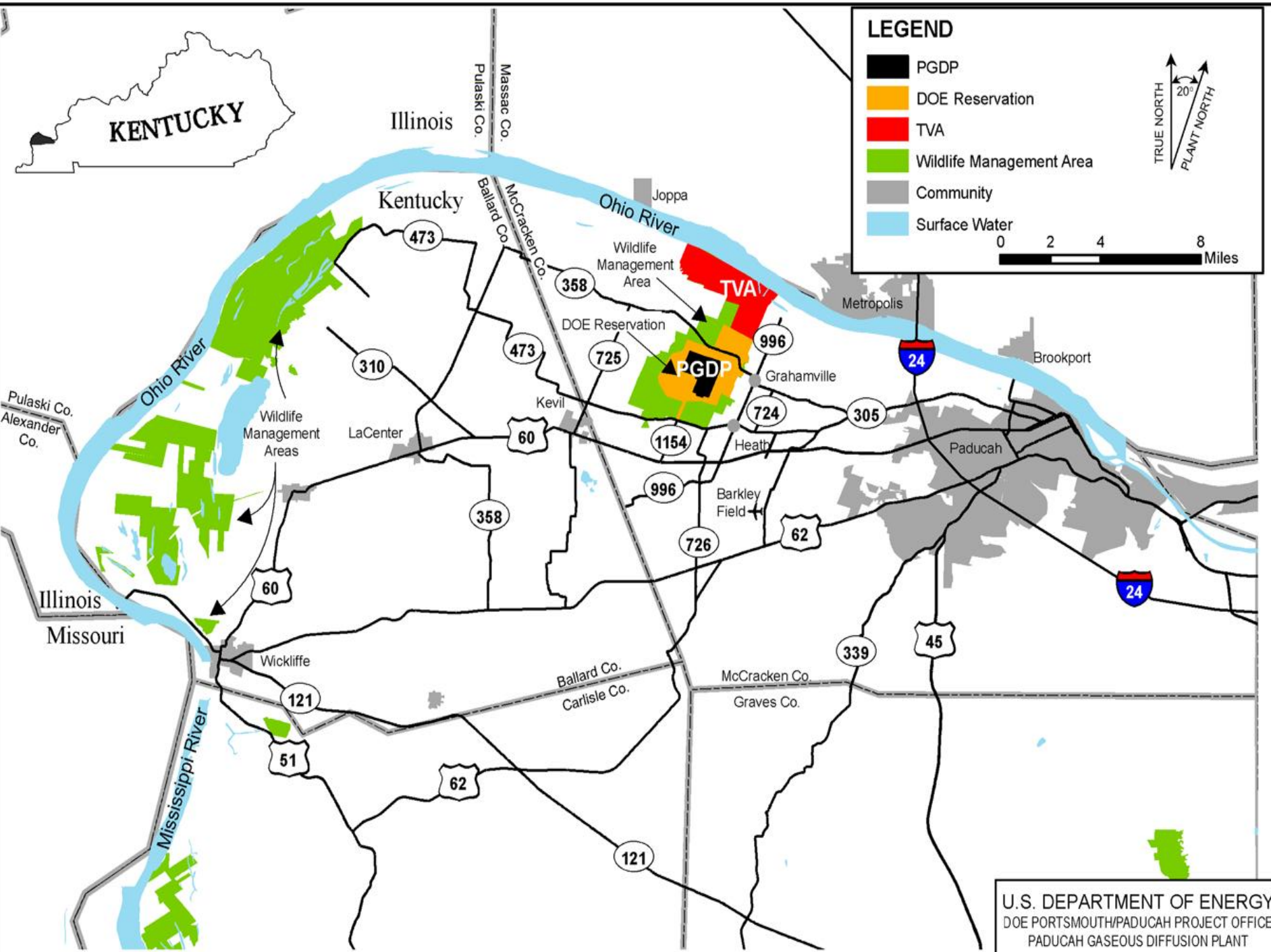
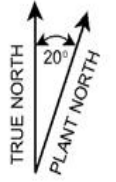
POUCH
TOBACCO





LEGEND

- PGDP
- DOE Reservation
- TVA
- Wildlife Management Area
- Community
- Surface Water



U.S. DEPARTMENT OF ENERGY
DOE PORTSMOUTH/PADUCAH PROJECT OFFICE
PADUCAH GASEOUS DIFFUSION PLANT





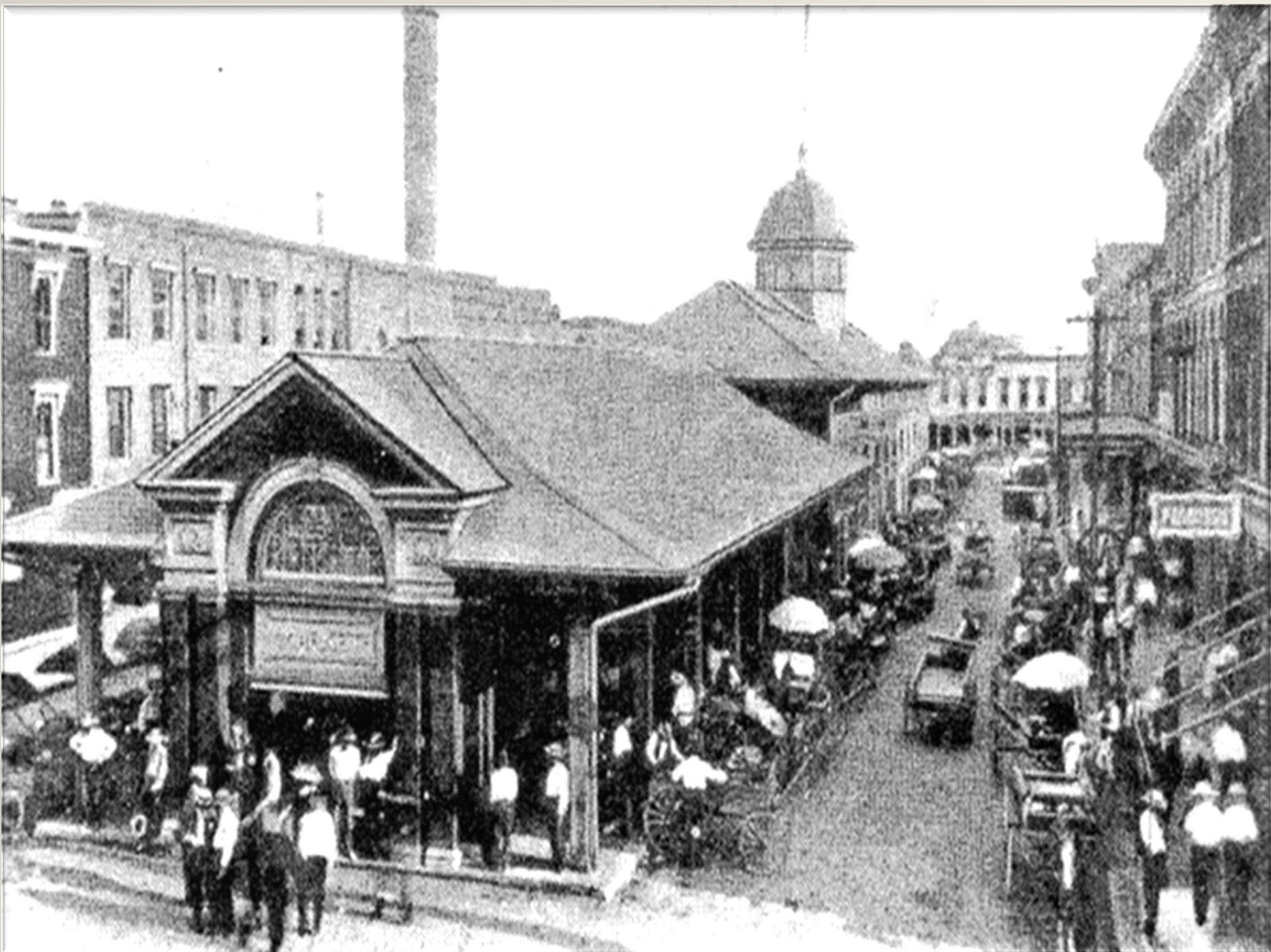


Woburn Rd

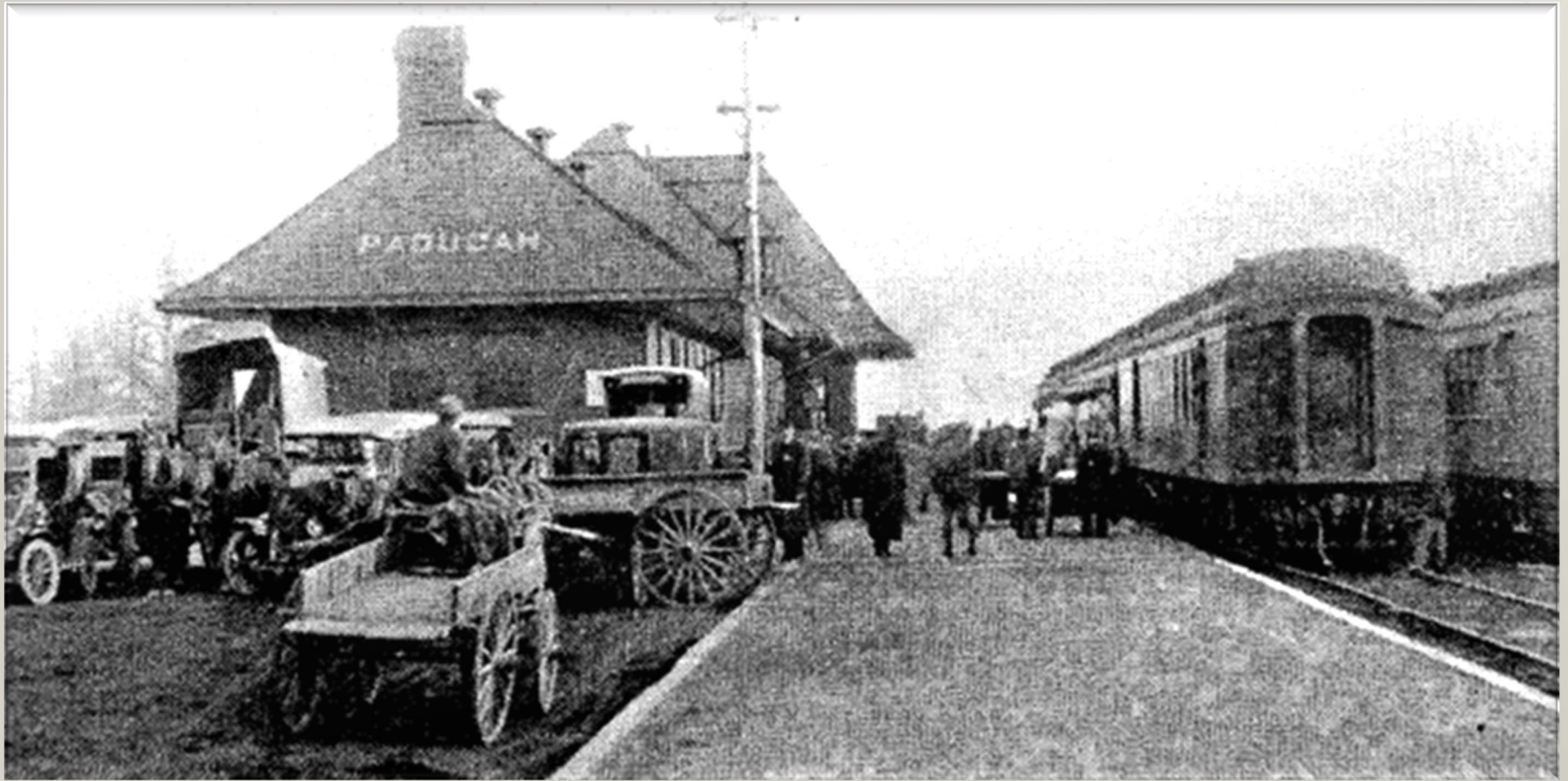
Incorporation and steamboats

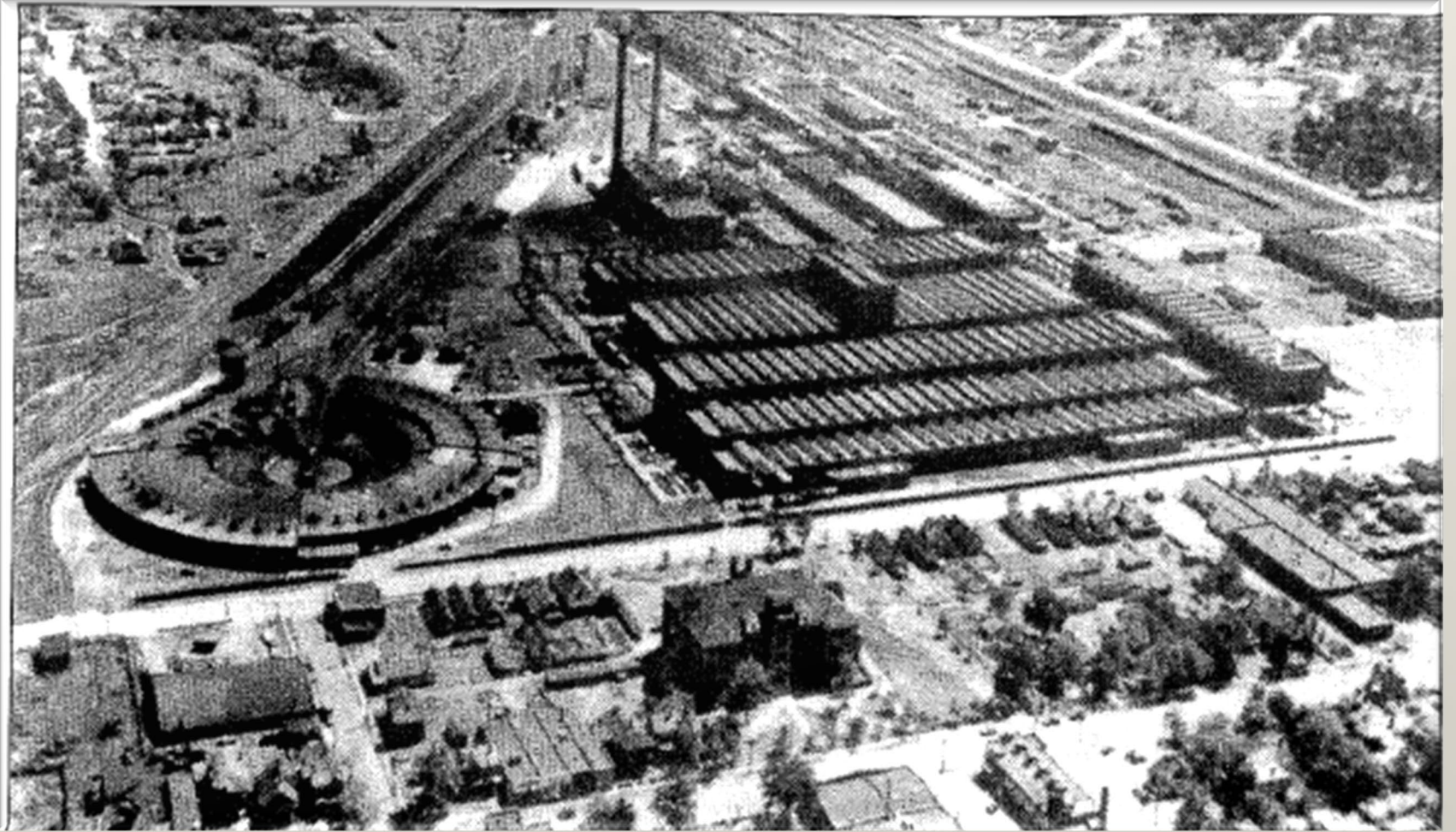






Incorporation, steamboats, and railroads

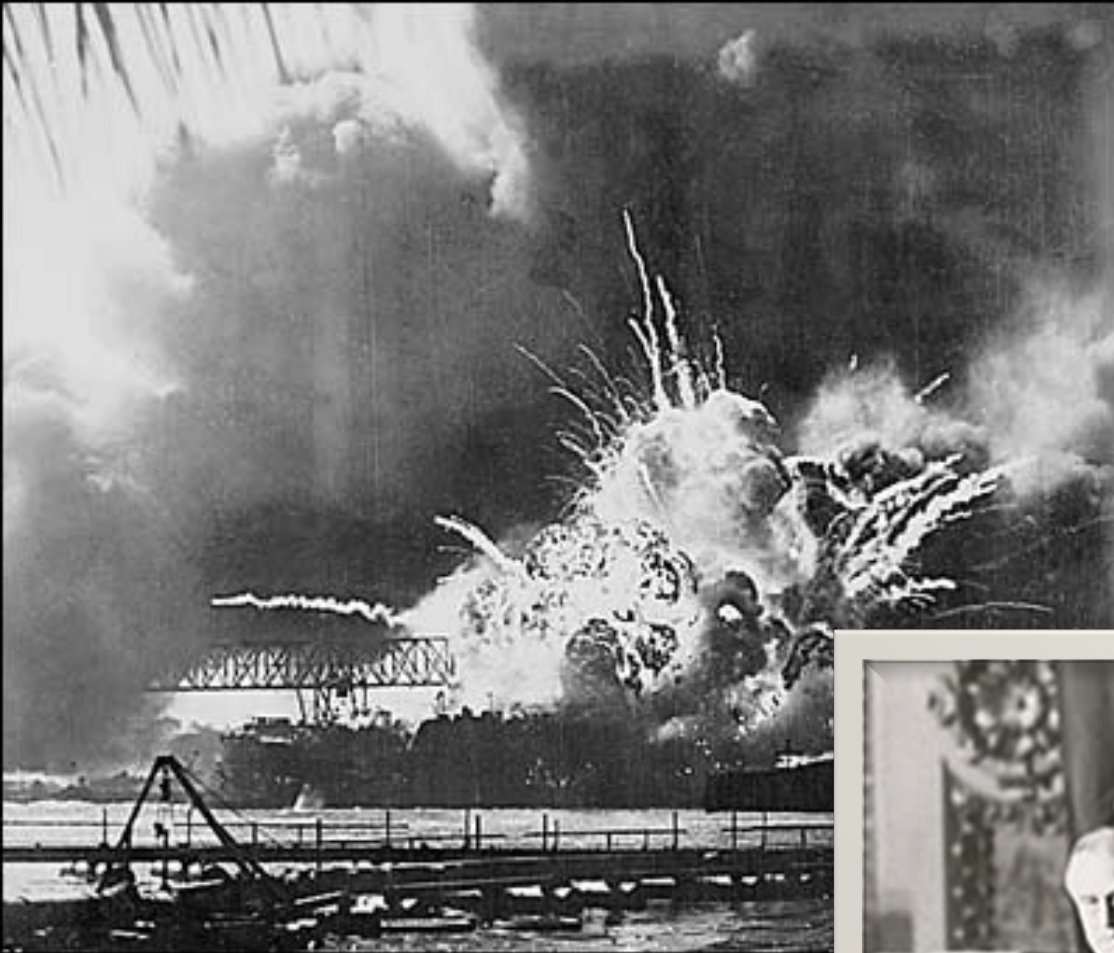












The Paducah Sun-Democrat

Report: High 41, Low 15
Year ago: High 40, Low 12
River, Lake Stages
Stage at T. A. M.: 20.1 feet, Fall
of 24 feet in 24 hours
Kentucky Lake level 212.2 feet
San And Moon
Sun sets today 4:38 p. m.; rises
tomorrow 7:22 a. m.; moon sets
11:47 p. m.

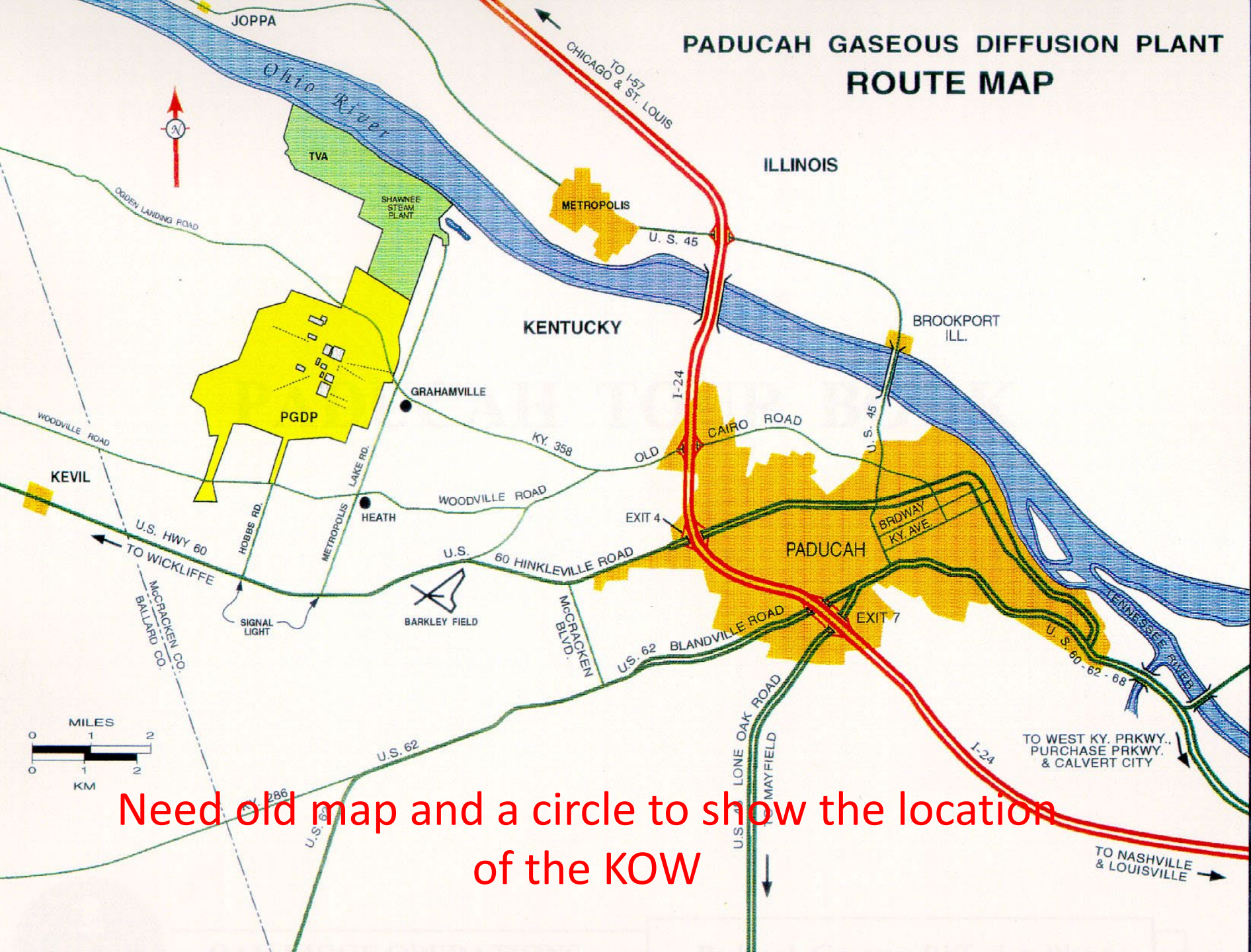
Paducah, Ky., Friday Evening, December 15, 1950

4 Editions Daily—2 Sunday

\$30,000,000 Munitions Plant in McCracken County

Need to find old front page or create a replica

PADUCAH GASEOUS DIFFUSION PLANT ROUTE MAP



Need old map and a circle to show the location of the KOW

IN THE DISTRICT COURT OF THE UNITED STATES
FOR THE WESTERN DISTRICT OF KENTUCKY
AT PADUCAH

NO. 144

UNITED STATES OF AMERICA

PETITIONER

VS

NOTICE TO VACATE

16,100 ACRES OF LAND, more or less,
situate in McCracken County,
Kentucky, Mrs. A. M. Anderson, et al.

DEPENDANTS

TO: W. D. T. Lockett,
Route 1, Kevil, Ky.

Please take notice that a petition in condemnation and
Order of Immediate Possession covering the land which you own
or occupy has been filed and entered in the office of the Clerk
of the United States District Court for the Western District of
Kentucky.

IT WILL BE ABSOLUTELY NECESSARY THAT YOU VACATE THIS
LAND NOT LATER THAN 12 O'CLOCK NOON, APRIL 20, 1942.

You are further advised that if you have any questions
to ask relating to the acquisition of your land, or if you desire
to negotiate regarding the sale price of same, you should call
immediately at the Kentucky Ordnance Works, Paducah, Kentucky.

W. H. Brown III

W. H. Brown, III
United States Attorney

April 3, 1942.





OLD KENTUCKY
ORDNANCE WORKS
Tank (Aban'd)

Sewage
Disposal

Tanks

Gravel Pit

Tank

ABAND'D

Tanks

Tanks

Gravel Pit

Gravel Pit

Magruder Sch

Bethel Ch

Cimota
City

Forestdale
Sch

Spring Bayou
Ch

Bayou

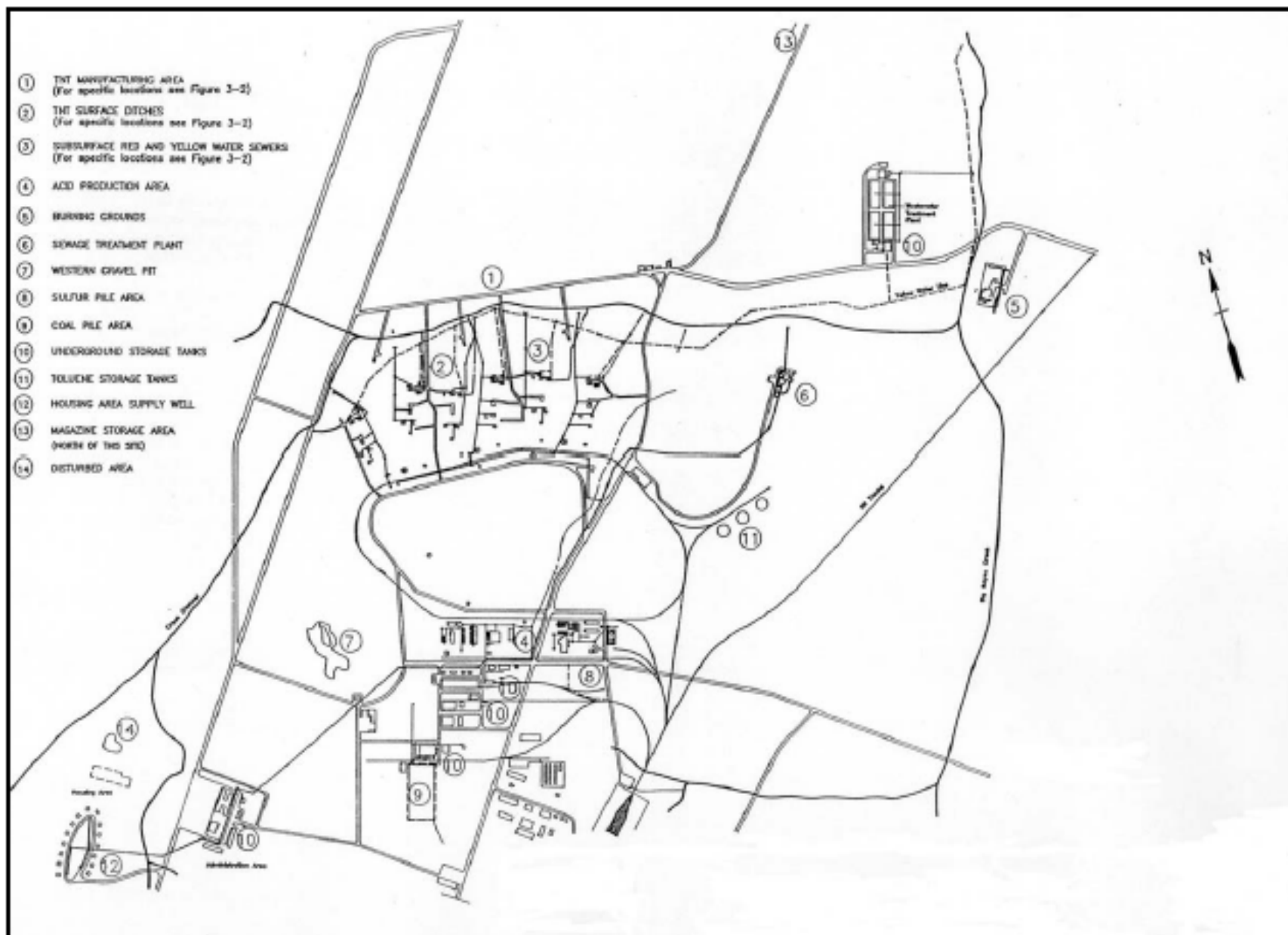


Fig. 3. Site plan for the KOW TNT Production Area.
(Plan courtesy of the U.S. Army Corps of Engineers)

Impact of KOW to local residents

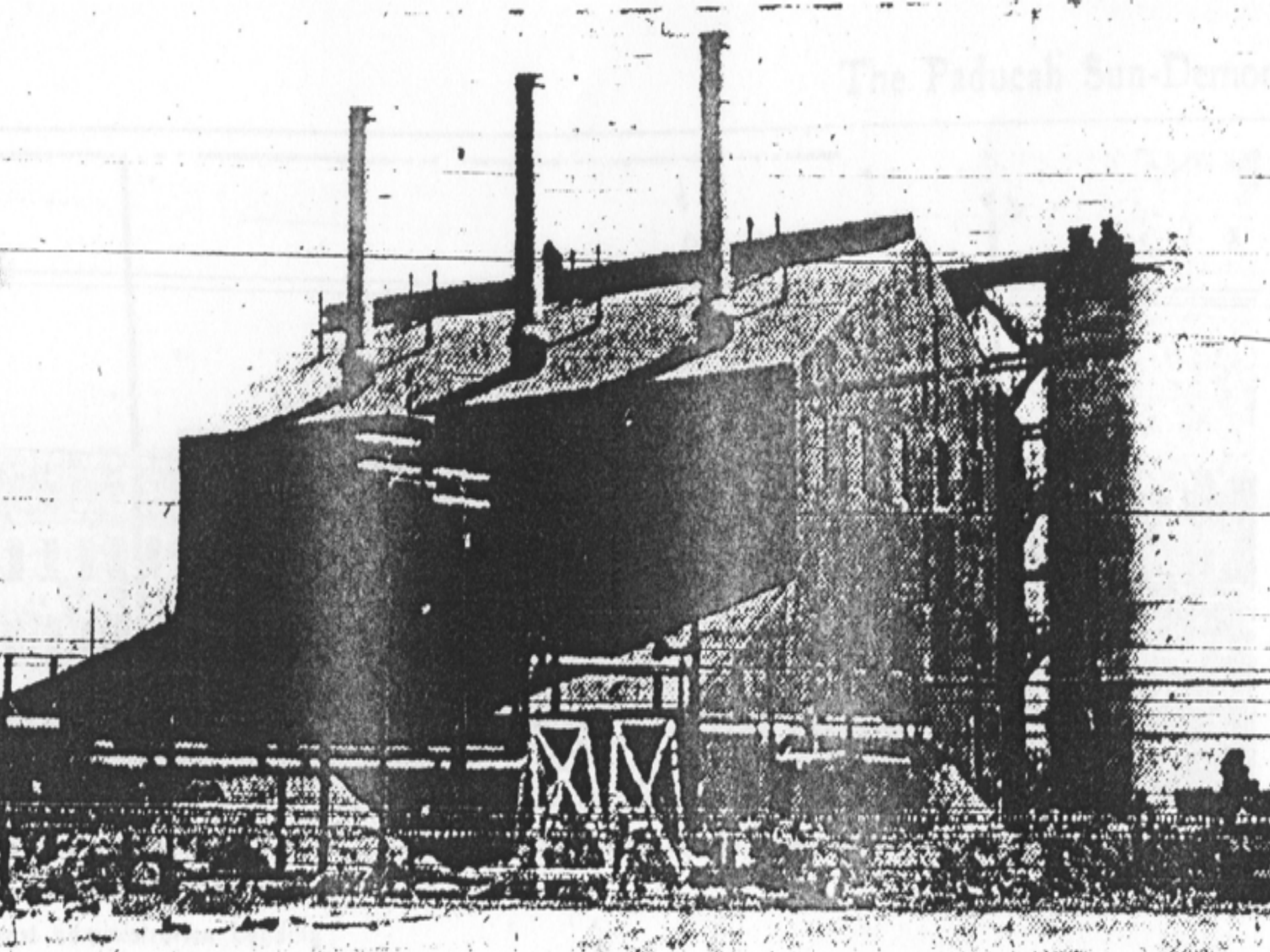
Impact of KOW to local residents

KOW Construction

KOW

KOW

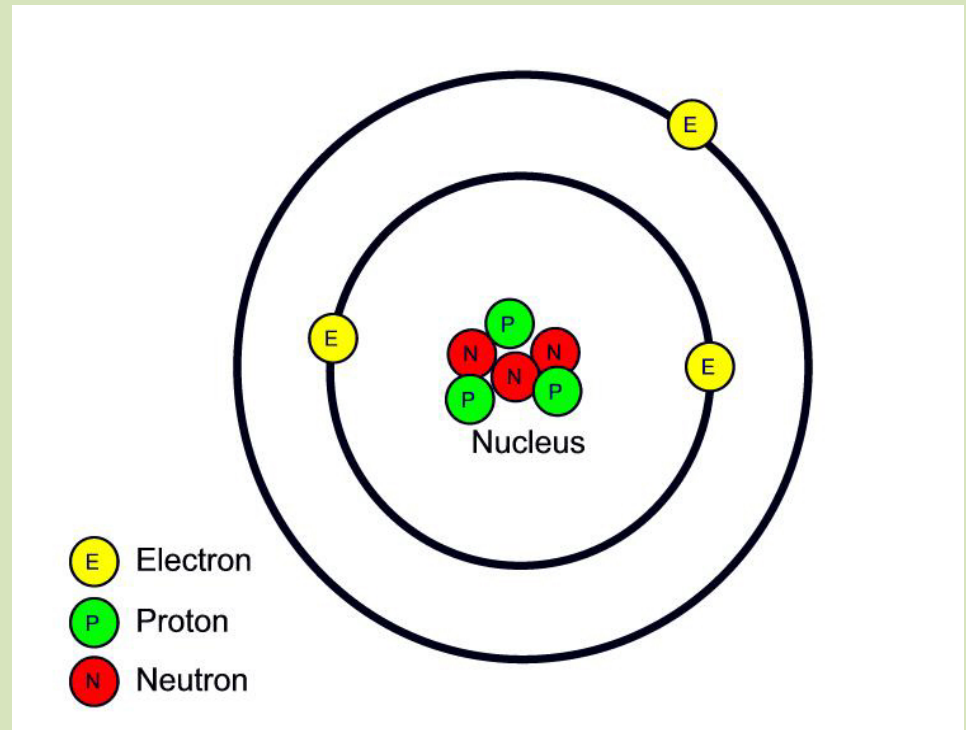
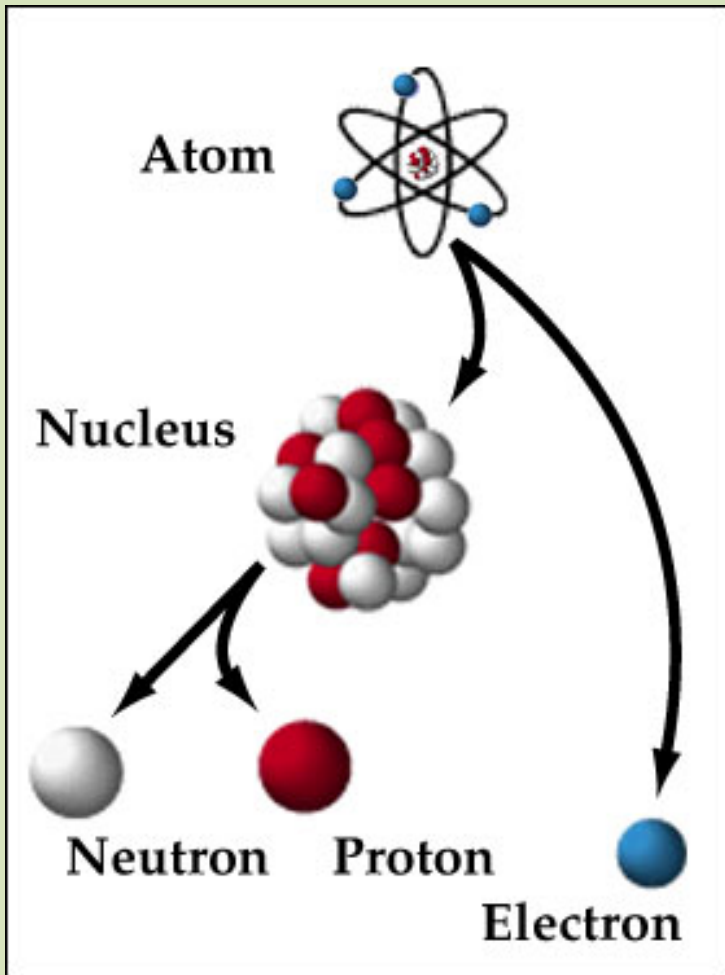
KOW



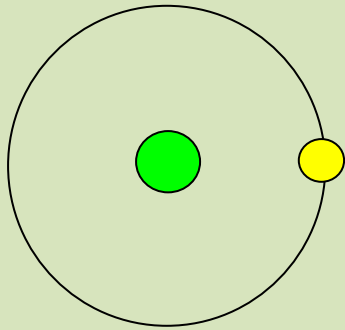
The Manhattan Project



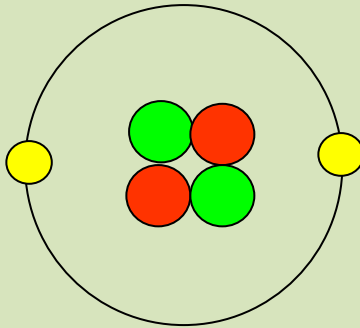
Atomic Physics



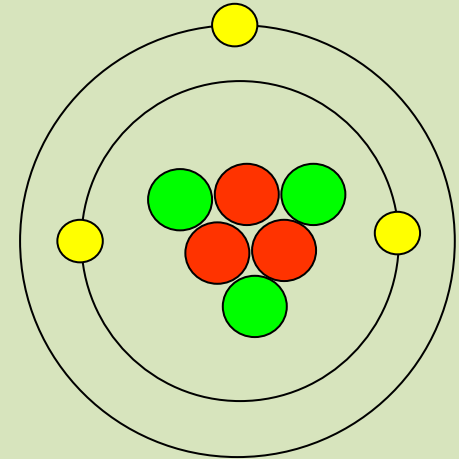
Examples of Atoms



Hydrogen

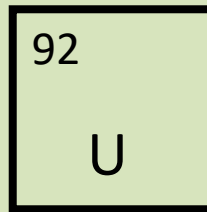


Helium



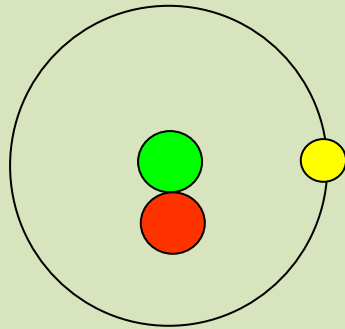
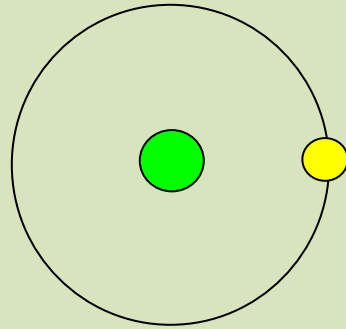
Lithium

Atomic Number
(number of protons)

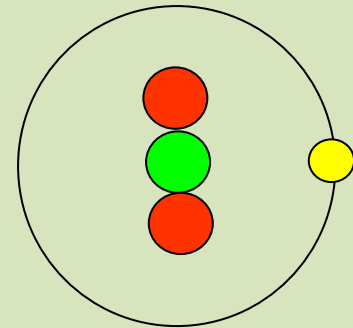


Symbol
(uranium)

Hydrogen Isotopes

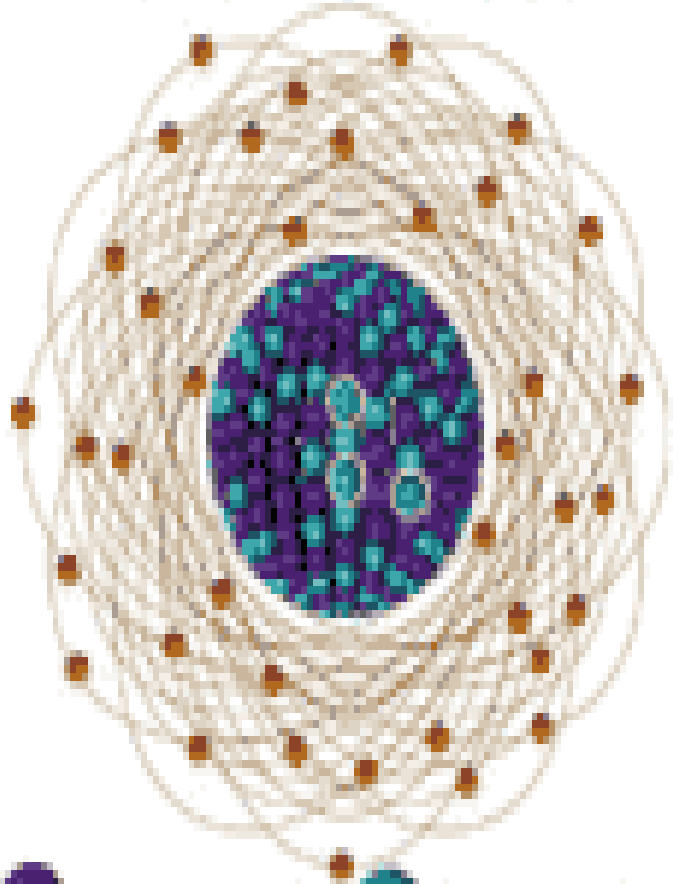


Deuterium



Tritium

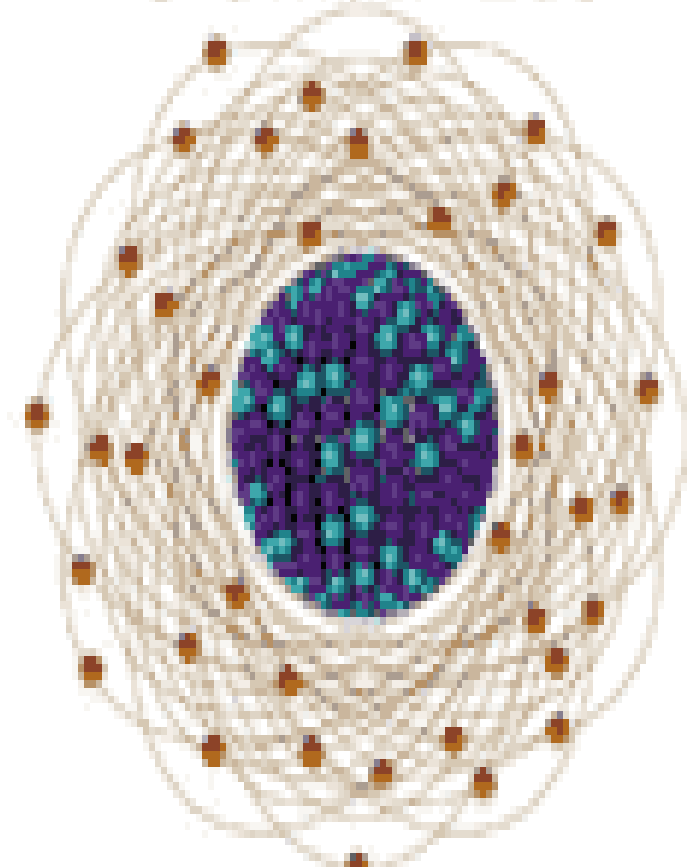
Uranium-238



92 protons 146 neutrons

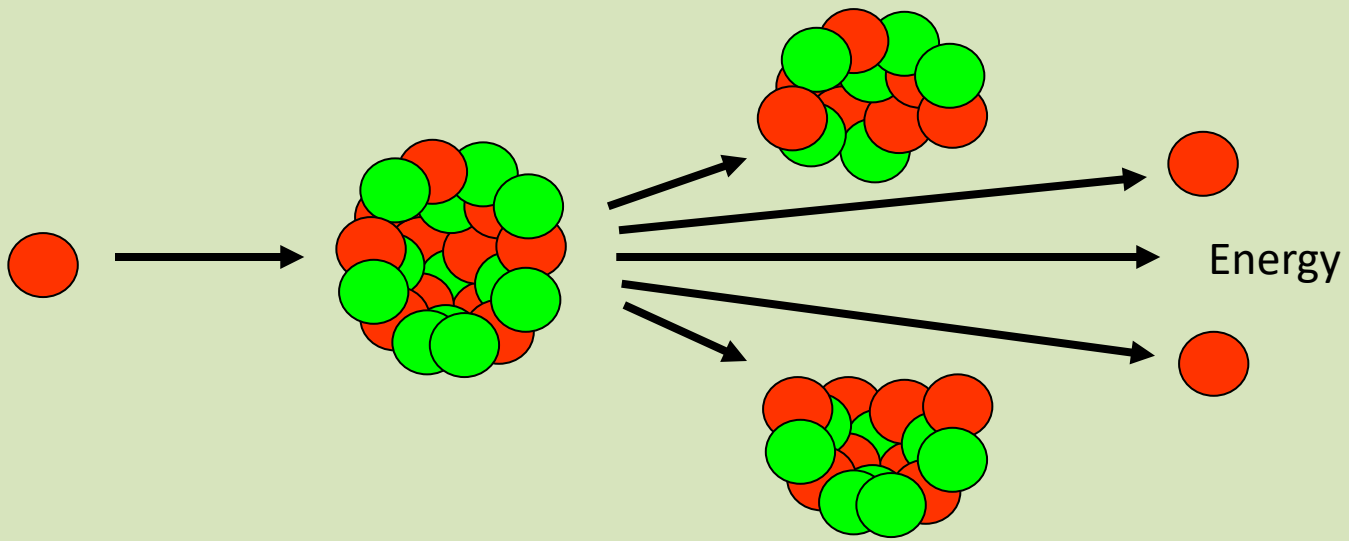
extra neutrons - heavier

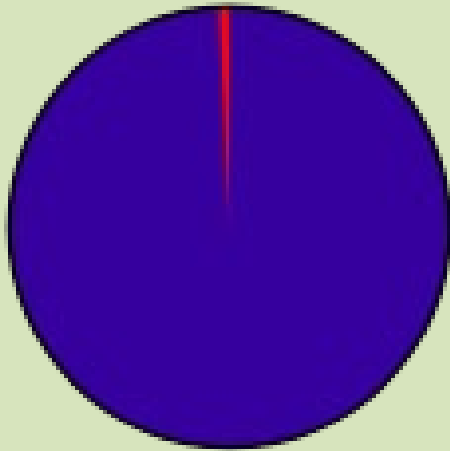
Uranium-235



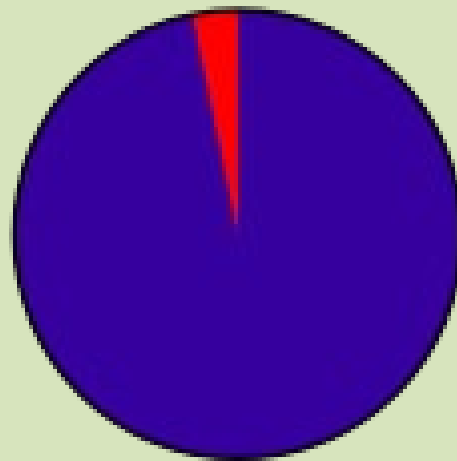
92 protons 143 neutrons

lighter and more active

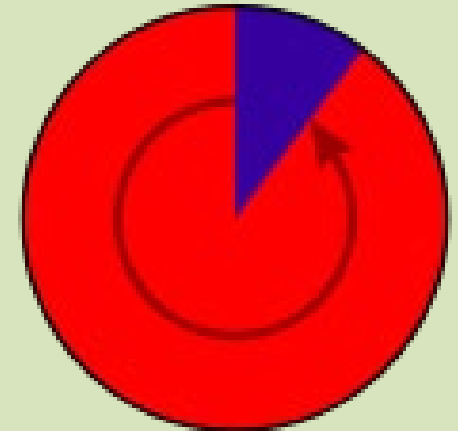




Natural uranium
> 99.2% U-238
0.72% U-235



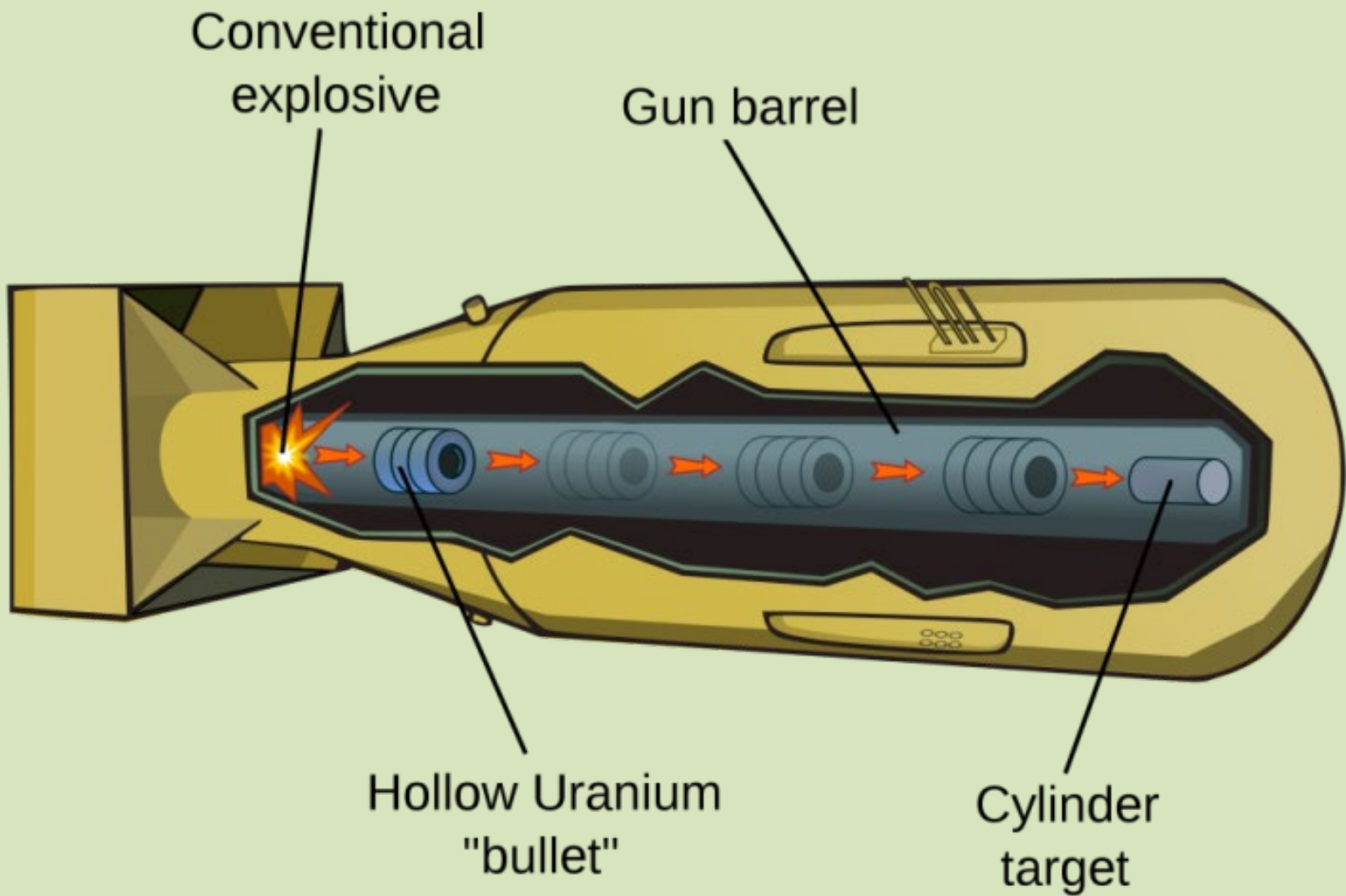
Low-enriched uranium
(reactor grade)
3-4% U-235

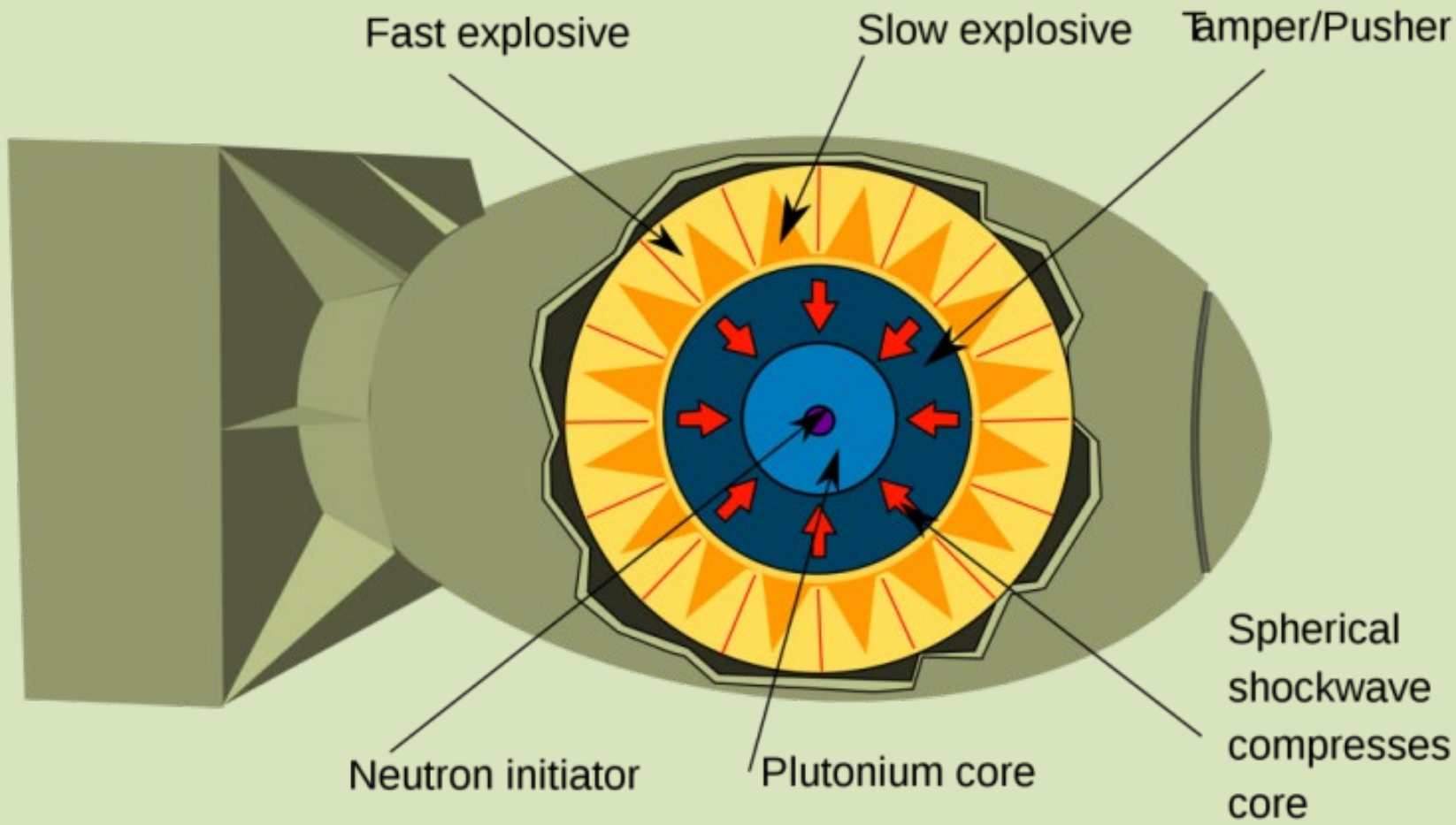


Highly enriched uranium
(weapons grade)
90% U-235

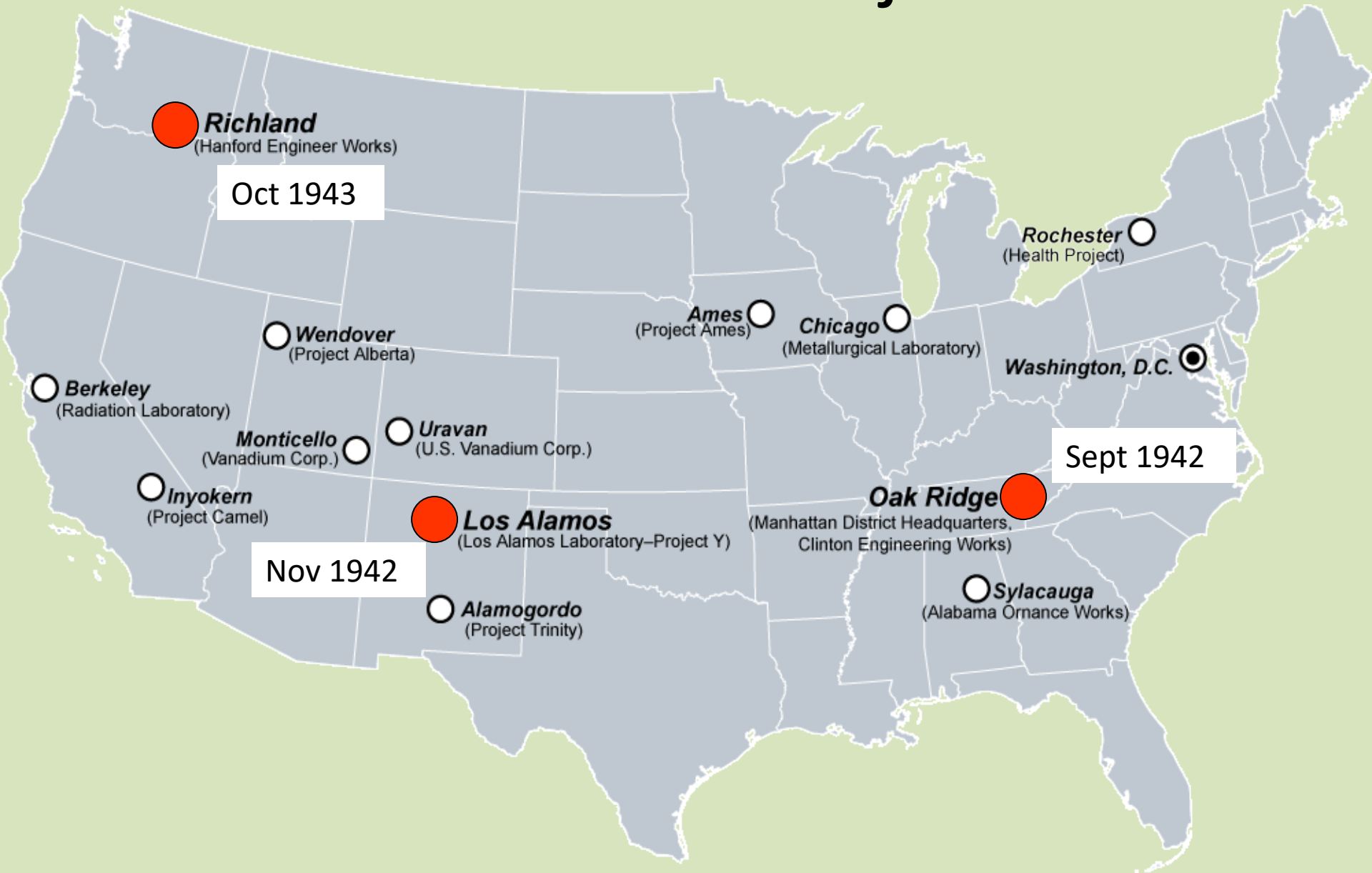






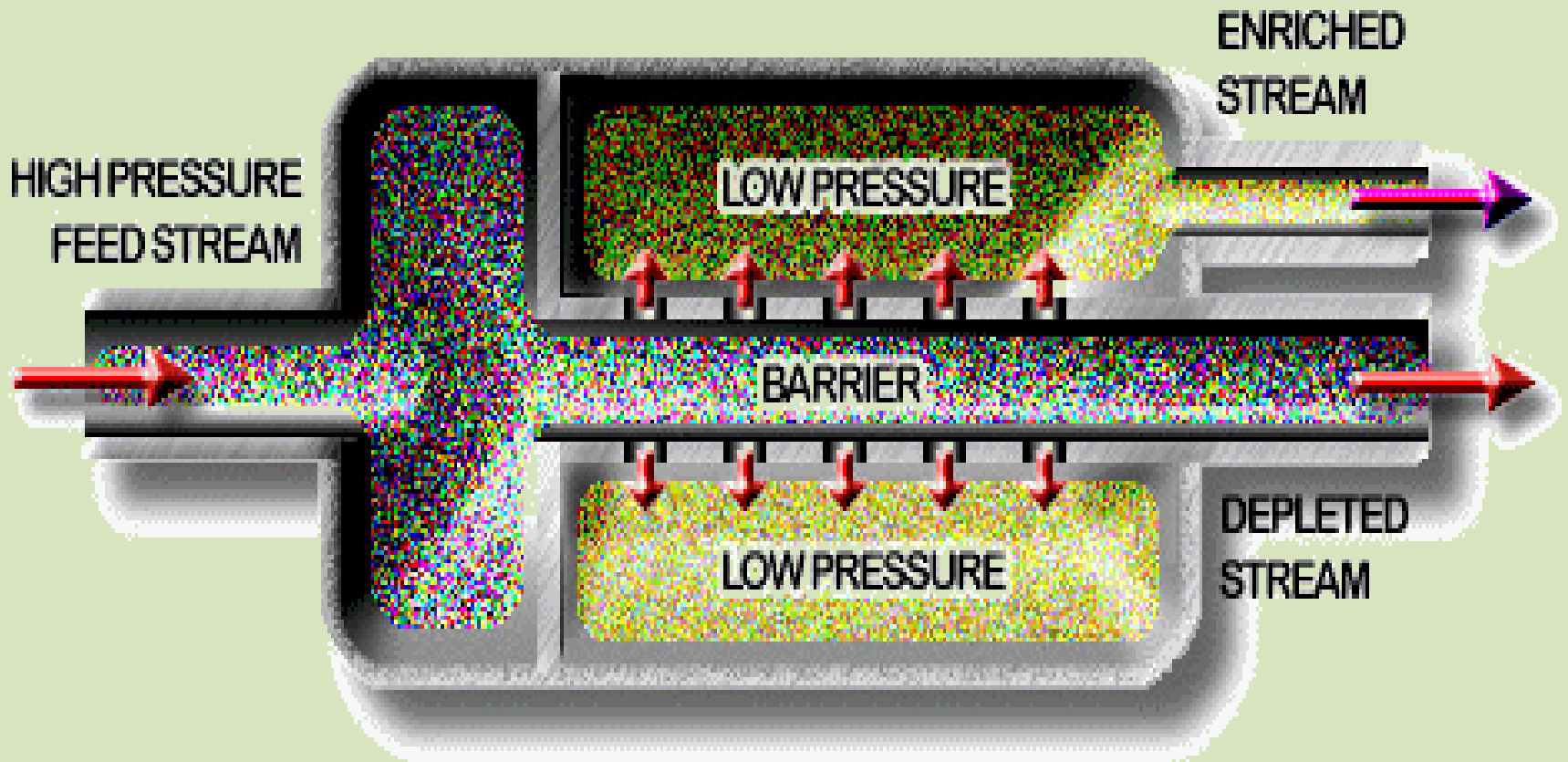


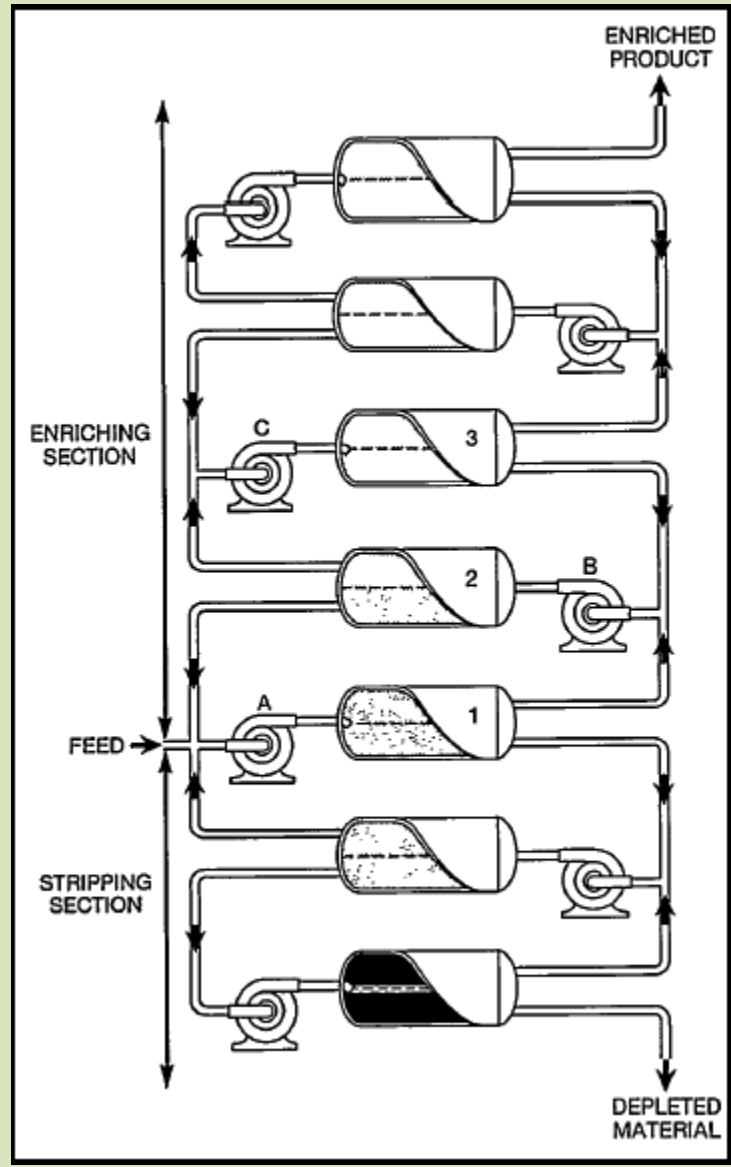
Manhattan Project





Uranium

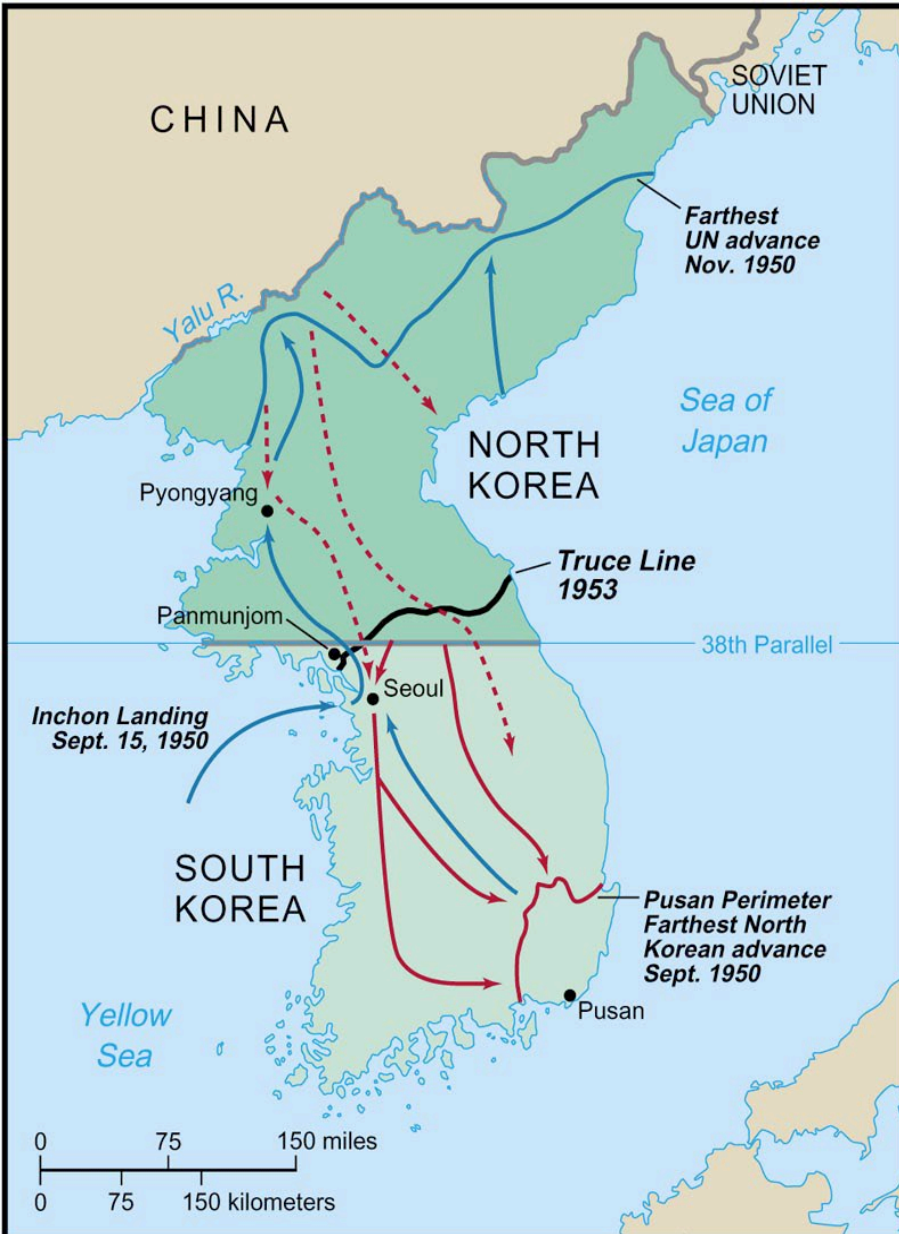








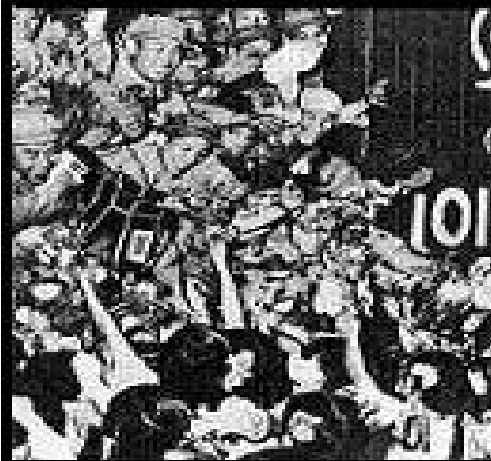


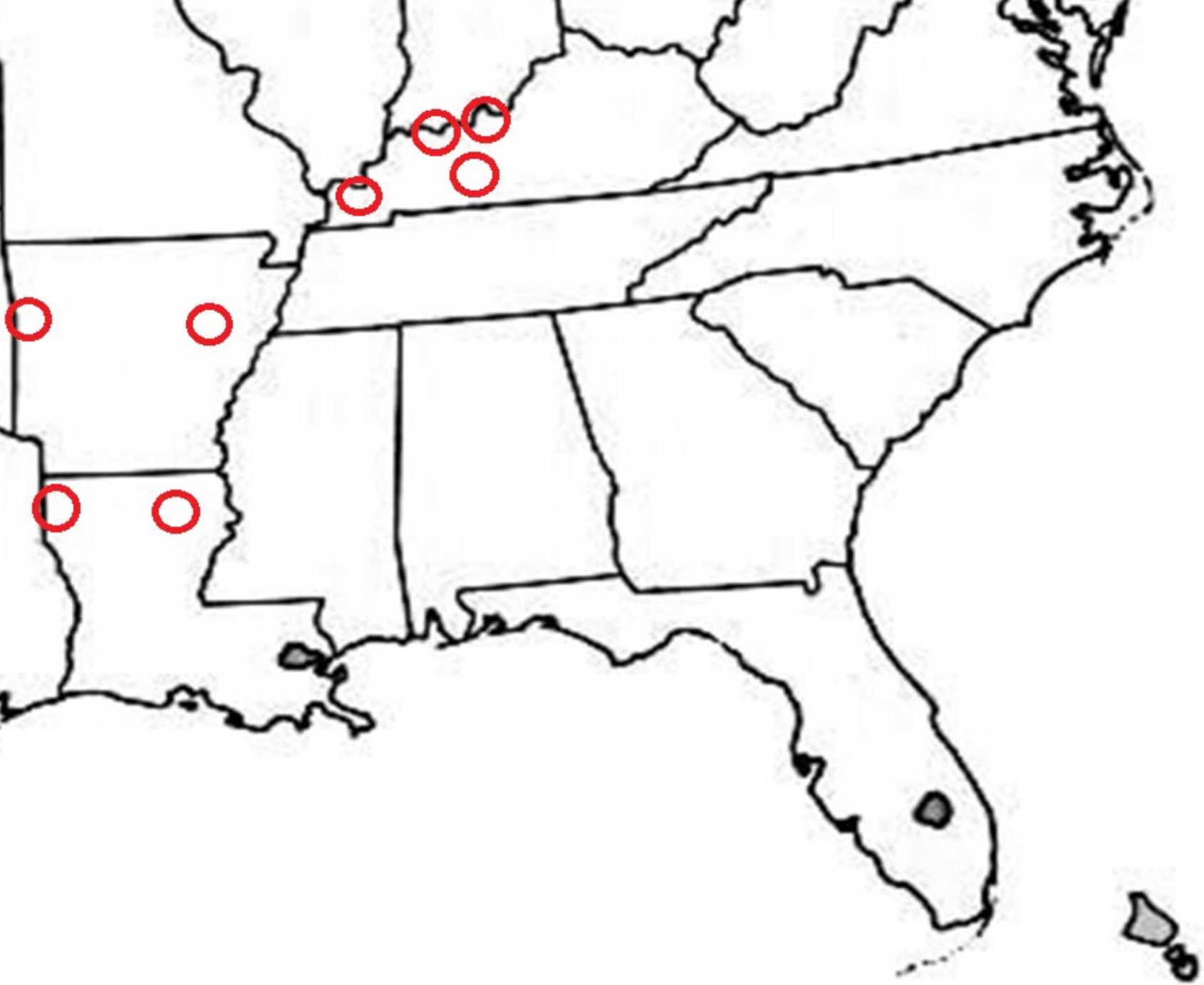
The Cold War





- | | | | |
|--|--|---|--|
|  | International boundaries, 1950 |  | UN offensive, Sept.–Nov. 1950 |
|  | North Korean invasion, June–Sept. 1950 |  | Communist Chinese offensive, Nov. 1950–Jan. 1951 |







The Paducah Sun-Democrat

August: High 91, Low 18
Year: High 91, Low 18
River, Lake Stages
Stage at T. A. M.: 10.1 feet, five
of 0.4 feet in 24 hours
Kentucky Lake level 212.2 feet
Pan and Moon
Sun sets today 4:39 p. m.; rises
tomorrow 7:12 a. m.; moon sets
11:47 p. m.

Paducah, Ky., Friday Evening, December 15, 1950

4 Editions Daily—2 Sunday

AEC To Build A-Plant At KOW Site

Chinese Reds Drive Into UN Beachhead

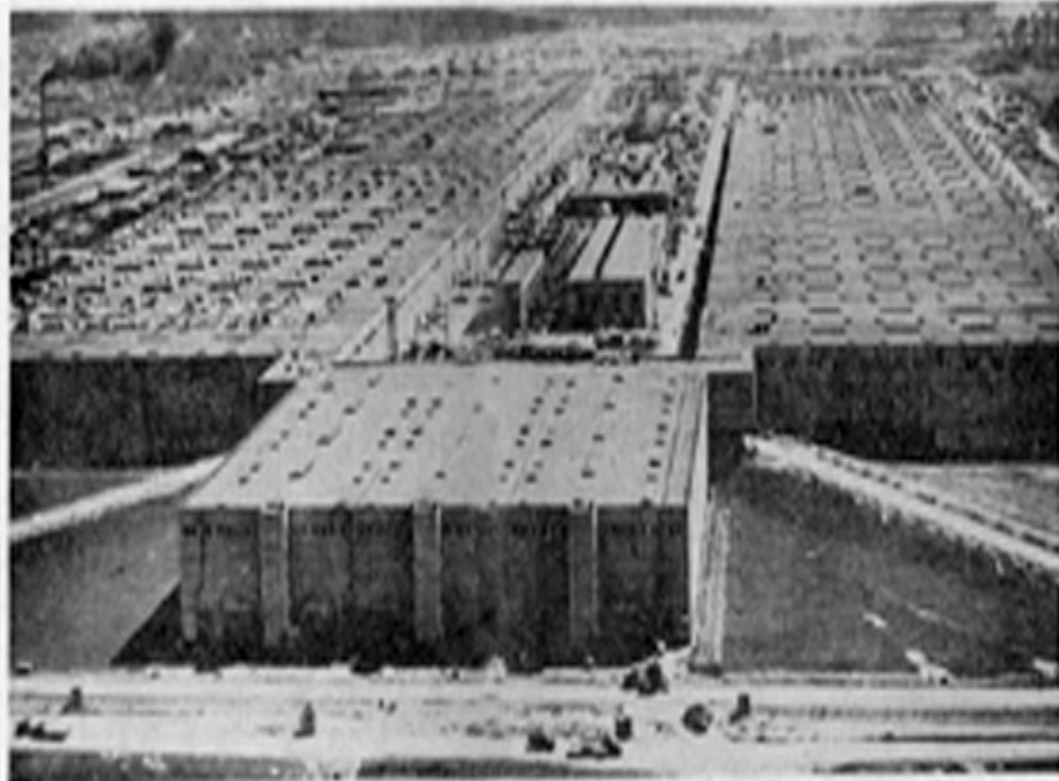
Activity Expected
On Northwest Front

TOKYO, December, Dec. 15—(AP)—Chinese Red forces smashed over American outposts in the Hwangsheng-Shengnam defense line in northern Korea Friday night in a rushing battle aimed at annihilating the U. S. Tenth Corps or driving it into the sea.

Two American platoons (totality 20 to 25 men) were cut off in the initial attack during the day by about 1,000 Chinese, but gunfire in the 20-mile-long area Friday night indicated they still fought on.

A North-South coalition had failed to rescue them. Instead, the Red forces had to fight off frenzied Chinese saboteurs who tried at the beaches with their boats.

After concentrating some abandoned American equipment, the Reds pushed up inland to build up for a large-scale assault on Chingwa, 200 miles west of Hwangsheng.



IT IS PRESUMED THAT Paducah's atomic bomb plant will look something like the big factory at Oak Ridge, "home of the atomic bomb." The building pictured here may be K-21, the largest general diffusion plant at Oak Ridge. The sides of U-shaped K-21 are 1,450 feet long,

400 feet wide and 60 feet high. About 4,000 persons work there now. Note that there are few windows in the giant building except at the top.

(AP Photo)

Building Force Of 10,000 May Be Required

Cost Set At \$500,000,000;
1,600 Permanent Jobs Expected

The Atomic Energy Commission officially announced today that it will build a huge new plant at Kentucky Ordnance Works near Paducah.

The House appropriations committee disclosed about the same time that the project is expected to cost \$500,000,000. The committee has been considering funds for a \$1,050,000,000 expansion program for atomic production facilities, of which the Paducah plant will be a part.

The AEC said the Kentucky site will cover about 5,000 acres, "a considerable part of which will be obtained through purchase," around the present Kentucky Ordnance Works, 16 miles west of Paducah.



Say it with flowers

AUTO-LOANS

S

HOTEL

COLUMBIA

FRIGIDLY WAGGLY

SINGER

RESTAURANT

A GOOD



Fig. 9. The site of PGDP is shown as farmland and woodlands in this aerial photograph taken in May 1950. The four sewage lagoons of the KOW water treatment plant are shown in the lower left of the photograph. This facility was retained for use in the operations of the PGDP. (Photograph on file at the McCracken County Property Valuation Office, Paducah, Kentucky.)

Total DOE Property:
3,556 acres

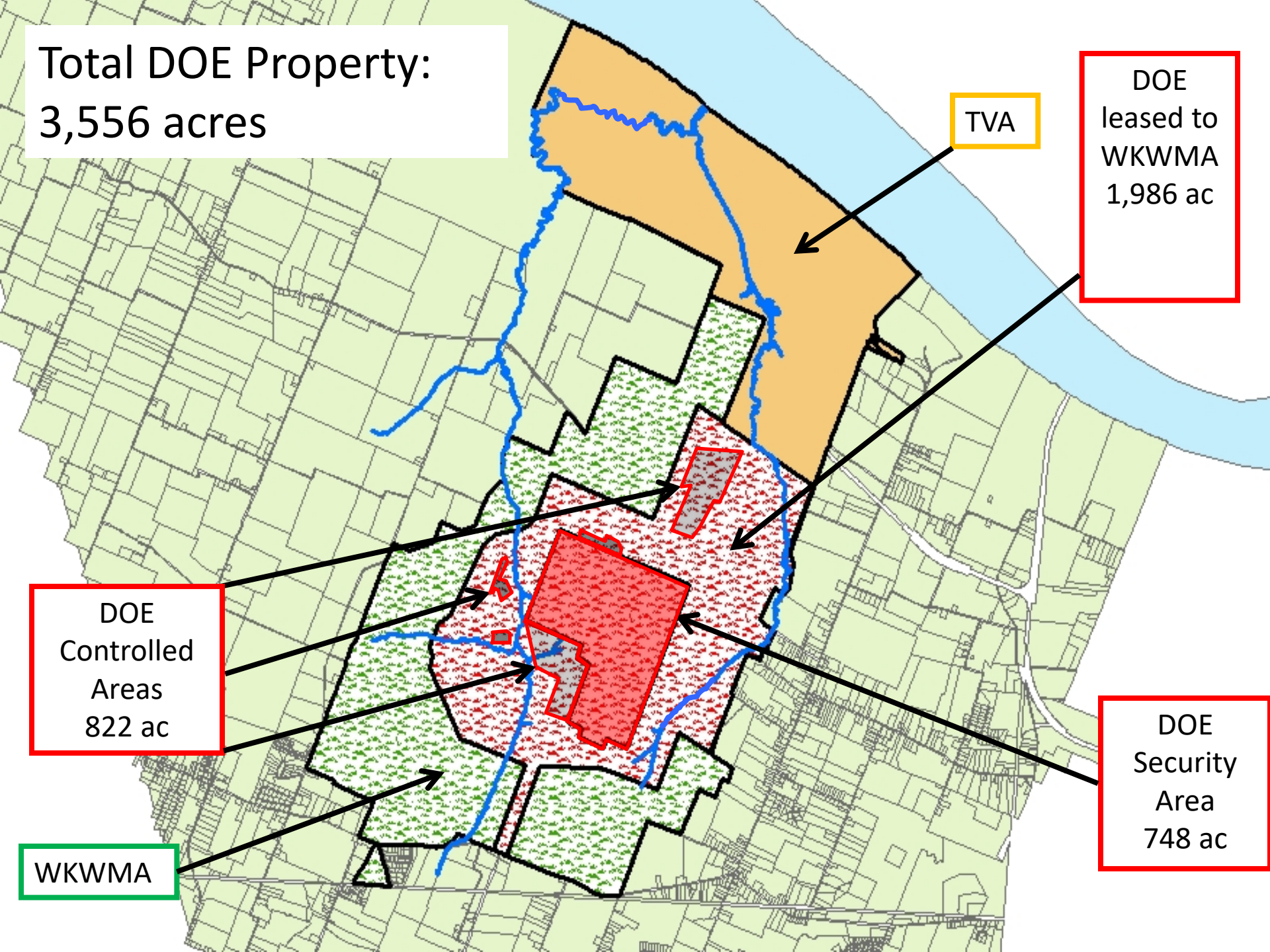
TVA

DOE
leased to
WKWMA
1,986 ac

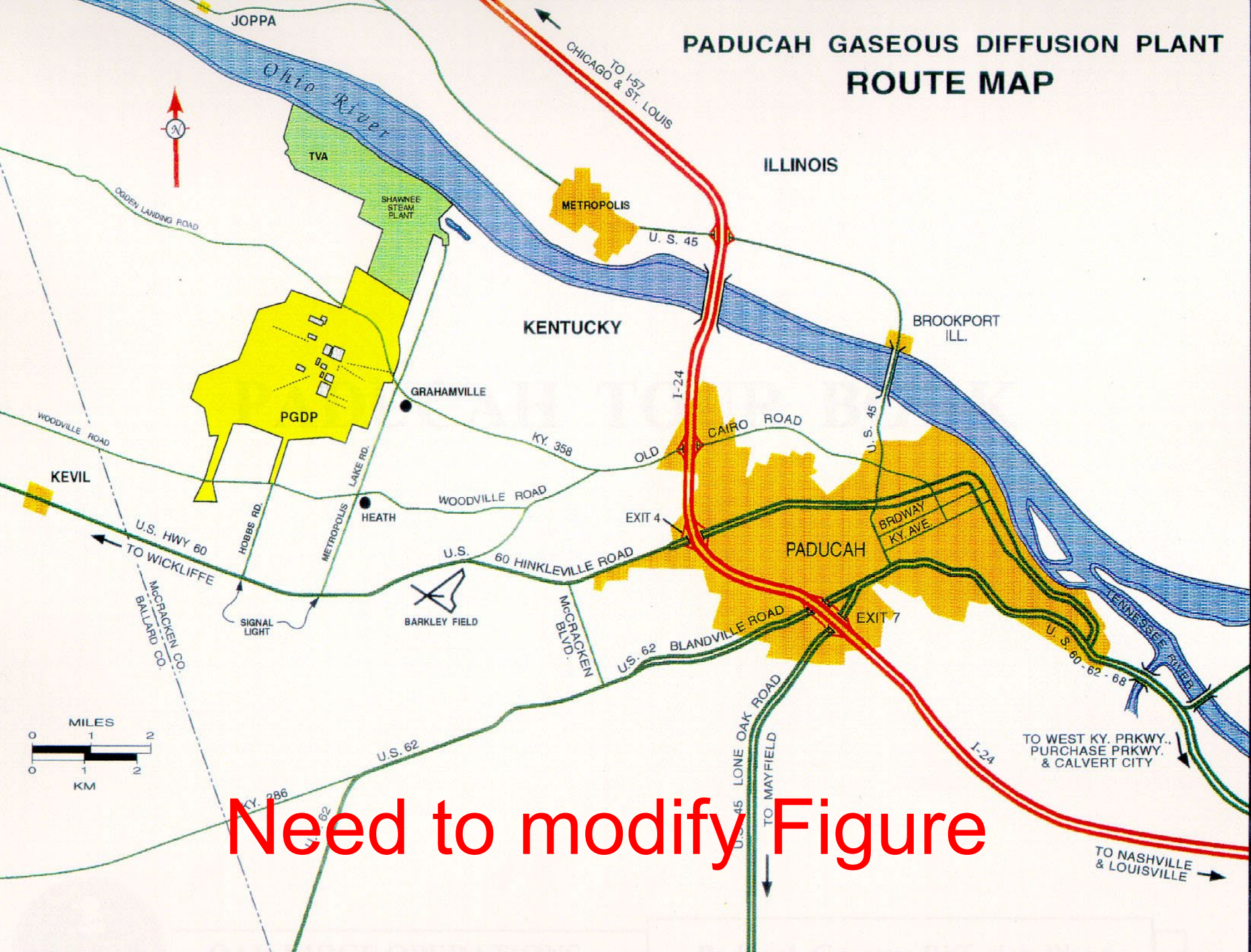
DOE
Controlled
Areas
822 ac

WKWMA

DOE
Security
Area
748 ac



PADUCAH GASEOUS DIFFUSION PLANT ROUTE MAP



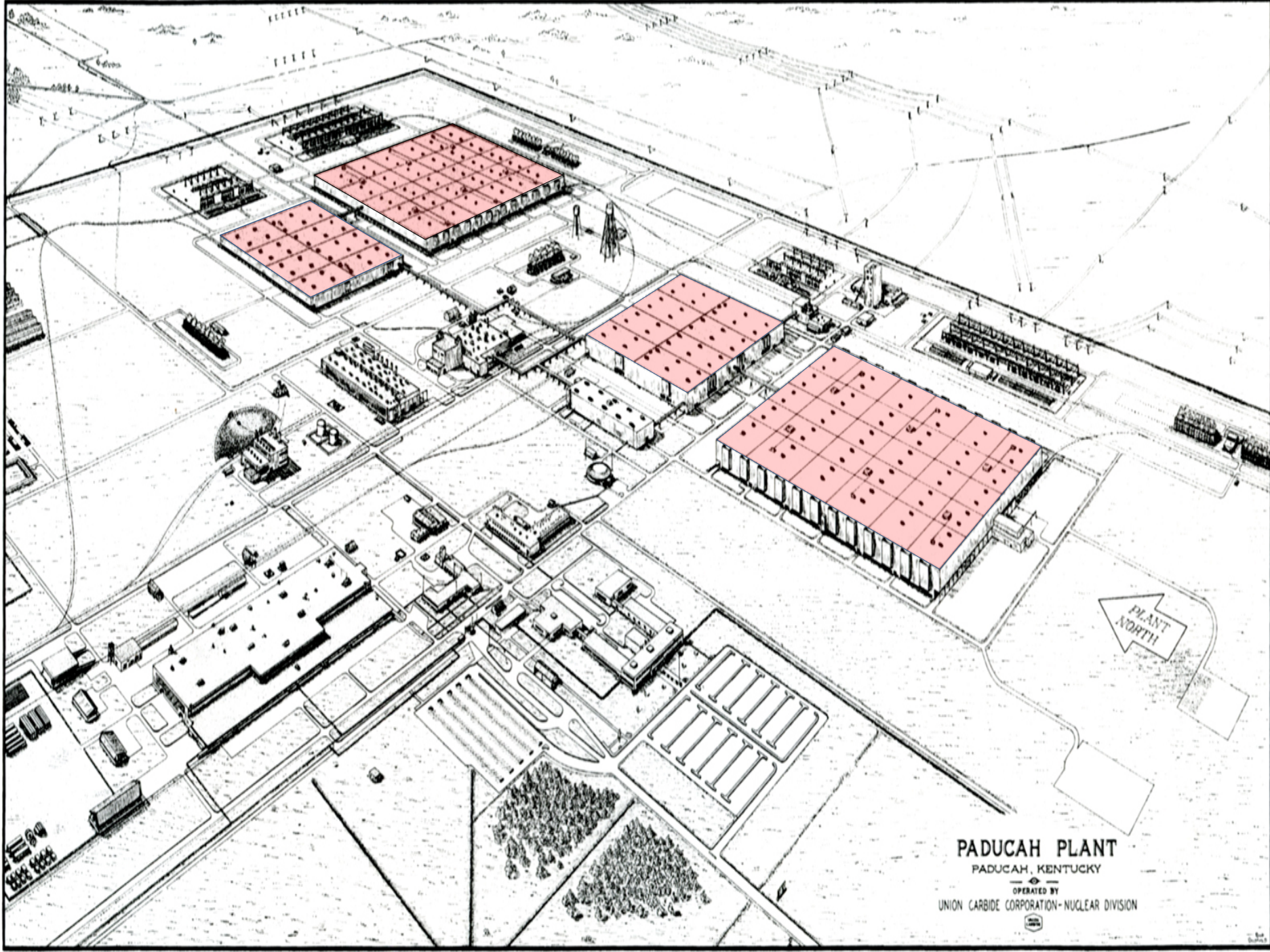
Need to modify Figure



U. S. A. E. C PADUCAH AREA
LOOKING NE TOWARD CONSTRUCTION OF
SWITCH HOUSE BLDG. C-535
F. H. MCGRAW & CO., CONTRACTOR
AT-(15-1)-2 12-16-52



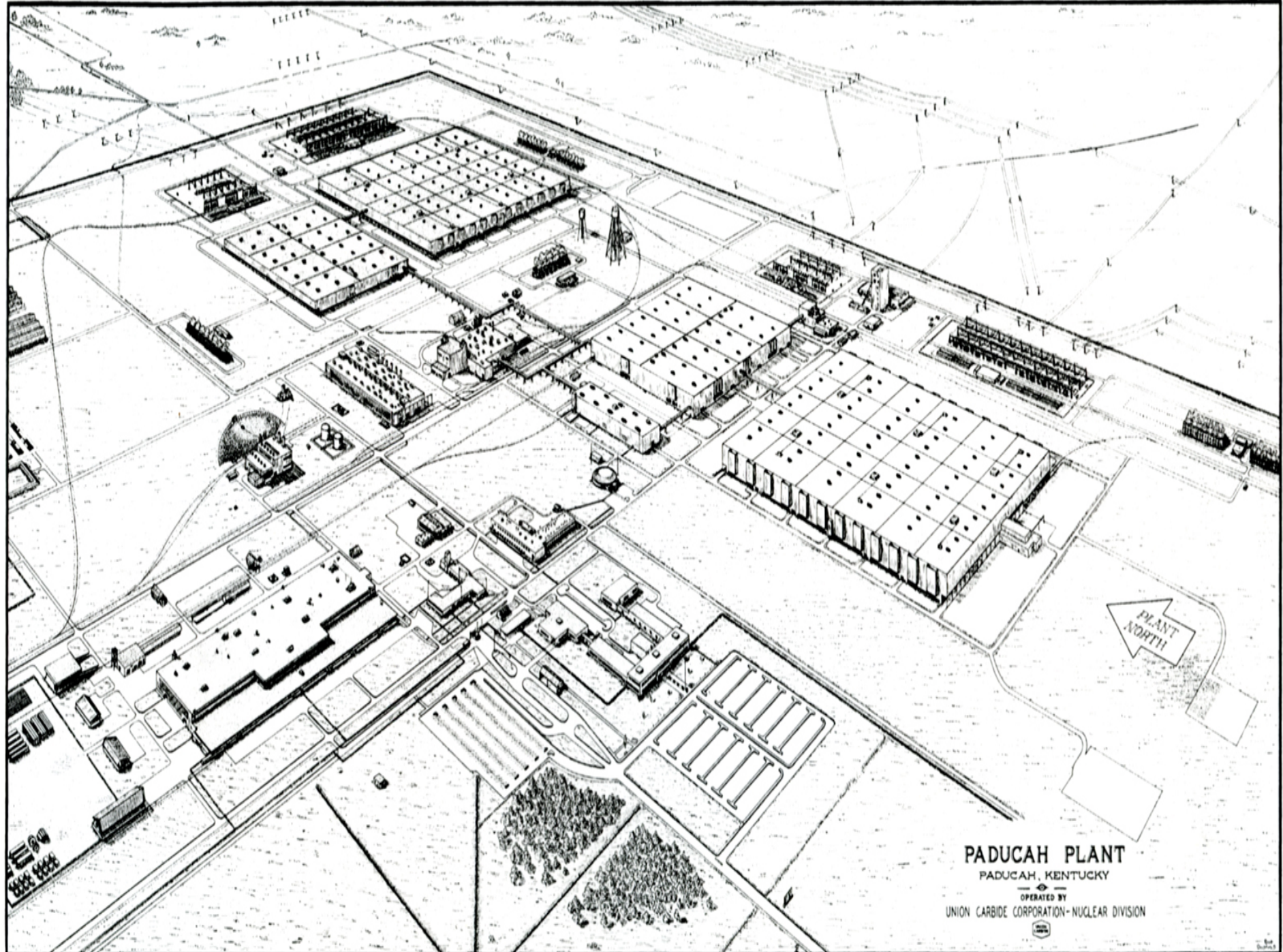
KENTUCKY AREA
LOOKING SE TOWARD GARAGE BLDG C-750
F. H. MCGRAW & CO., CONTRACTOR
AT-(15-1)-2 9-13-51



PADUCAH PLANT
PADUCAH, KENTUCKY

OPERATED BY
UNION CARBIDE CORPORATION - NUCLEAR DIVISION





PADUCAH PLANT
PADUCAH, KENTUCKY

OPERATED BY
UNION CARBIDE CORPORATION - NUCLEAR DIVISION



Power Plants







U. S. A. E. C. PADUCAH AREA
LOOKING NE AT CONSTRUCTION OF RELAY
HOUSE C-536
F. H. MCGRAW & CO., CONTRACTOR
AT-(15-1)-2 12-16-52



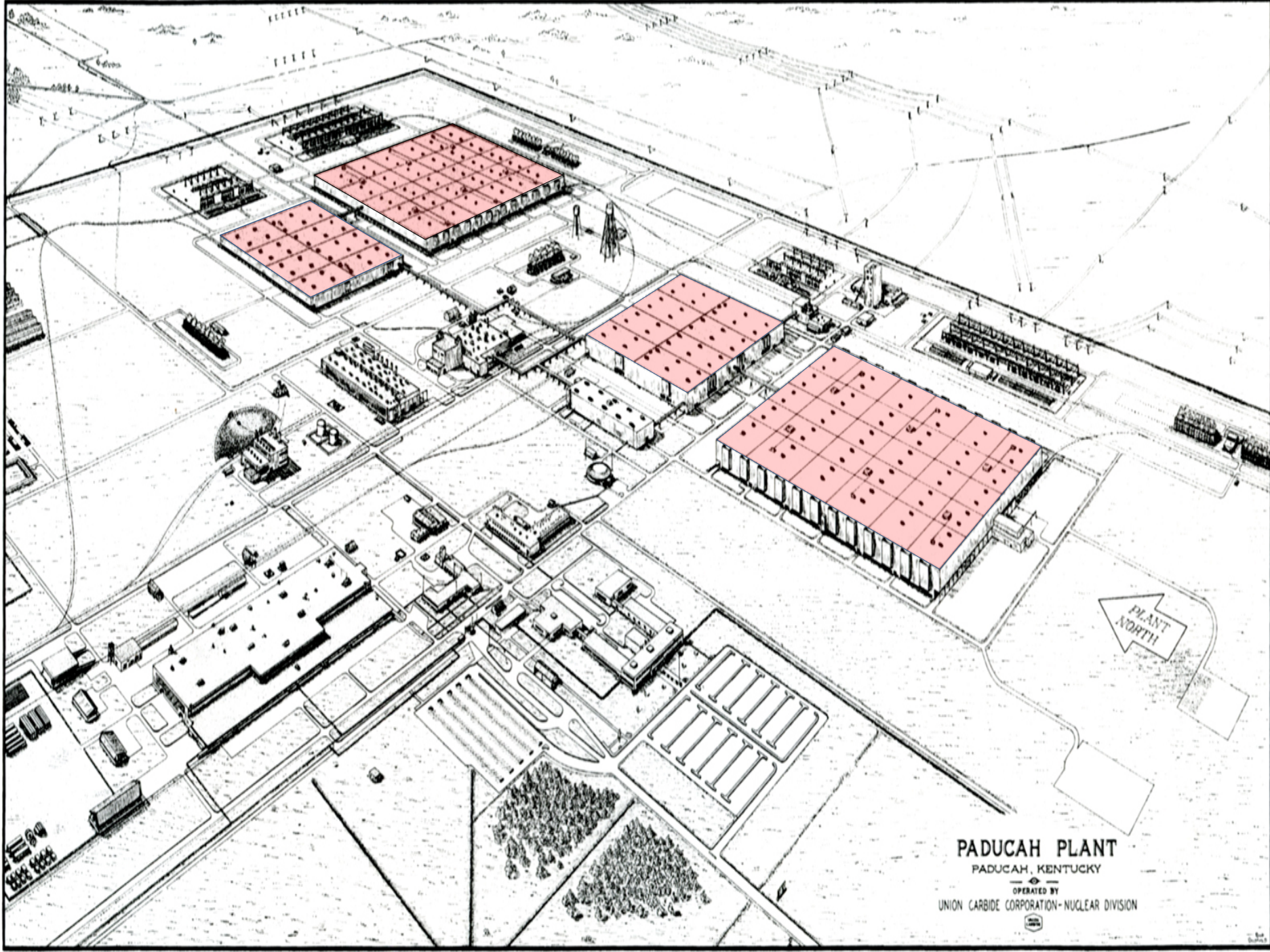
U.S. A.E.C. PADUCAH AREA
VAPORIZATION AREA C-341,
10% COMPLETE
BLOUNT BROTHERS CONSTRUCTION CO.
AT-(15-1)-109 11-21-55



U.S. A.E.C. PADUCAH AREA
SETTING BASE PLATE IN BLDG. C-337
F. H. MCGRAW & CO., CONTRACTOR
AT-(15-1)-2 3-19-53



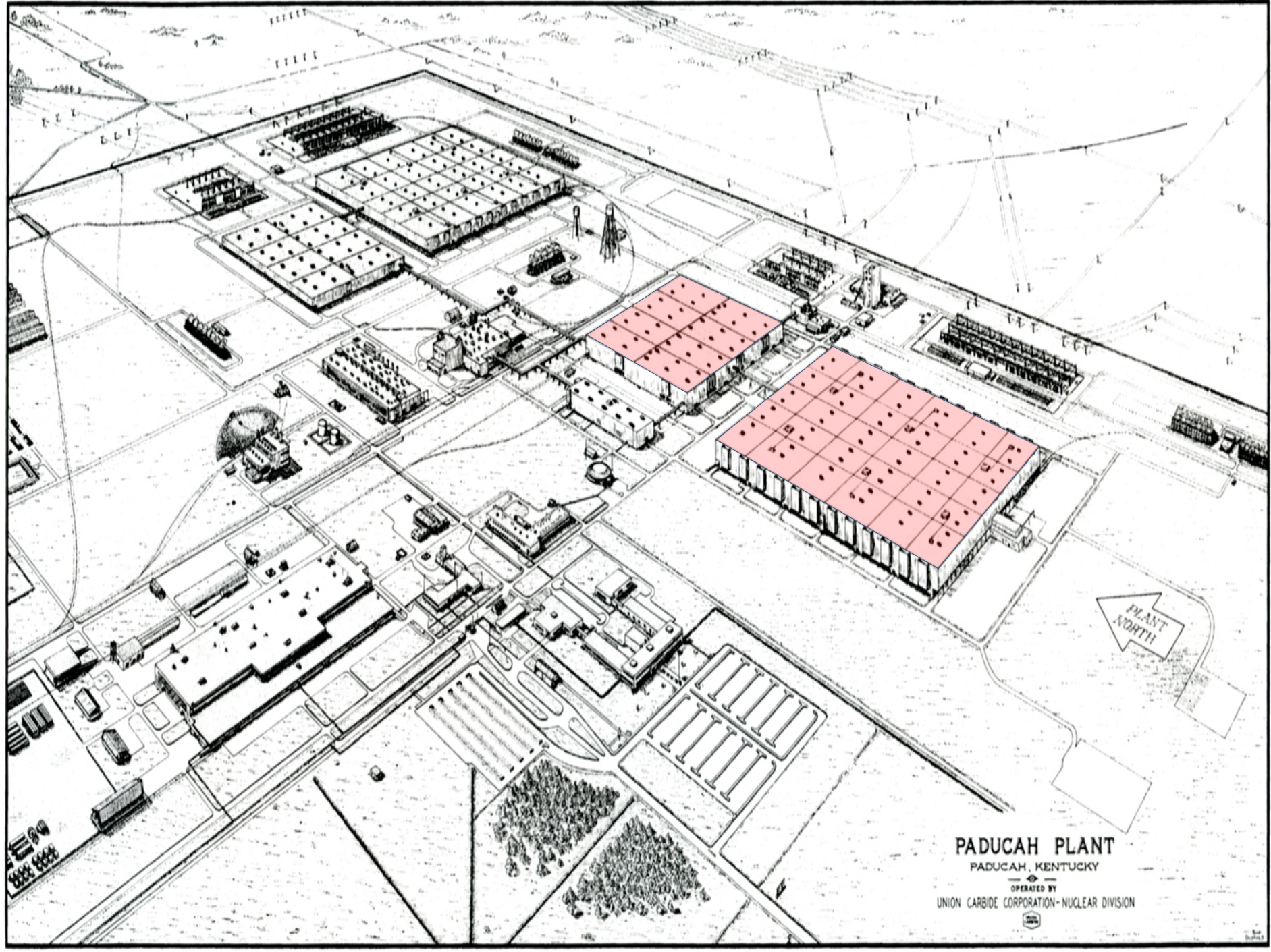
U. S. A. E. C. PADUCAH AREA
DRILLING FOOTINGS FOR BLDG. C-337
F. H. MCGRAW & CO., CONTRACTOR
AT-(15-1)-2 2-17-53



PADUCAH PLANT
PADUCAH, KENTUCKY

OPERATED BY
UNION CARBIDE CORPORATION - NUCLEAR DIVISION

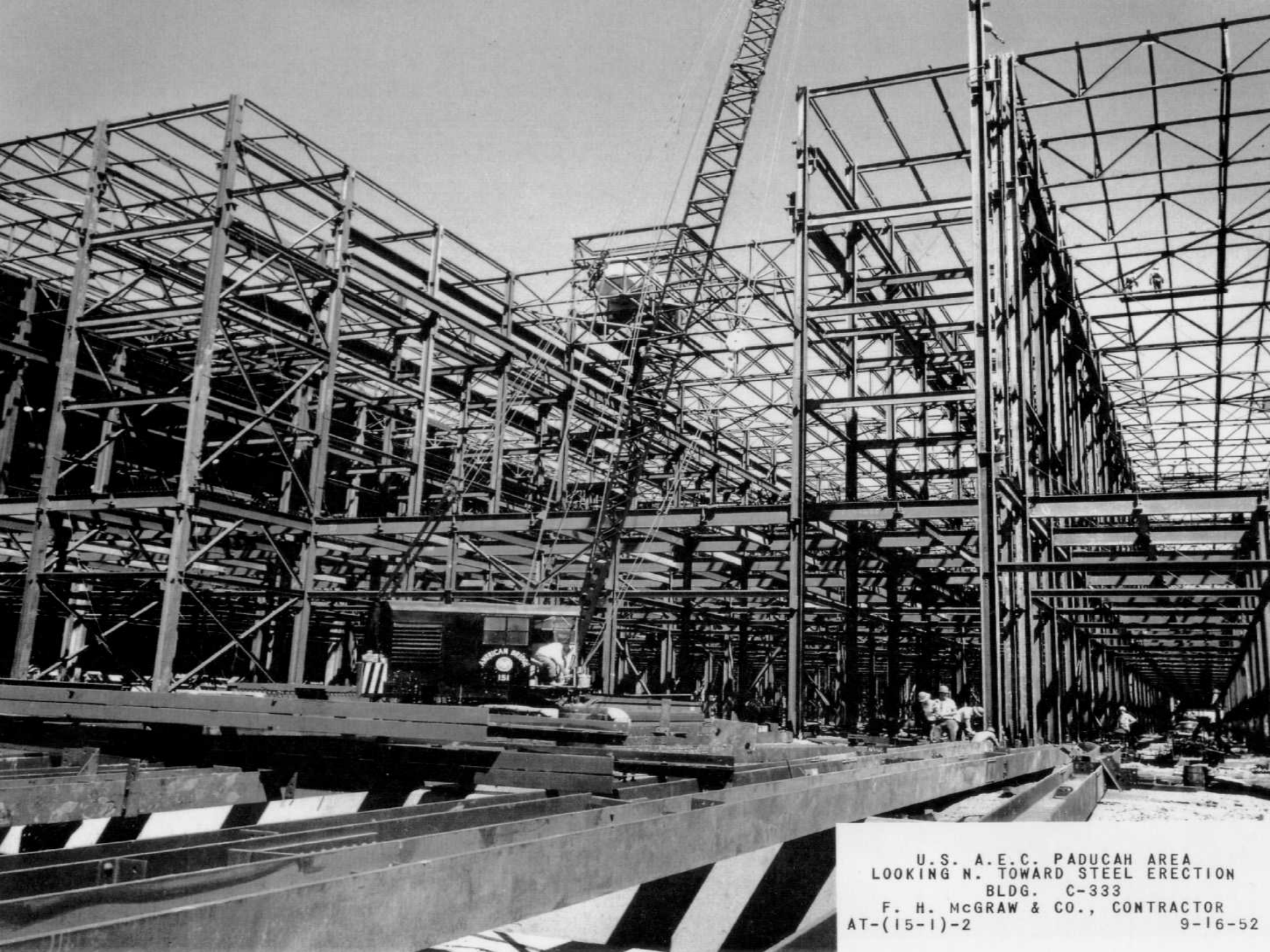




PADUCAH PLANT
PADUCAH, KENTUCKY

OPERATED BY
UNION CARBIDE CORPORATION - NUCLEAR DIVISION

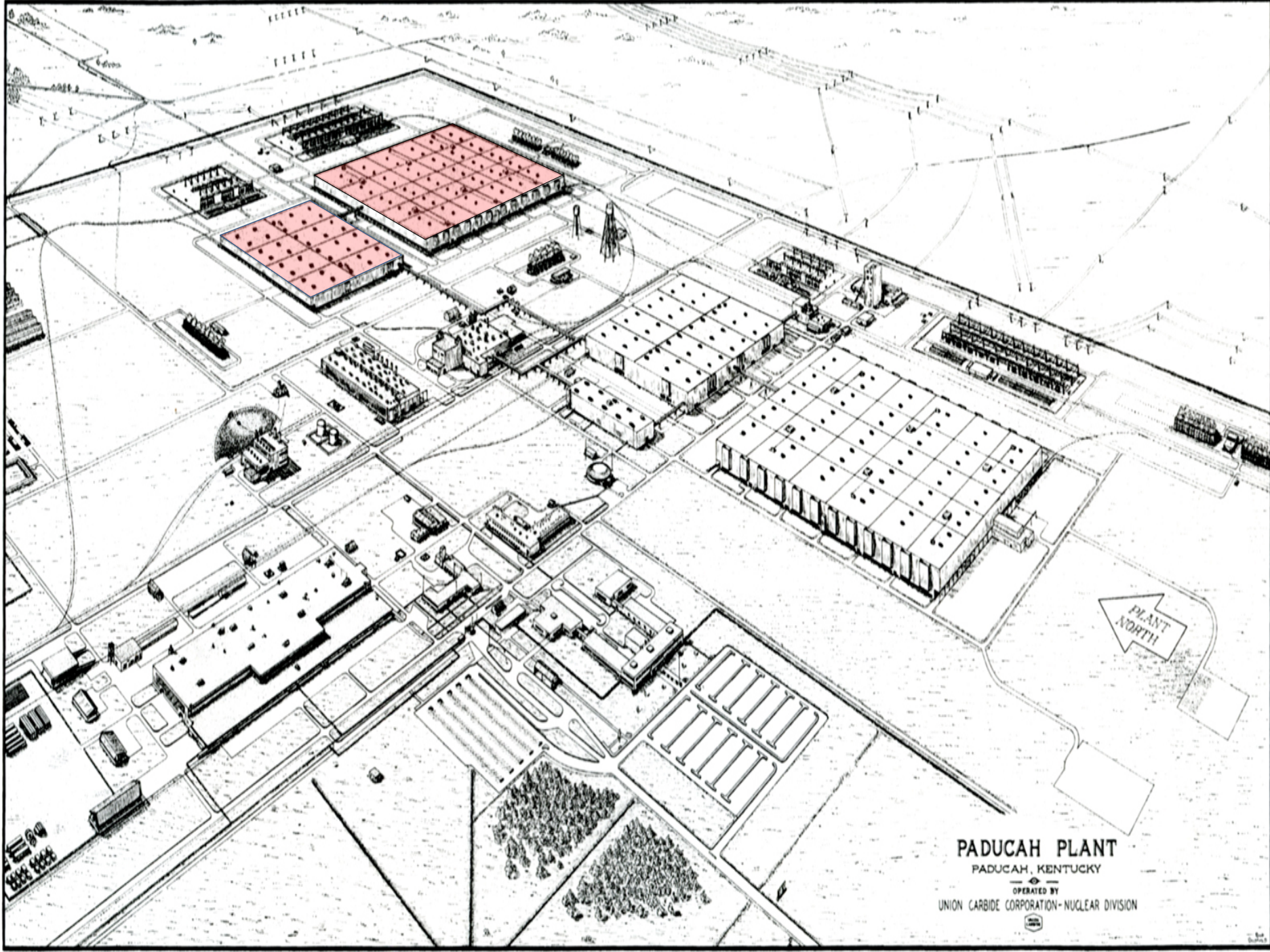




U.S. A.E.C. PADUCAH AREA
LOOKING N. TOWARD STEEL ERECTION
BLDG. C-333
F. H. MCGRAW & CO., CONTRACTOR
AT-(15-1)-2 9-16-52



U. S. A. E. C. PADUCAH AREA
LOOKING NE TOWARD PROCESS BLDG C-333
F. H. MCGRAW & CO., CONTRACTOR
AT-(15-1)-2 7-16-52



PLANT
NORTH

PADUCAH PLANT

PADUCAH, KENTUCKY

OPERATED BY

UNION CARBIDE CORPORATION - NUCLEAR DIVISION





U. S. A. E. C. PADUCAH AREA
LOOKING E. ALONG CELL FLOOR IN
UNIT NO. 4, PROCESS BLDG. C-335
F. H. MCGRAW & CO., CONTRACTOR
AT-(15-1)-2 4-21-53



U. S. A. E. C. PADUCAH AREA
OUTSIDE ELECTRICAL DISTRIBUTION
SYSTEM N. OF PROCESS BLDG. C-337
55% COMPLETE
F. H. MCGRAW & CO., CONTRACTOR
AT-(15-1)-2 2-10-54

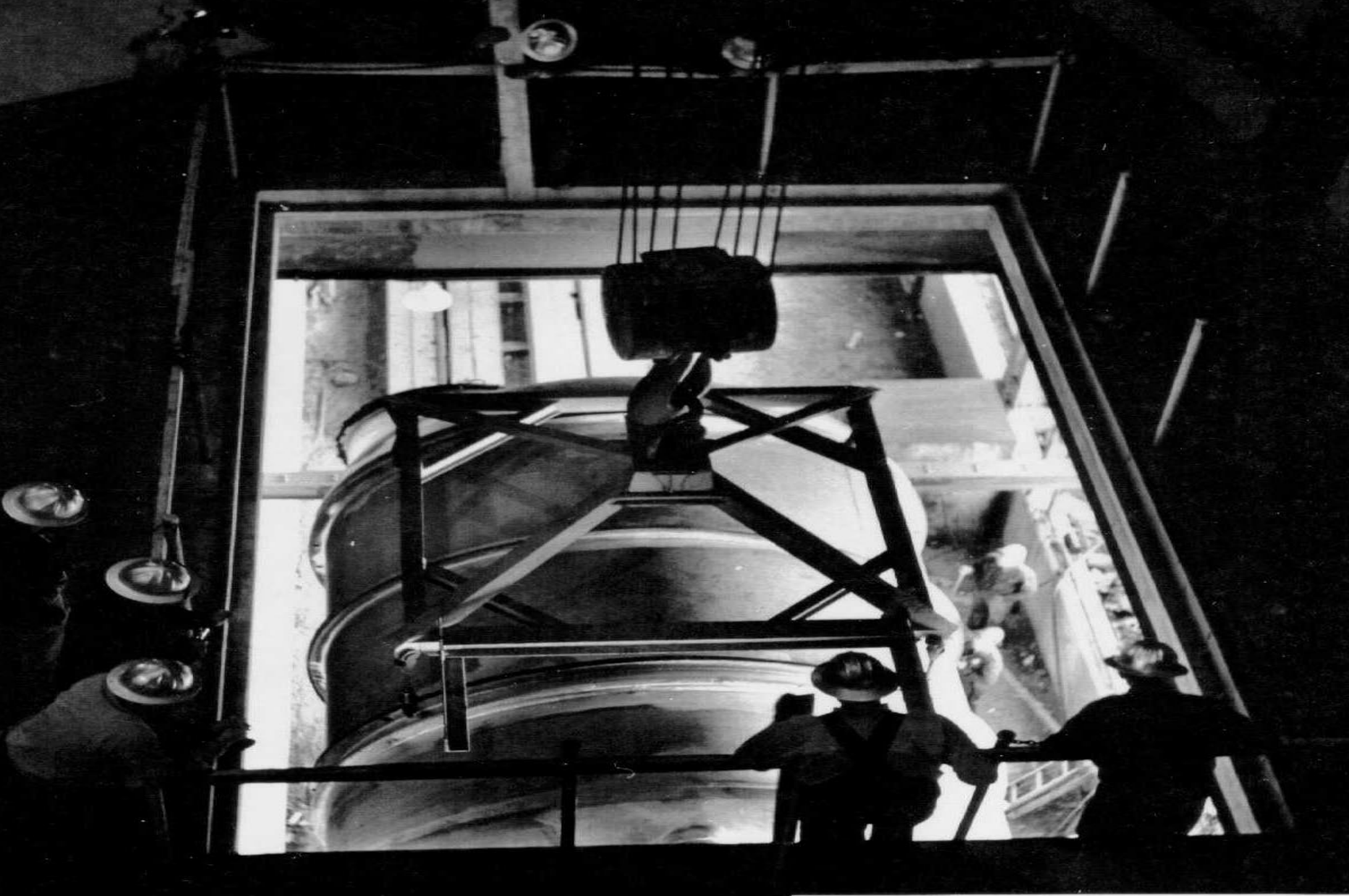




8th STAGE

5-3-7

5-3-7



U.S. A.E.C. PADUCAH AREA
RAISING COMPRESSOR FROM FLAT CAR
THROUGH OPENING IN CELL FLOOR
BLDG. C-333
F. H. MCGRAW & CO., CONTRACTOR
AT-(15-1)-2 3-19-5



Ashland
PRODUCTS

PADUCAH PLANT
OPERATED BY
UNION CARBIDE NUCLEAR COMPANY
DIVISION OF UNION CARBIDE CORPORATION
FOR
THE ATOMIC ENERGY COMMISSION
3 MILES

PAVEMENT
NARROWS

Coca-Cola

SINCLAIR
JAN
GRIEF

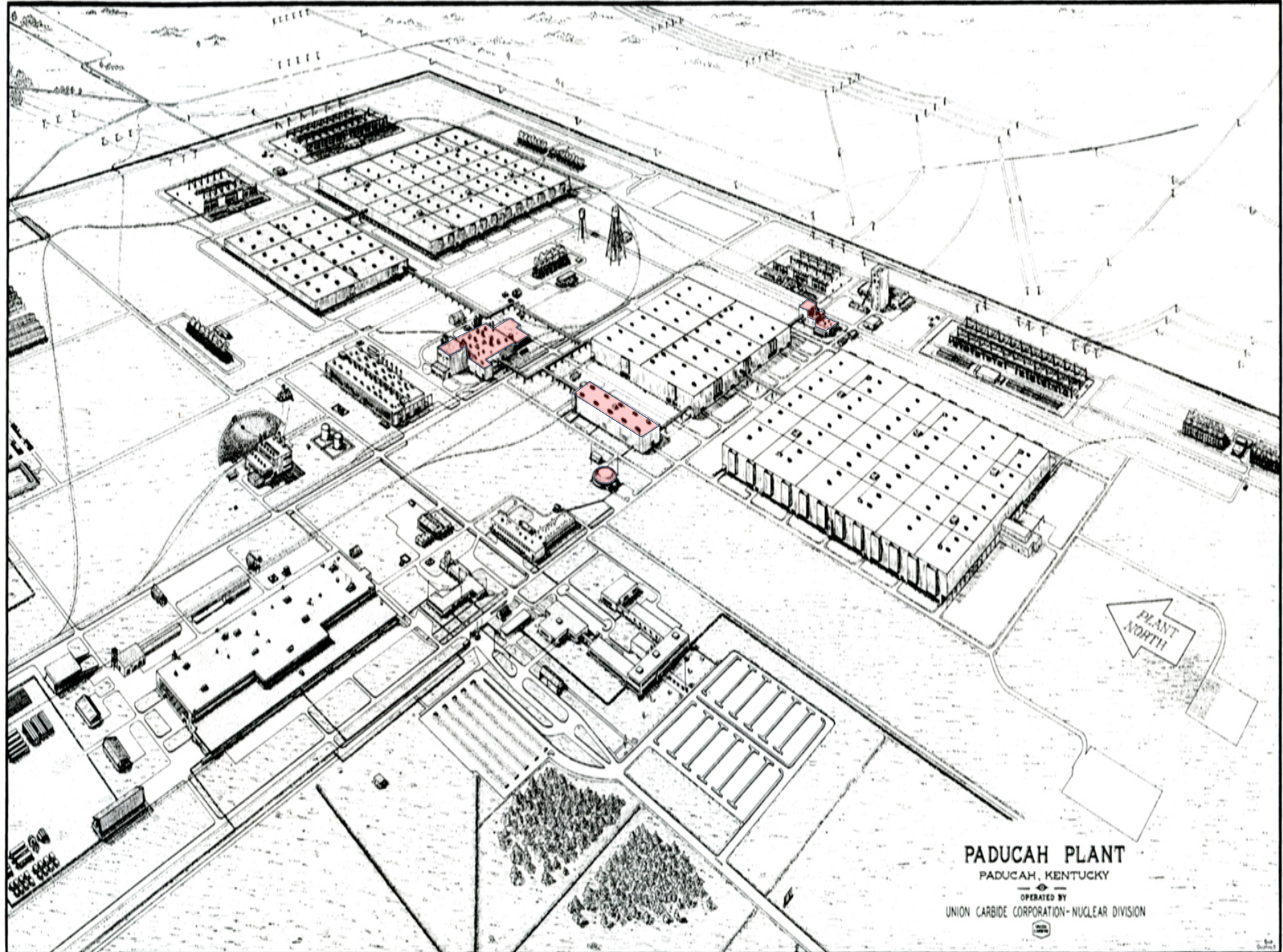
JAMES GRIEF

SEWER
STATION

ASHLAND



U. S. A. E. C. PADUCAH AREA
LOOKING NW TOWARD PROPOSED SITE OF
C-335
F. H. MCGRAW & CO., CONTRACTOR
AT-(15-1)-2 7-16-5



PADUCAH PLANT
PADUCAH, KENTUCKY

OPERATED BY
UNION CARBIDE CORPORATION - NUCLEAR DIVISION







U.S. A.E.C. PADUCAH AREA
HOISTING REACTOR FURNACES TO 3rd
FLOOR FEED PLANT BLDG. C-420
45% COMPLETE
MALAN CONSTRUCTION CORP., CONTRACTOR
AT-(15-1)-100 12-14-5



U.S. A.E.C. PADUCAH AREA
FLORINE PLANT IN FEED PLANT C-410
F. H. MCGRAW & CO., CONTRACTOR
AT-(15-1)-2 12-17-5



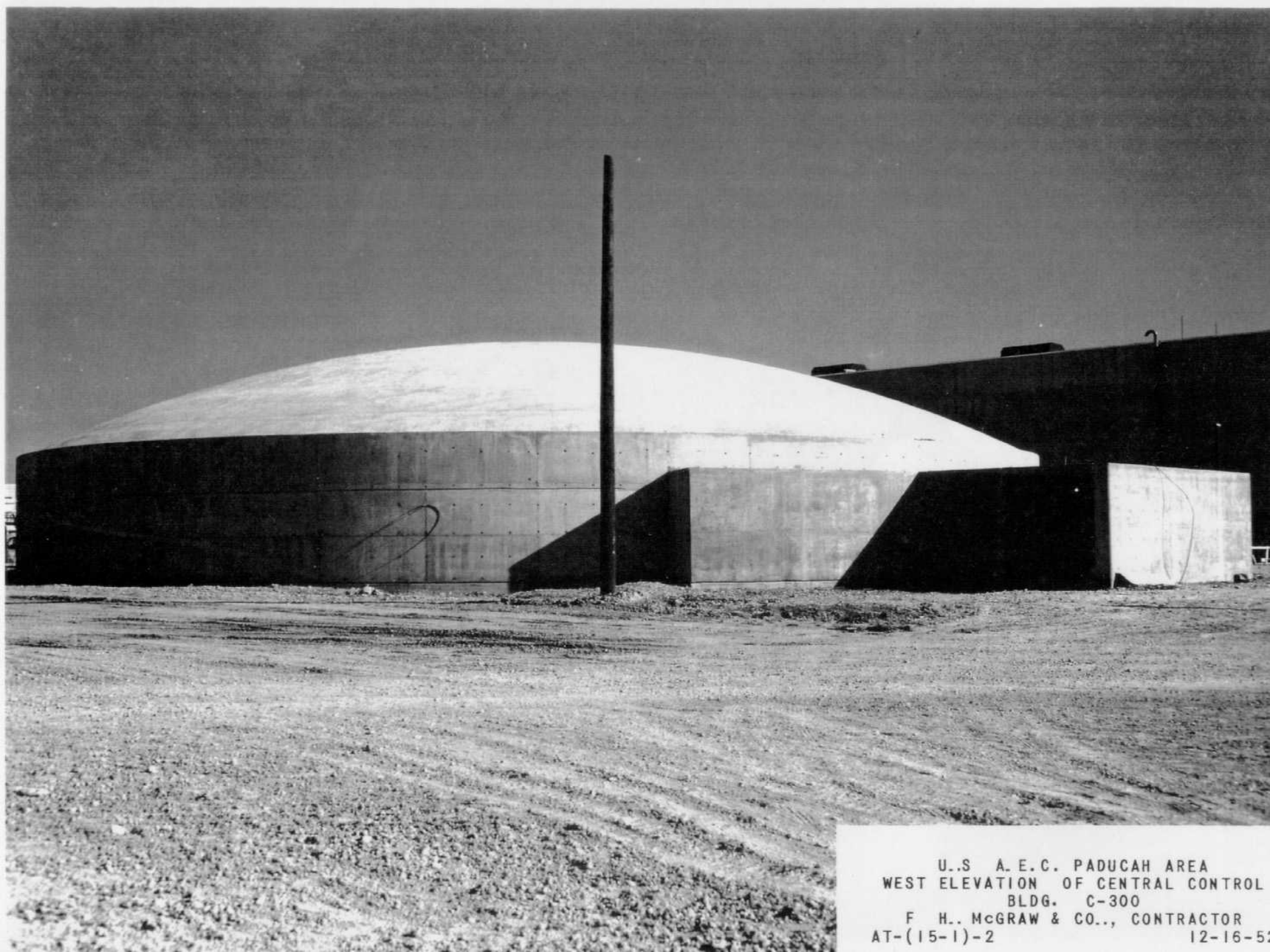








U.S. A.E.C. PADUCAH AREA
LOOKING E. TOWARD CENTRAL CONTROL
BLDG. C-300
F. H. MCGRAW & CO., CONTRACTOR
AT-(15-1)-2 11-11-5

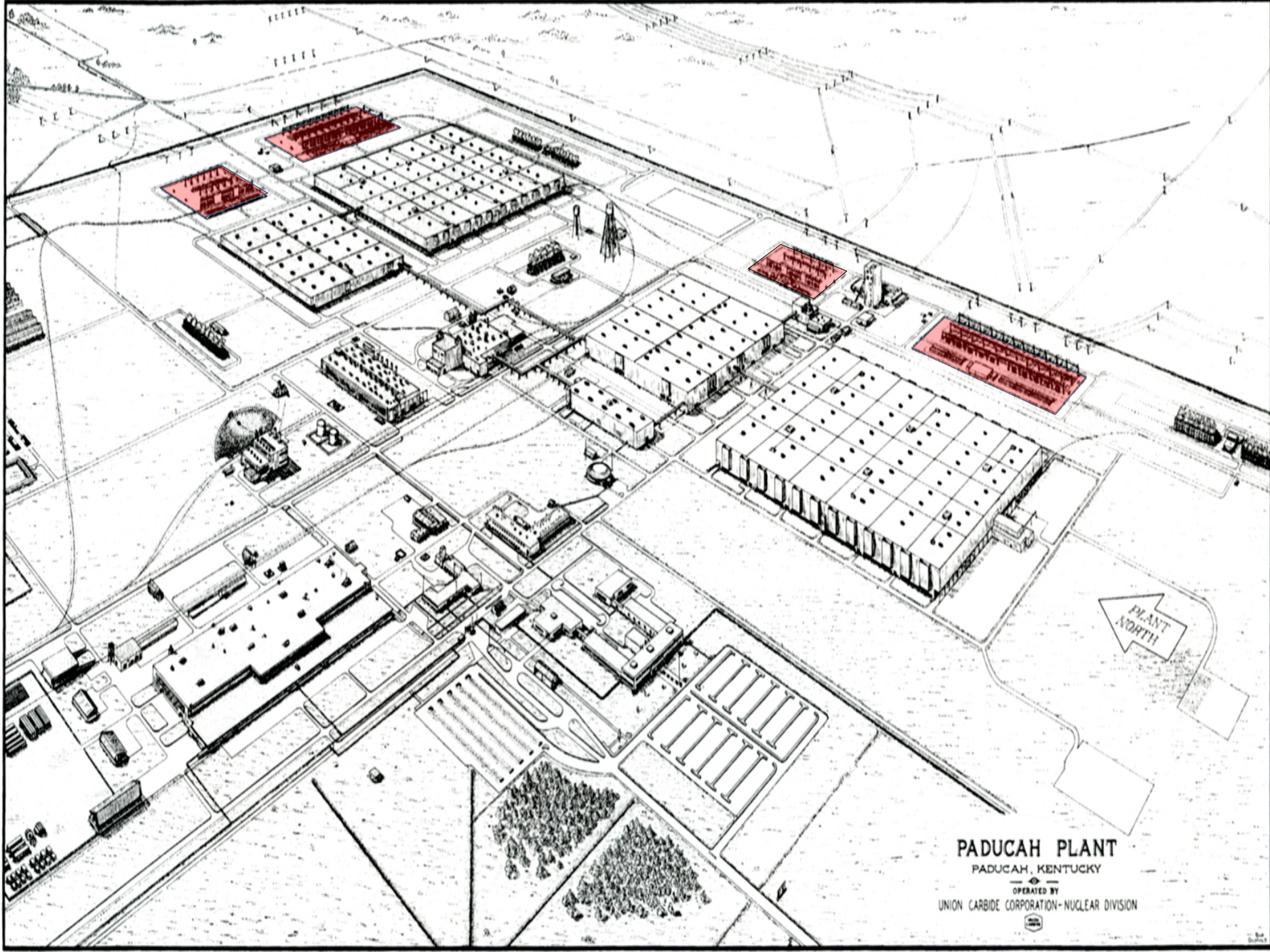


U.S. A. E. C. PADUCAH AREA
WEST ELEVATION OF CENTRAL CONTROL
BLDG. C-300
F. H. MCGRAW & CO., CONTRACTOR
AT-(15-1)-2 12-16-52



U. S. A. E. C. PADUCAH AREA
INTERIOR OF GROUND FLOOR
CENTRAL CONTROL BLDG. C-300
F. H. MCGRAW & CO., CONTRACTOR
AT-(15-1)-2 3-17-53





PADUCAH PLANT
PADUCAH, KENTUCKY

OPERATED BY
UNION CARBIDE CORPORATION - NUCLEAR DIVISION

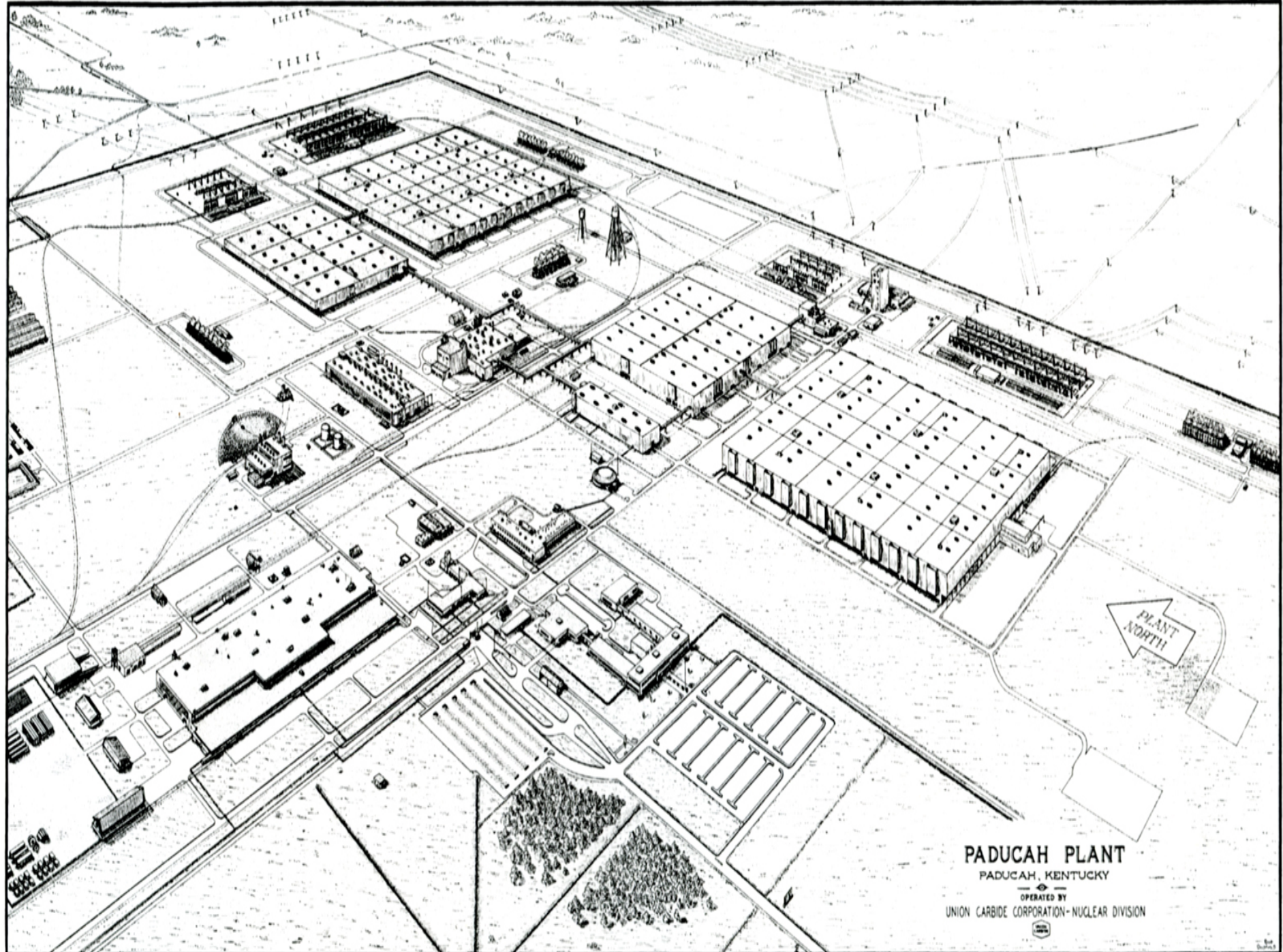




U.S. A.E.C. KENTUCKY AREA
LOOKING NE TOWARD C-531 SWITCHHOUSE
AND SWITCHYARD

F. H. MCGRAW & CO., CONTRACTOR
AT-(15-1)-2

2-18-52



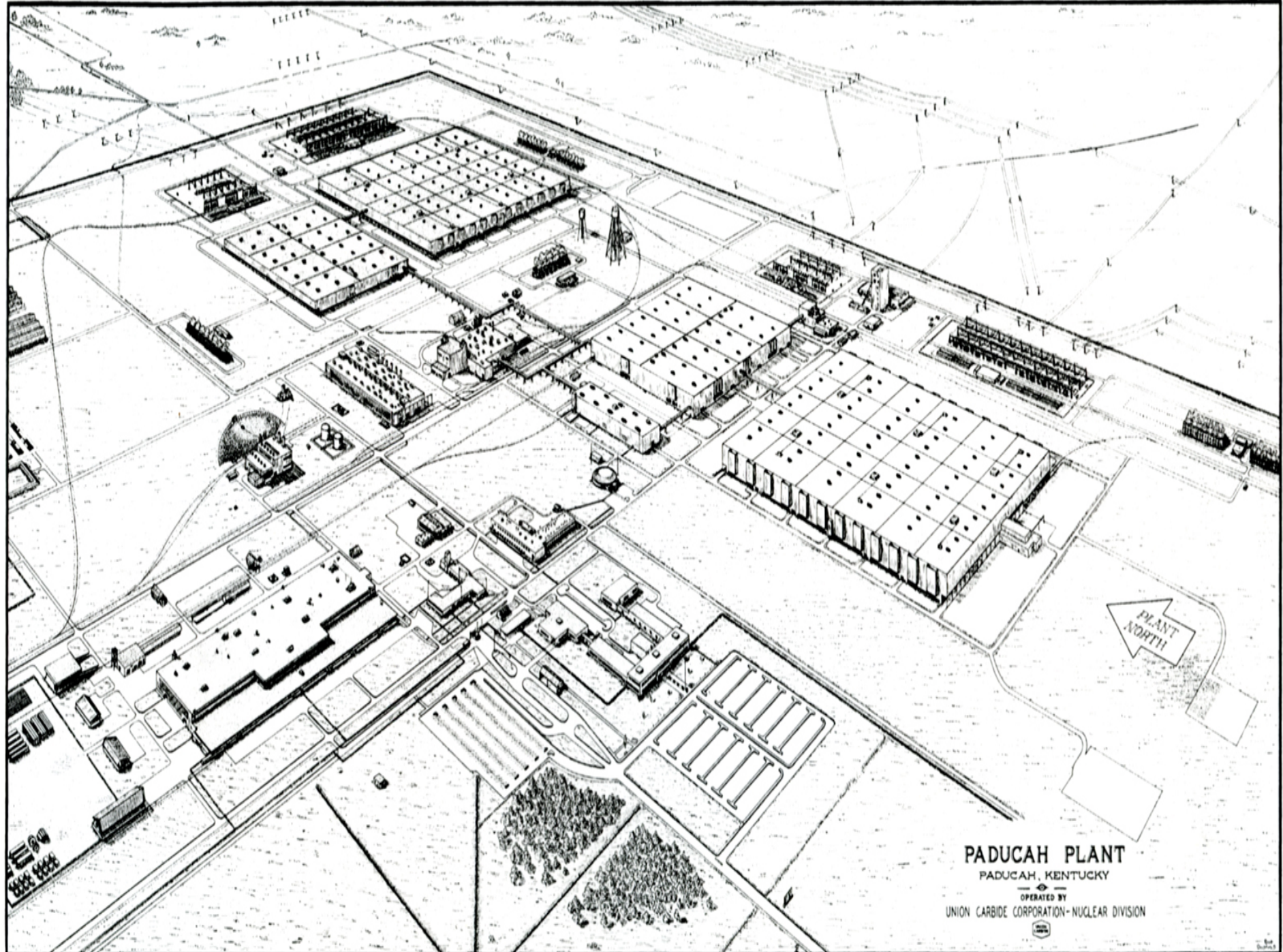
PADUCAH PLANT
PADUCAH, KENTUCKY

OPERATED BY
UNION CARBIDE CORPORATION - NUCLEAR DIVISION





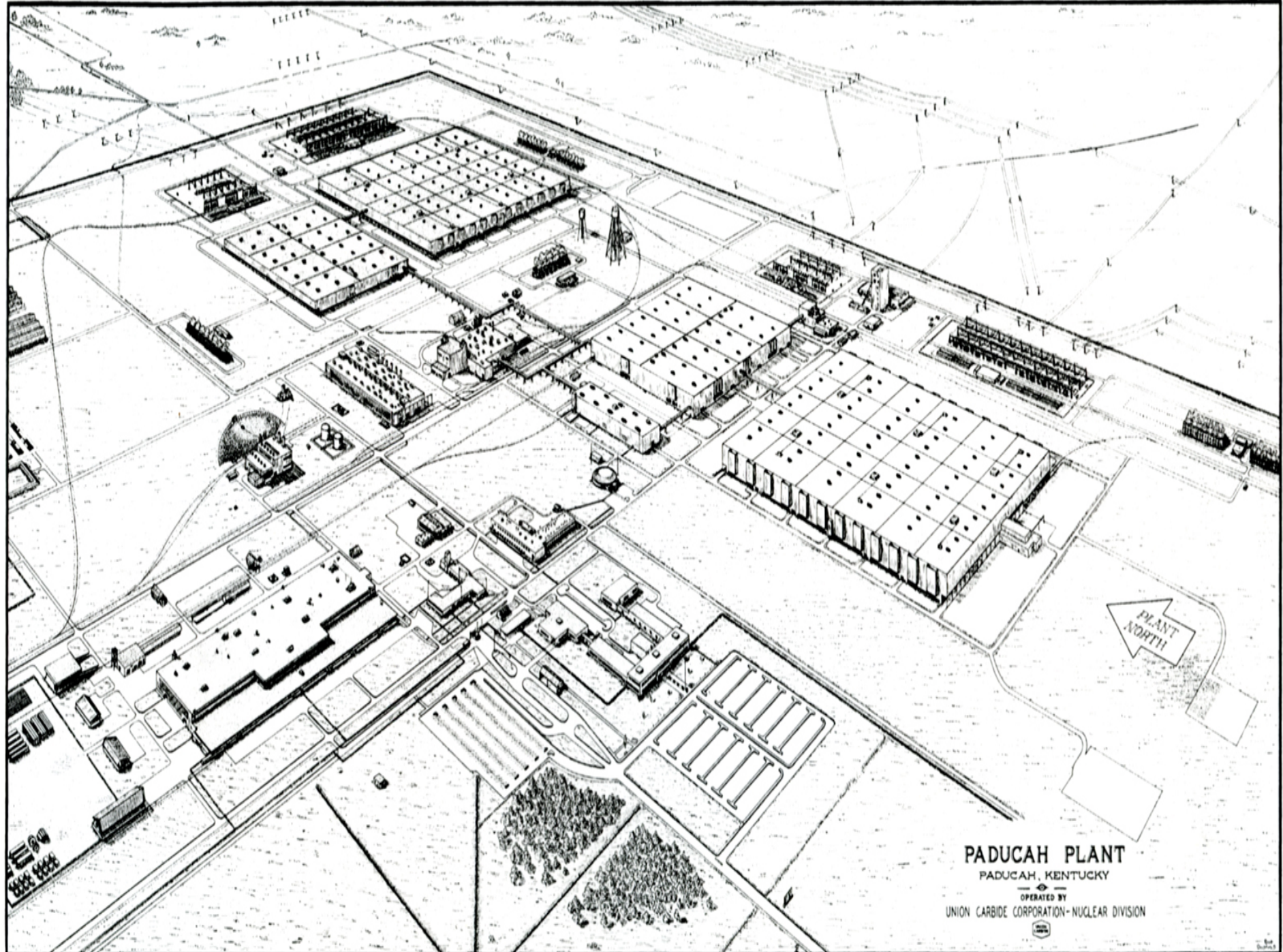




PADUCAH PLANT
PADUCAH, KENTUCKY

OPERATED BY
UNION CARBIDE CORPORATION - NUCLEAR DIVISION

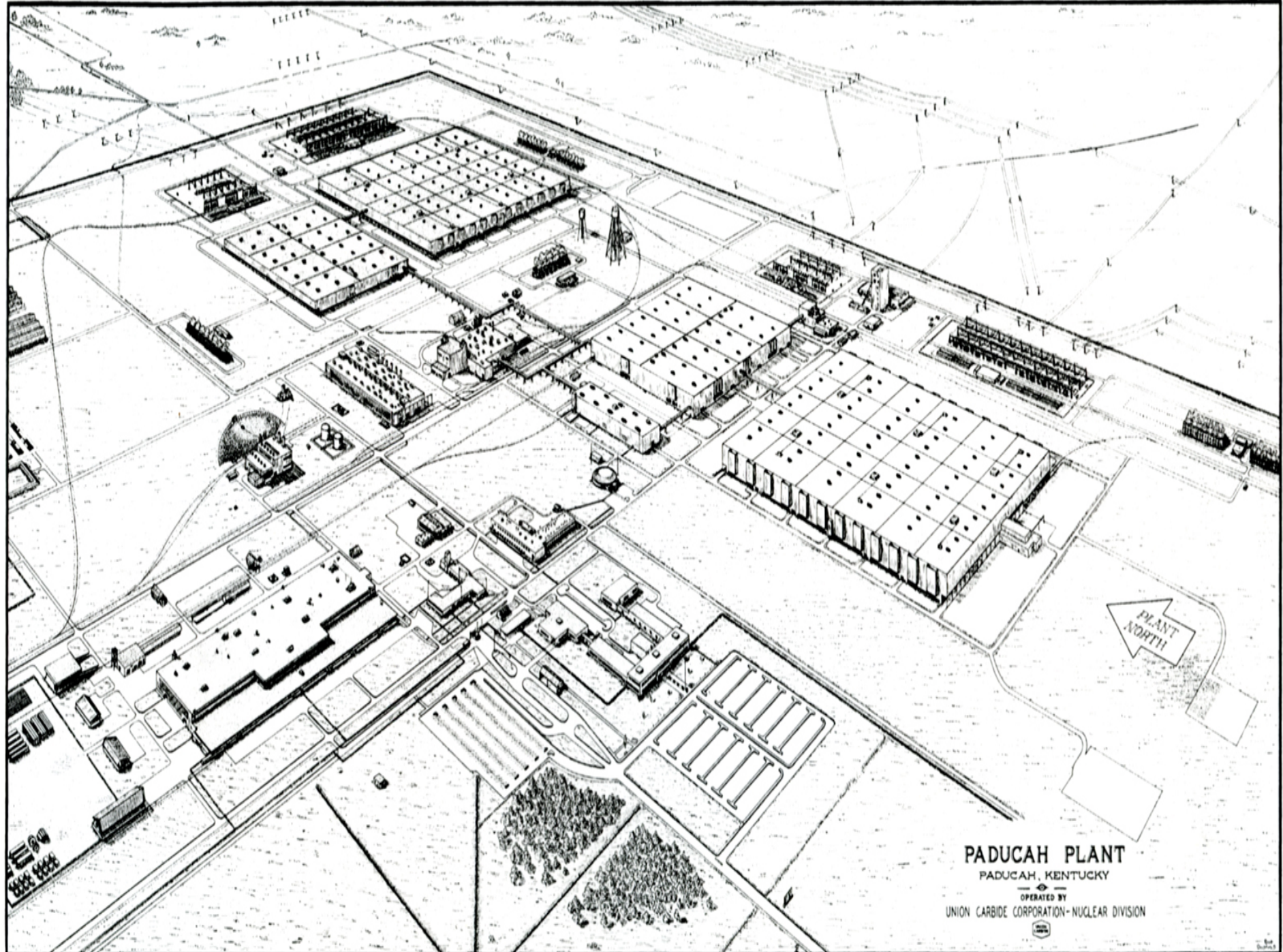




PADUCAH PLANT
PADUCAH, KENTUCKY

OPERATED BY
UNION CARBIDE CORPORATION - NUCLEAR DIVISION

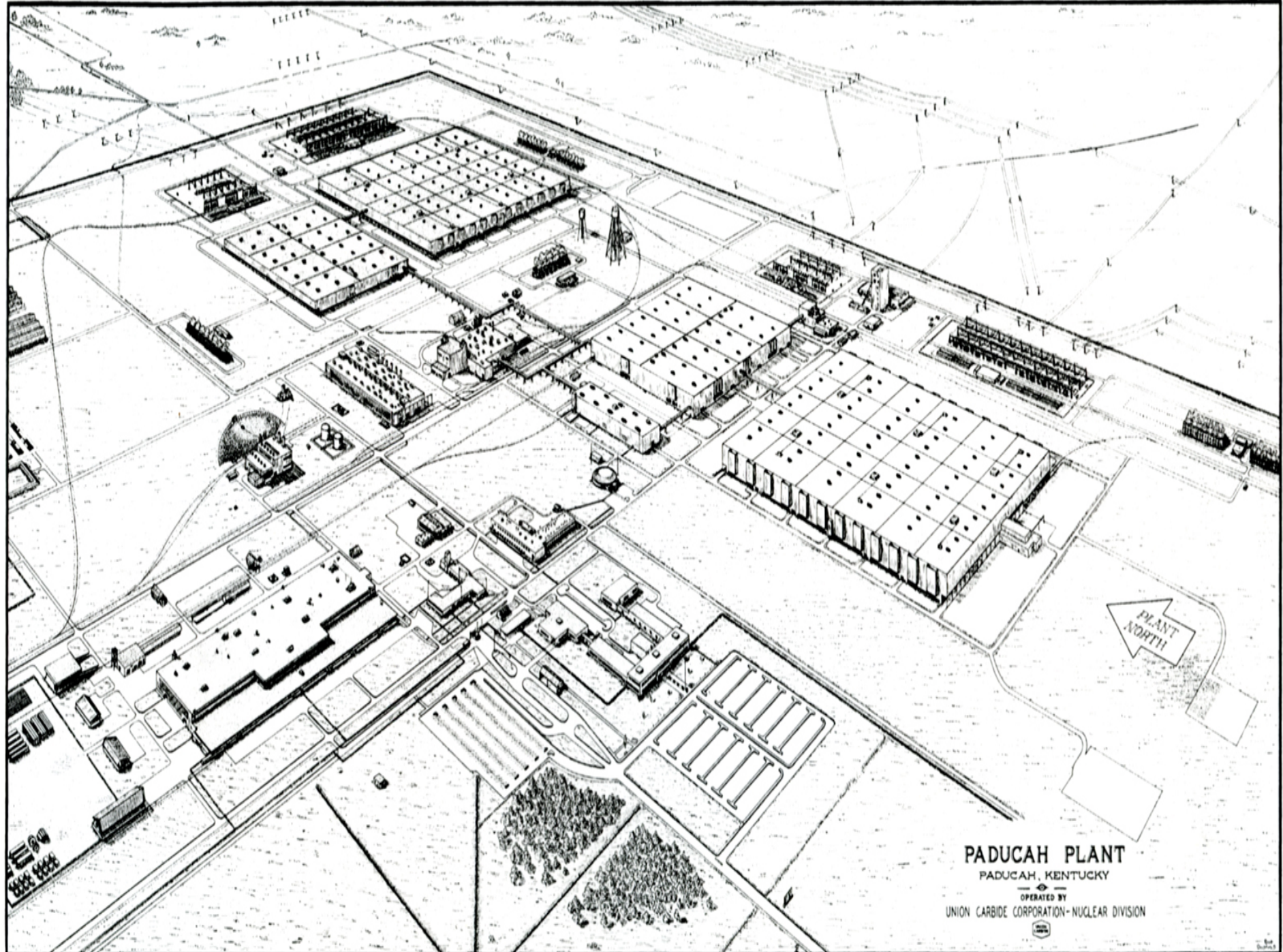




PADUCAH PLANT
PADUCAH, KENTUCKY

OPERATED BY
UNION CARBIDE CORPORATION - NUCLEAR DIVISION

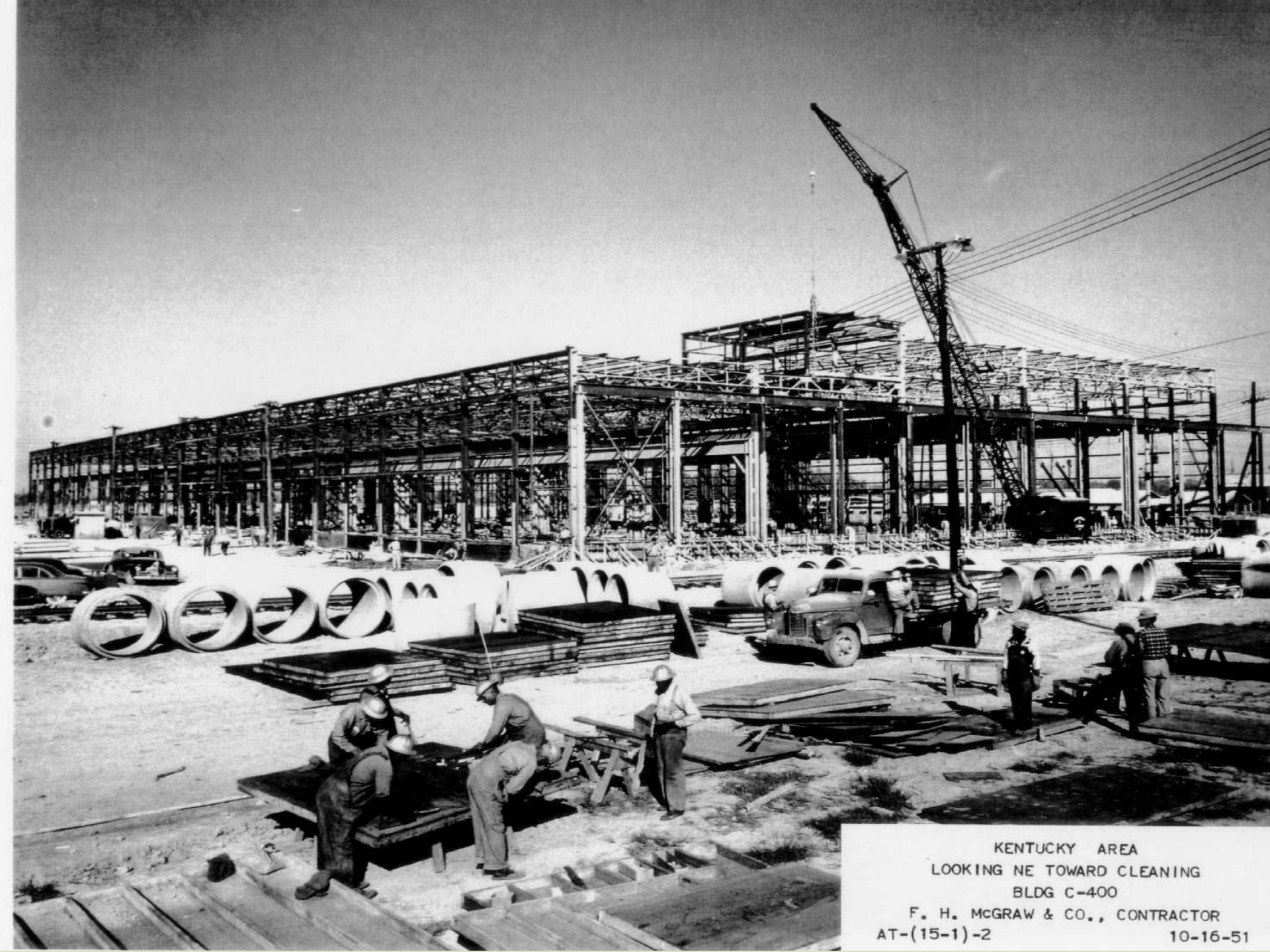




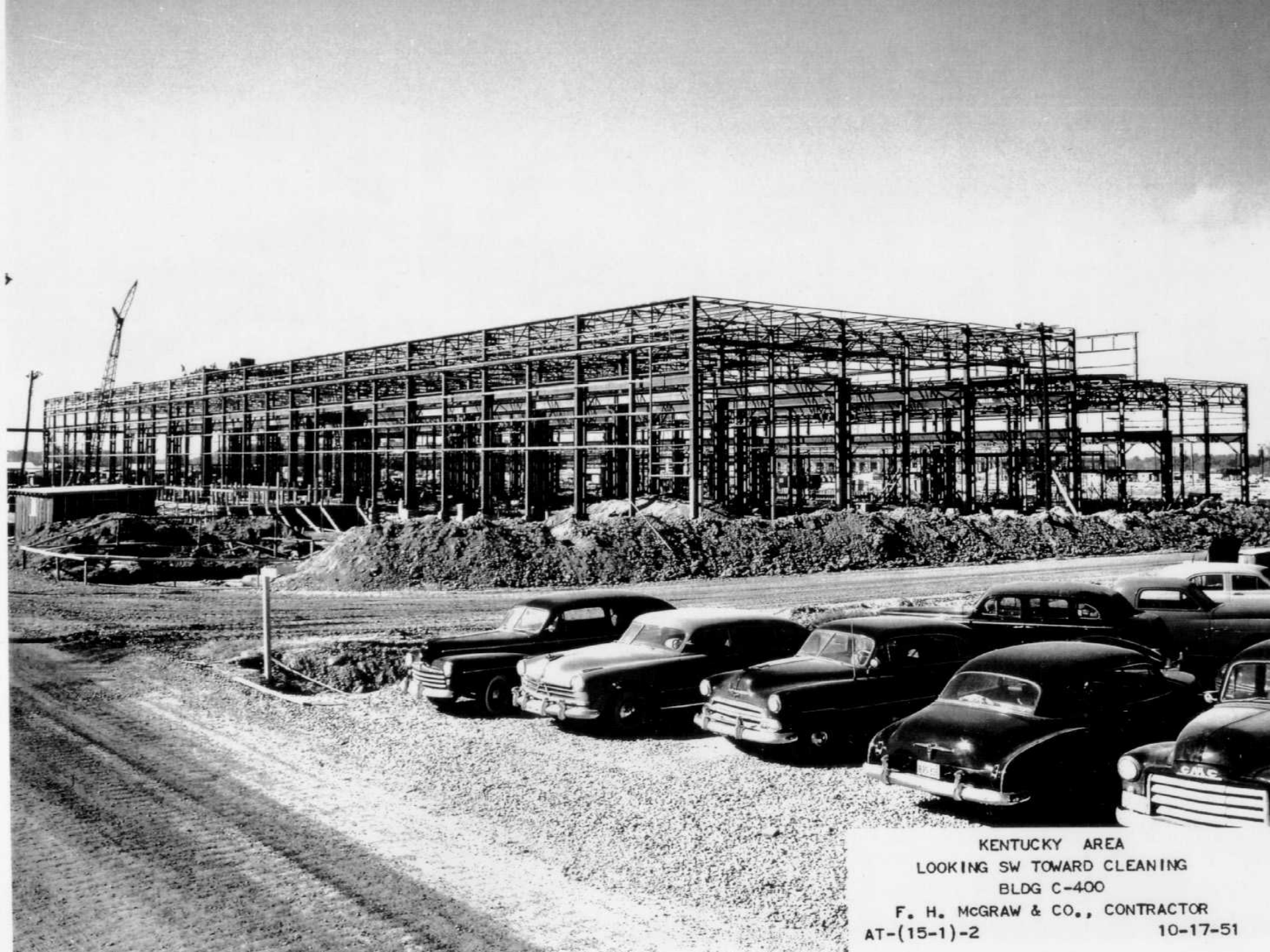
PADUCAH PLANT
PADUCAH, KENTUCKY

OPERATED BY
UNION CARBIDE CORPORATION - NUCLEAR DIVISION



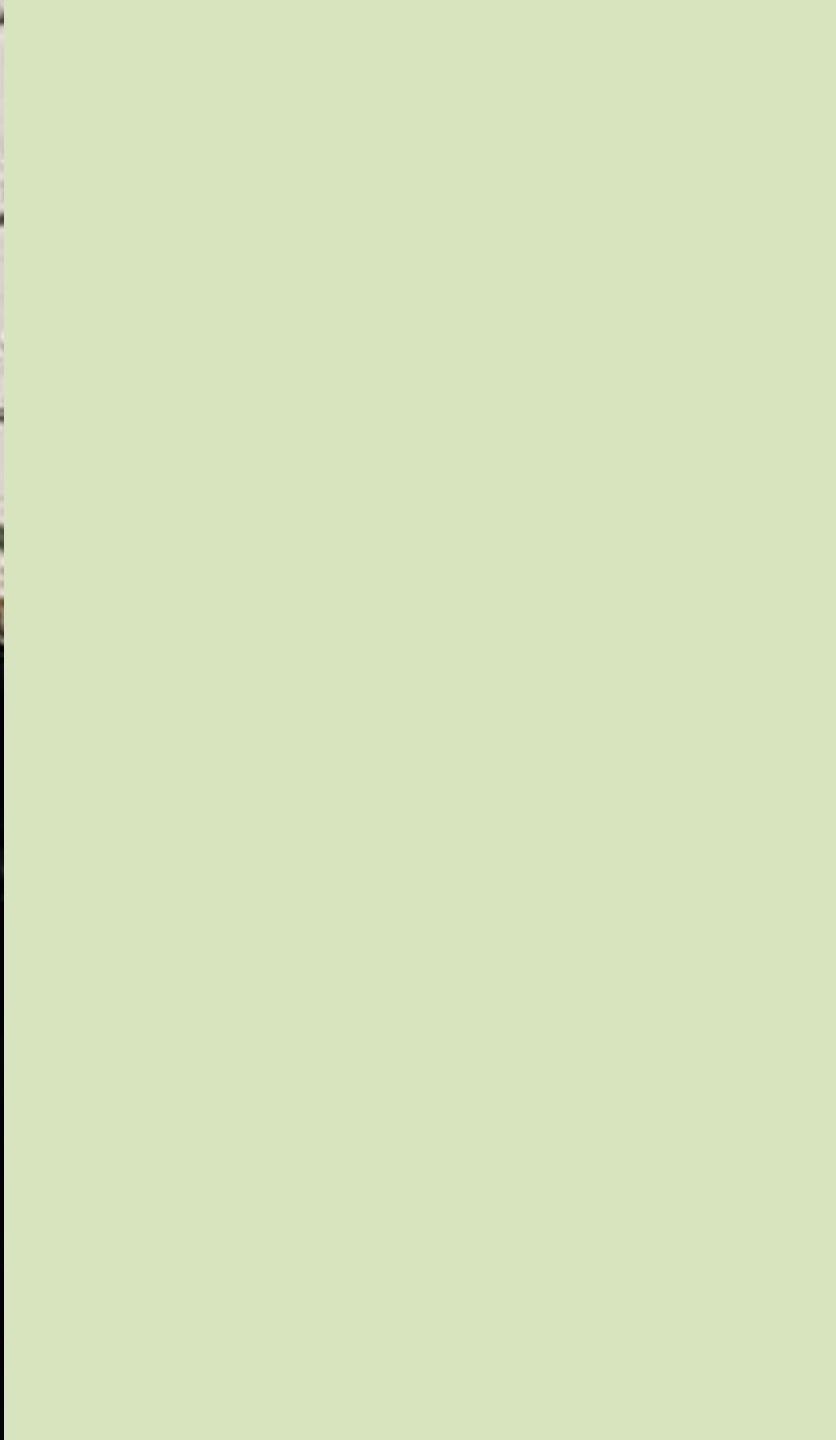


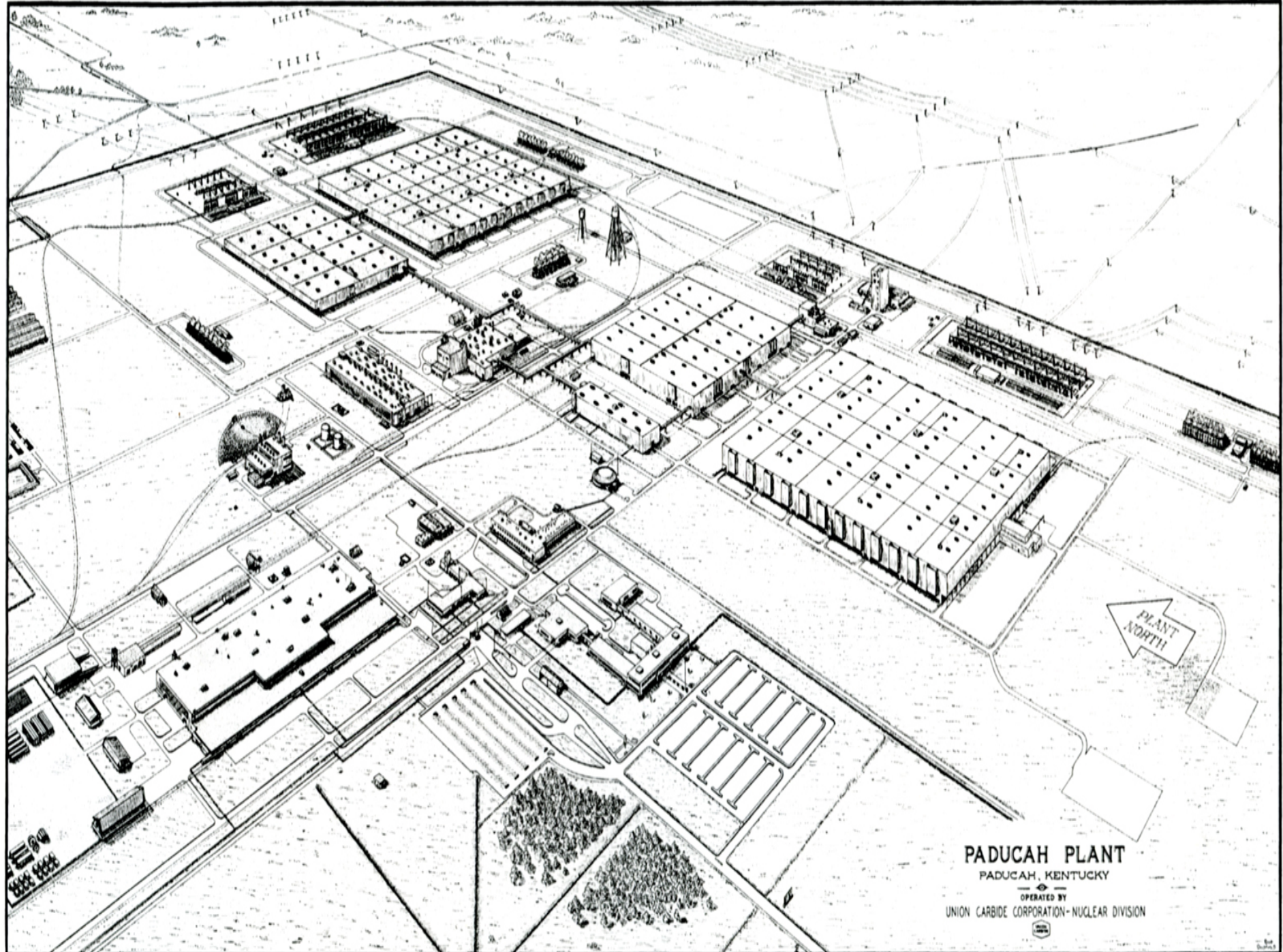
KENTUCKY AREA
LOOKING NE TOWARD CLEANING
BLDG C-400
F. H. MCGRAW & CO., CONTRACTOR
AT-(15-1)-2 10-16-51



KENTUCKY AREA
LOOKING SW TOWARD CLEANING
BLDG C-400
F. H. MCGRAW & CO., CONTRACTOR
AT-(15-1)-2 10-17-51







PADUCAH PLANT
PADUCAH, KENTUCKY

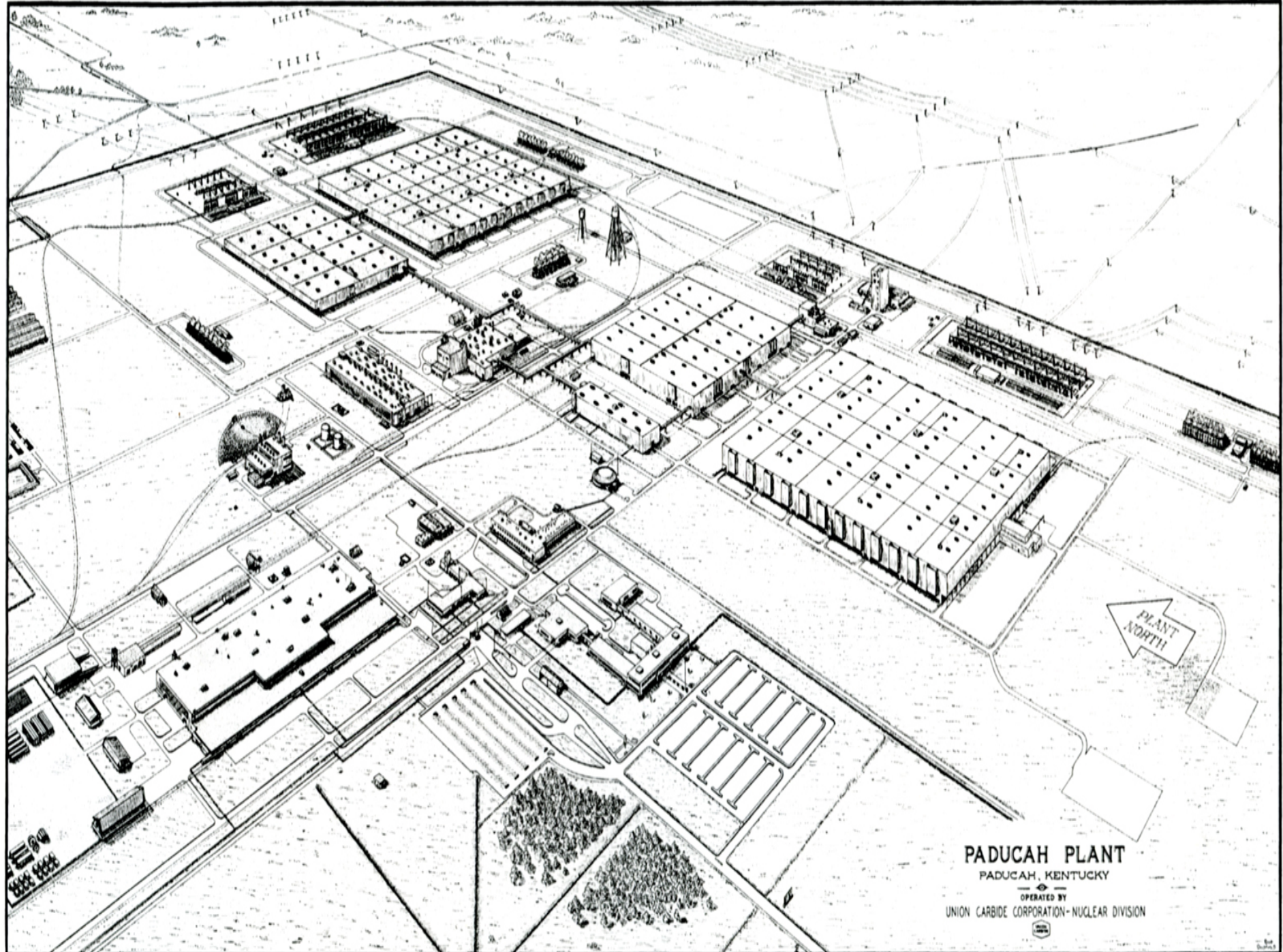
OPERATED BY
UNION CARBIDE CORPORATION - NUCLEAR DIVISION











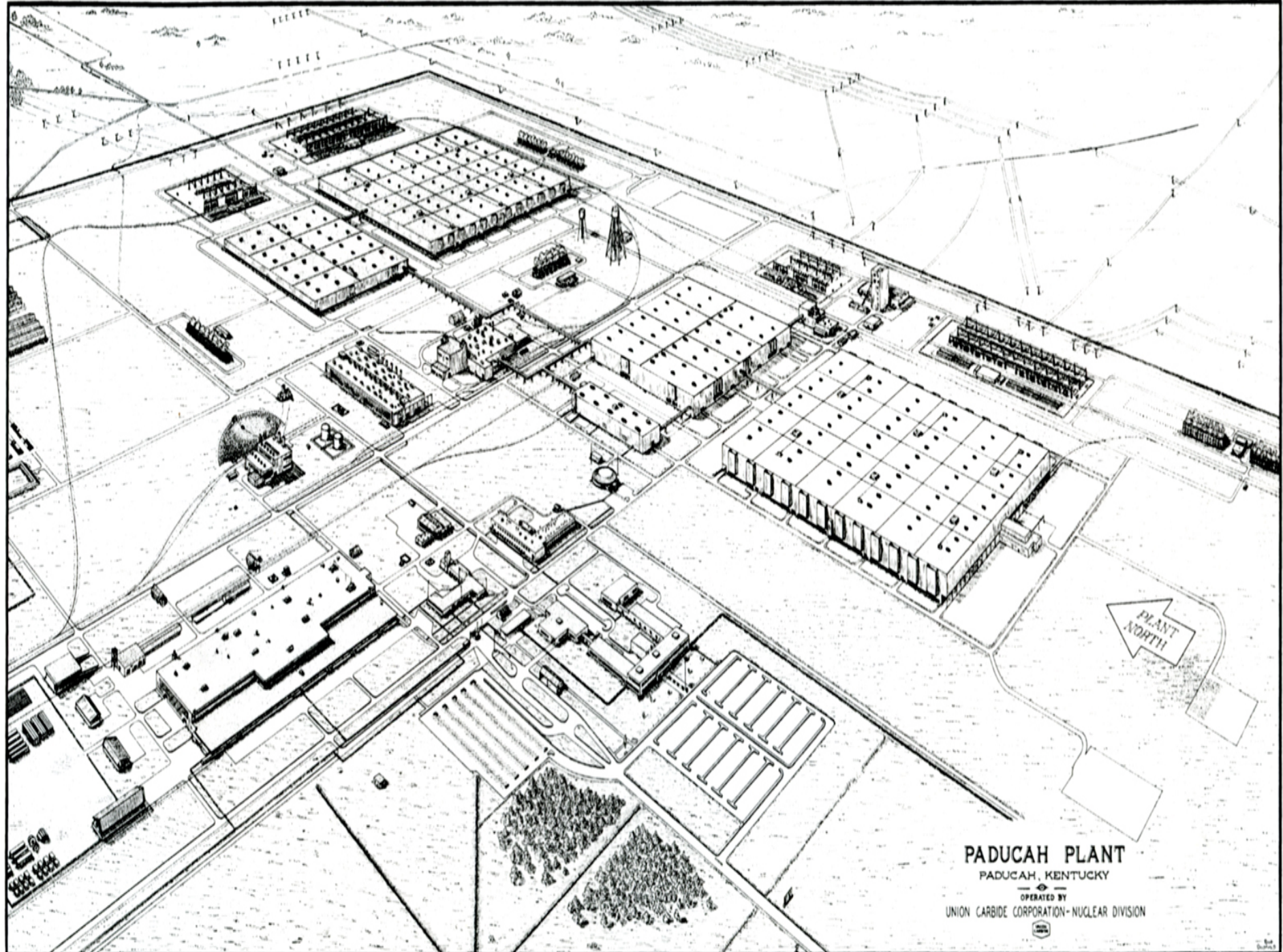
PADUCAH PLANT
PADUCAH, KENTUCKY

OPERATED BY
UNION CARBIDE CORPORATION - NUCLEAR DIVISION





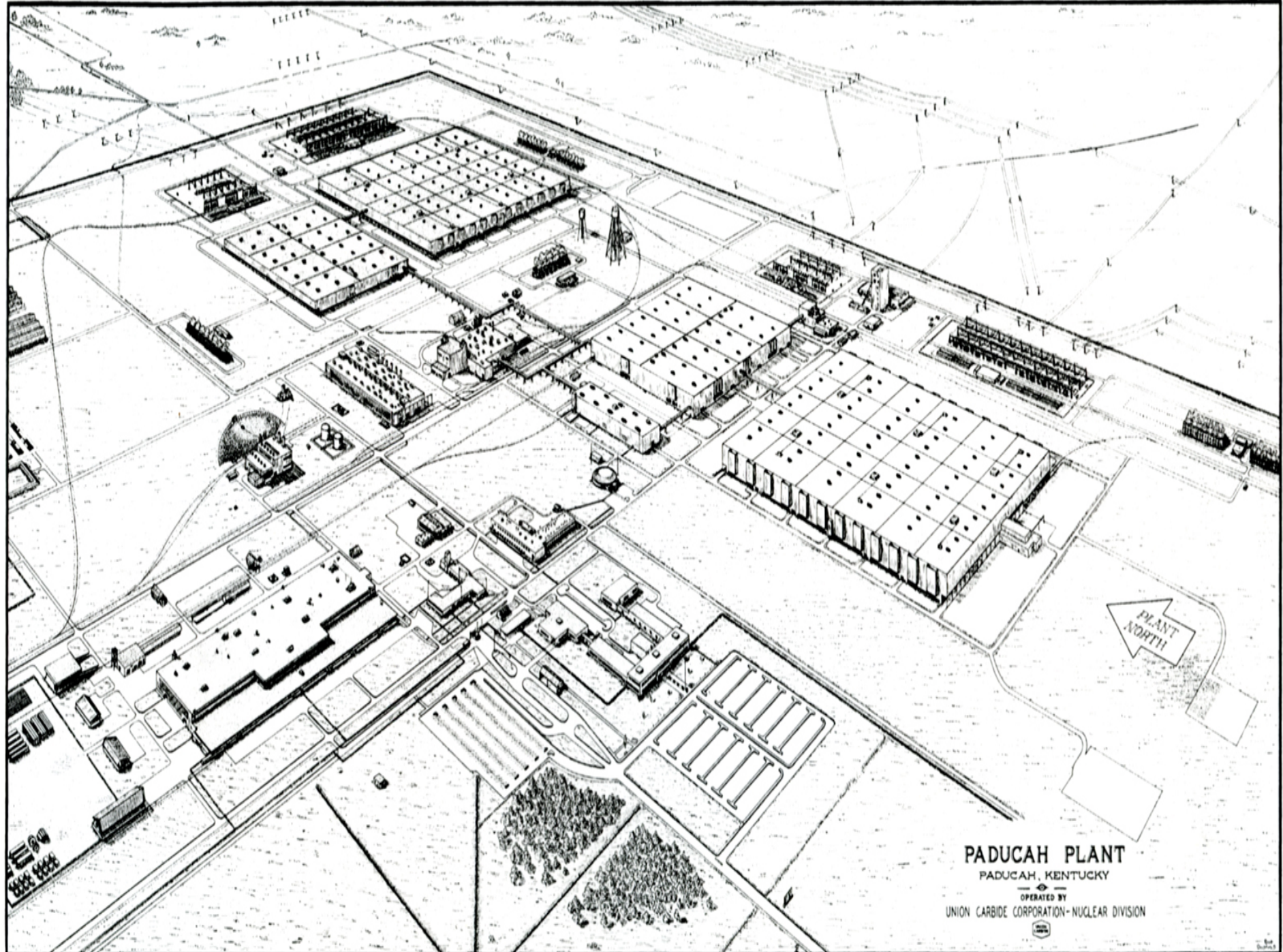




PADUCAH PLANT
PADUCAH, KENTUCKY

OPERATED BY
UNION CARBIDE CORPORATION - NUCLEAR DIVISION





PADUCAH PLANT
PADUCAH, KENTUCKY

OPERATED BY
UNION CARBIDE CORPORATION - NUCLEAR DIVISION



1000 1000
1000 1000





River Port









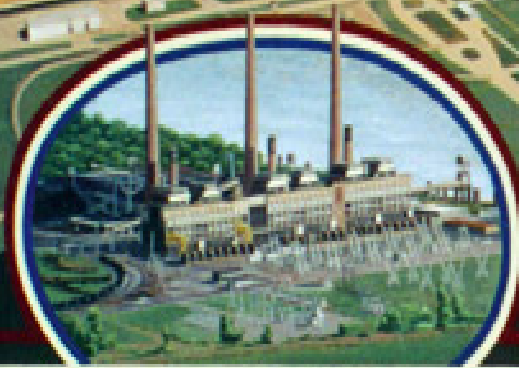
Burial Grounds

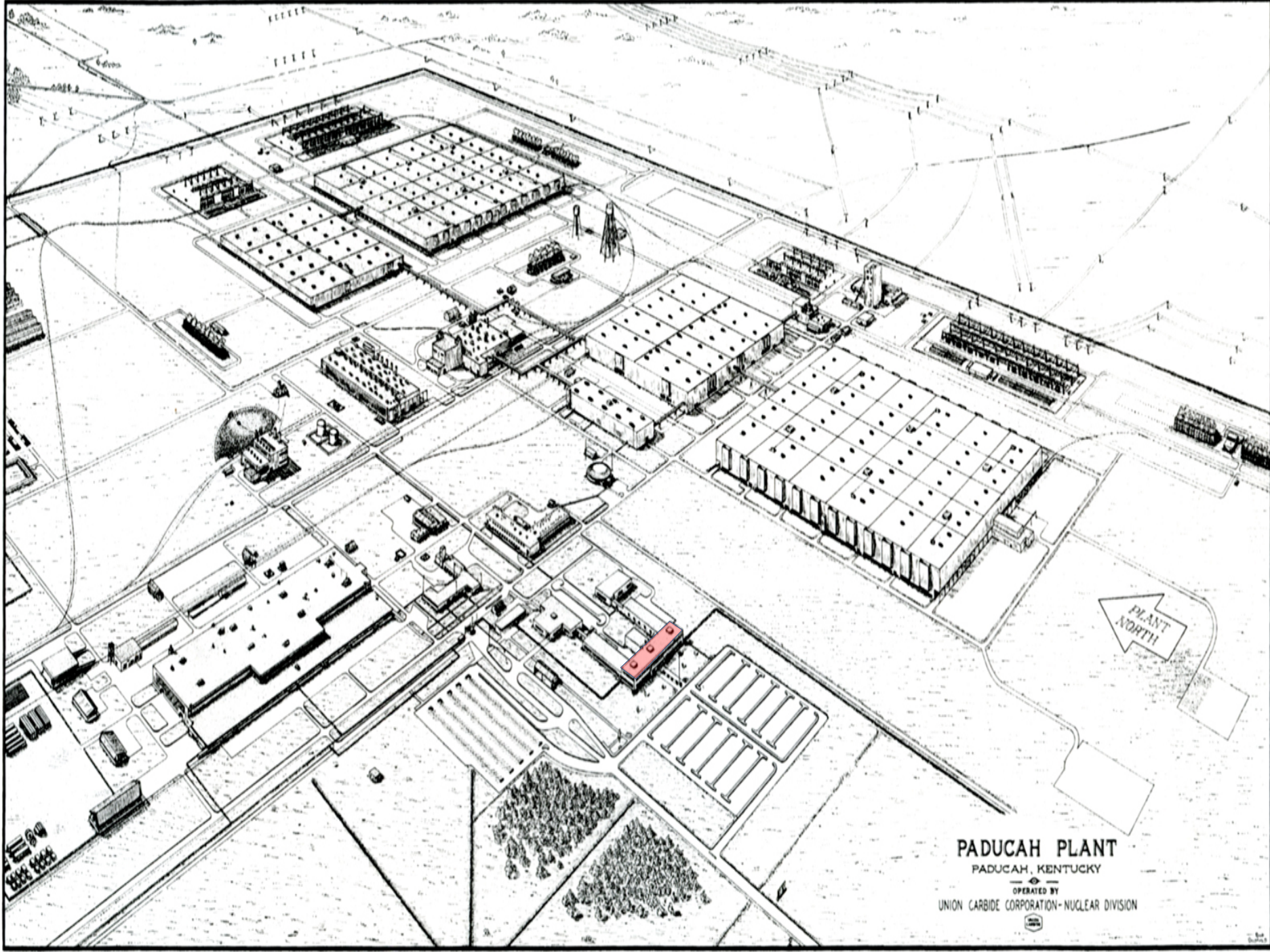
Landfills

WELCOME

to the

ATOMIC CITY





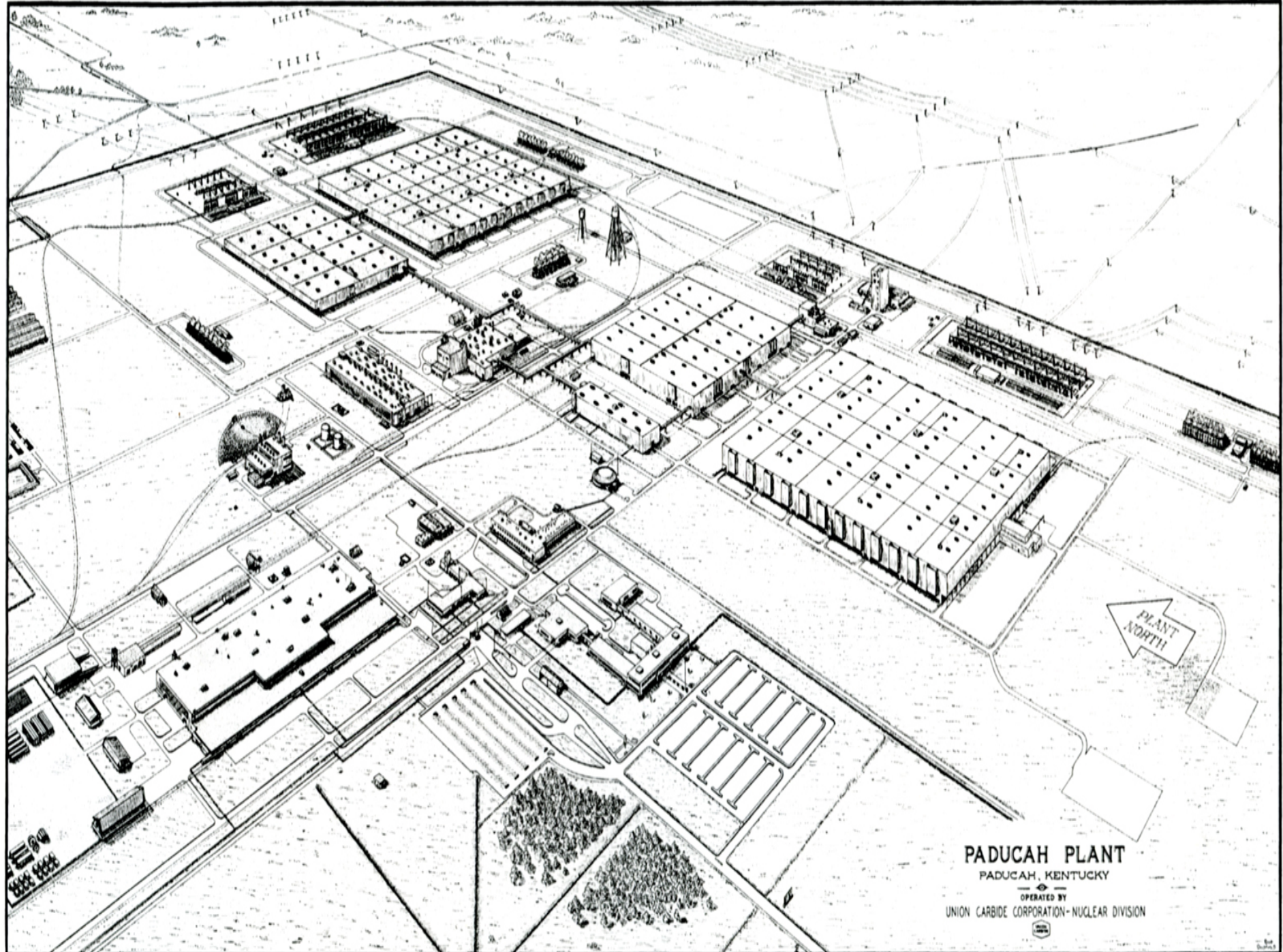
PADUCAH PLANT
PADUCAH, KENTUCKY

OPERATED BY
UNION CARBIDE CORPORATION - NUCLEAR DIVISION





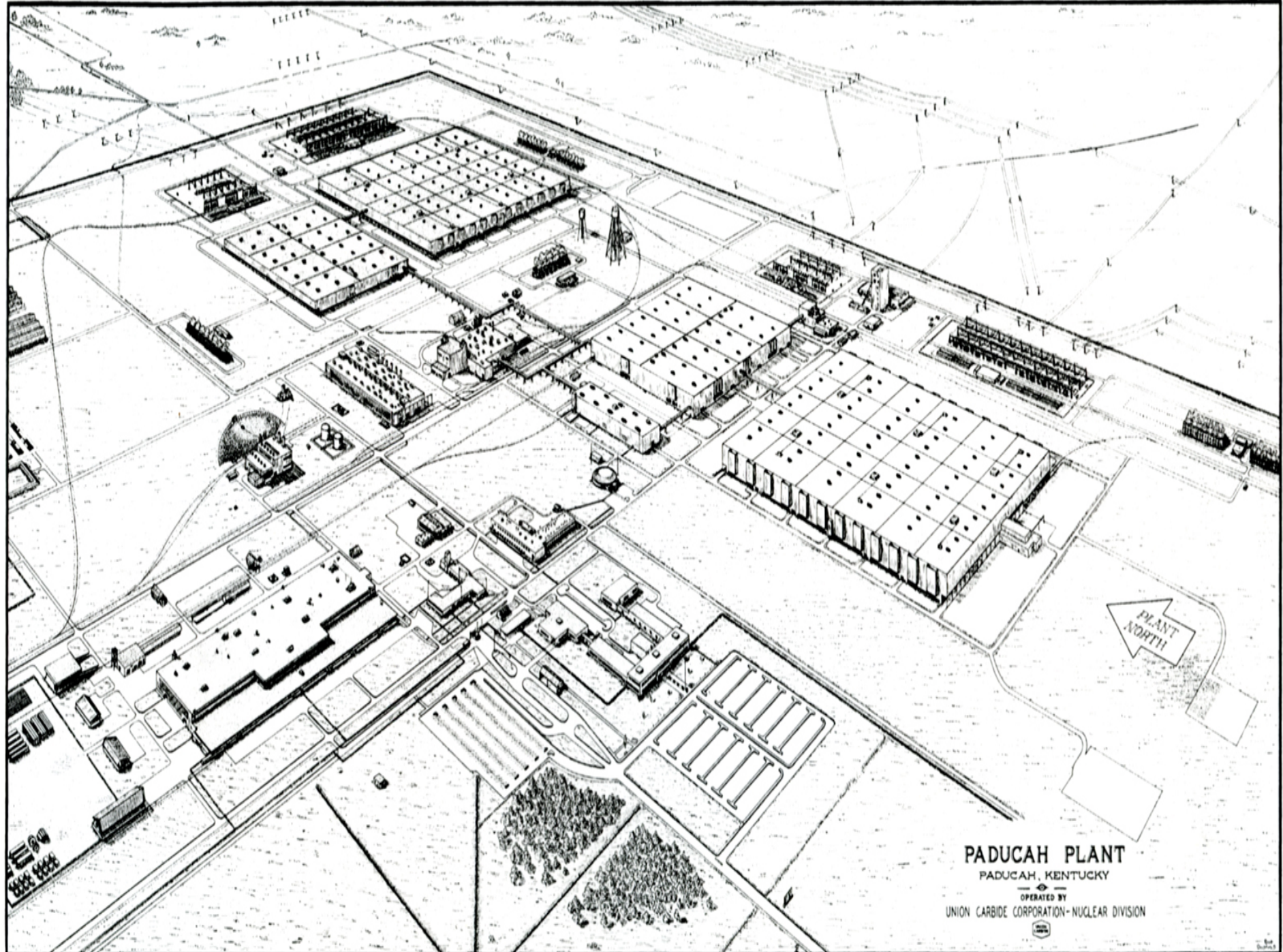




PADUCAH PLANT
PADUCAH, KENTUCKY

OPERATED BY
UNION CARBIDE CORPORATION - NUCLEAR DIVISION





PADUCAH PLANT
PADUCAH, KENTUCKY

OPERATED BY
UNION CARBIDE CORPORATION - NUCLEAR DIVISION

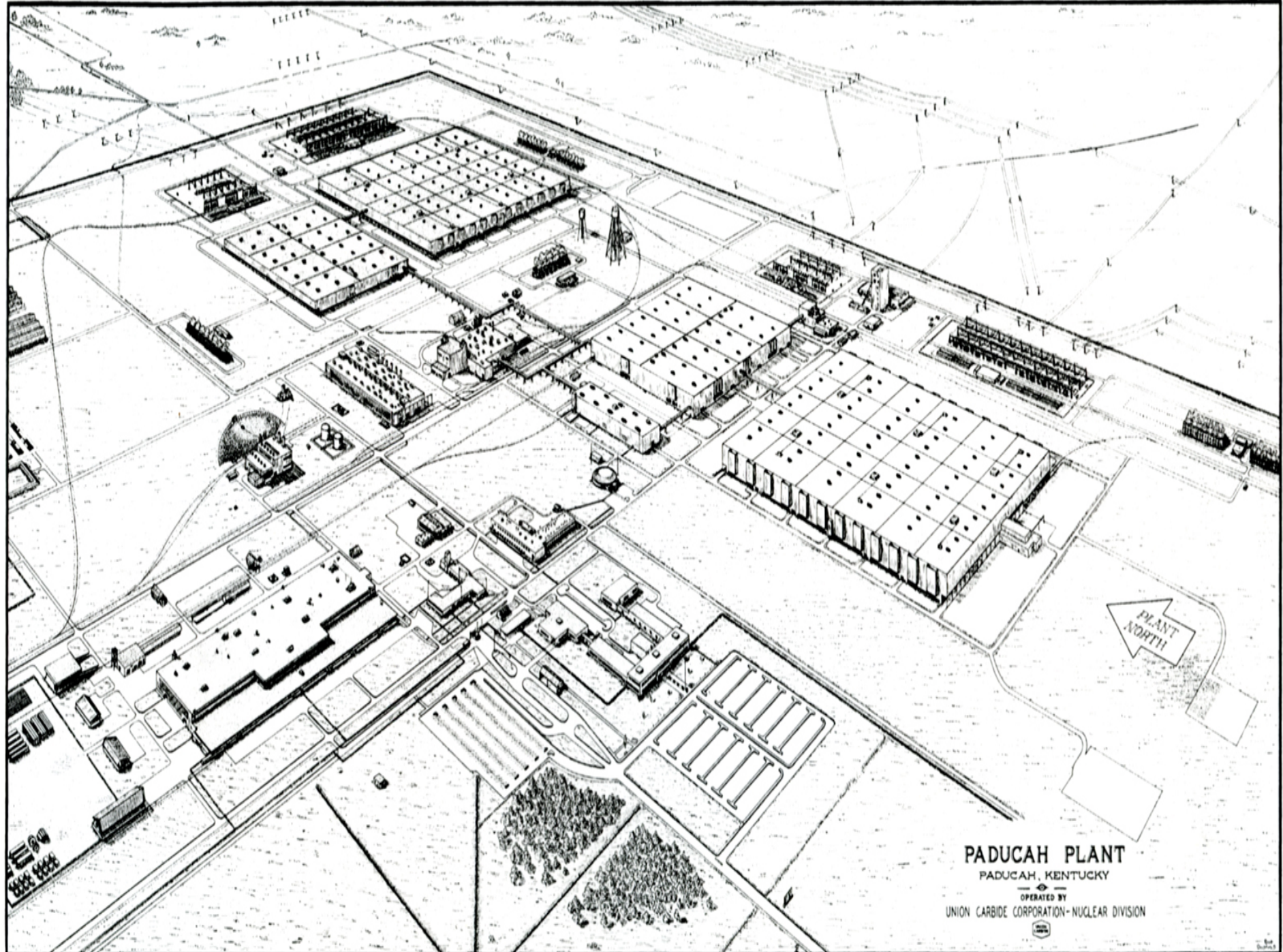






ATOMIC ENERGY
COMMISSION

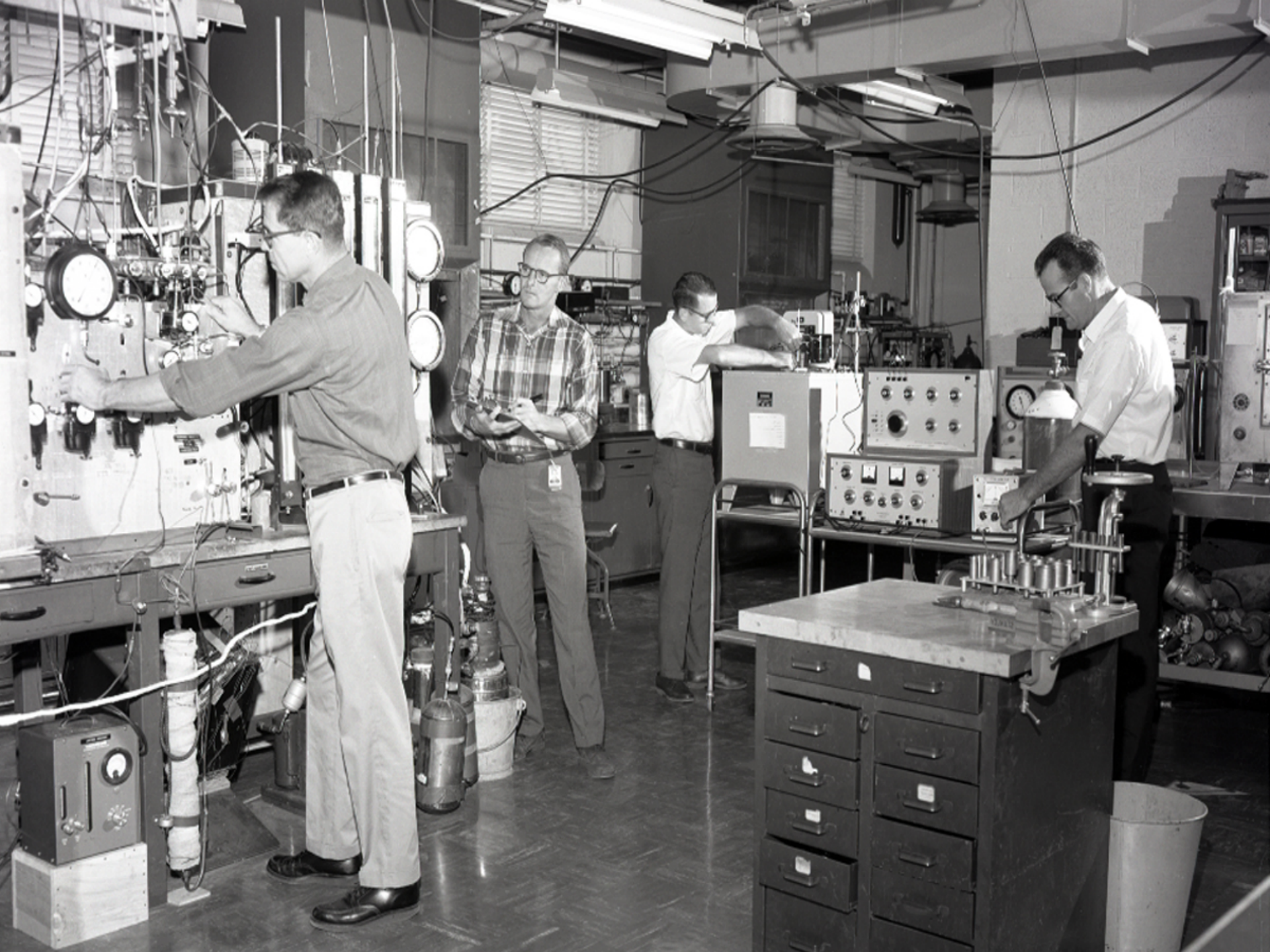




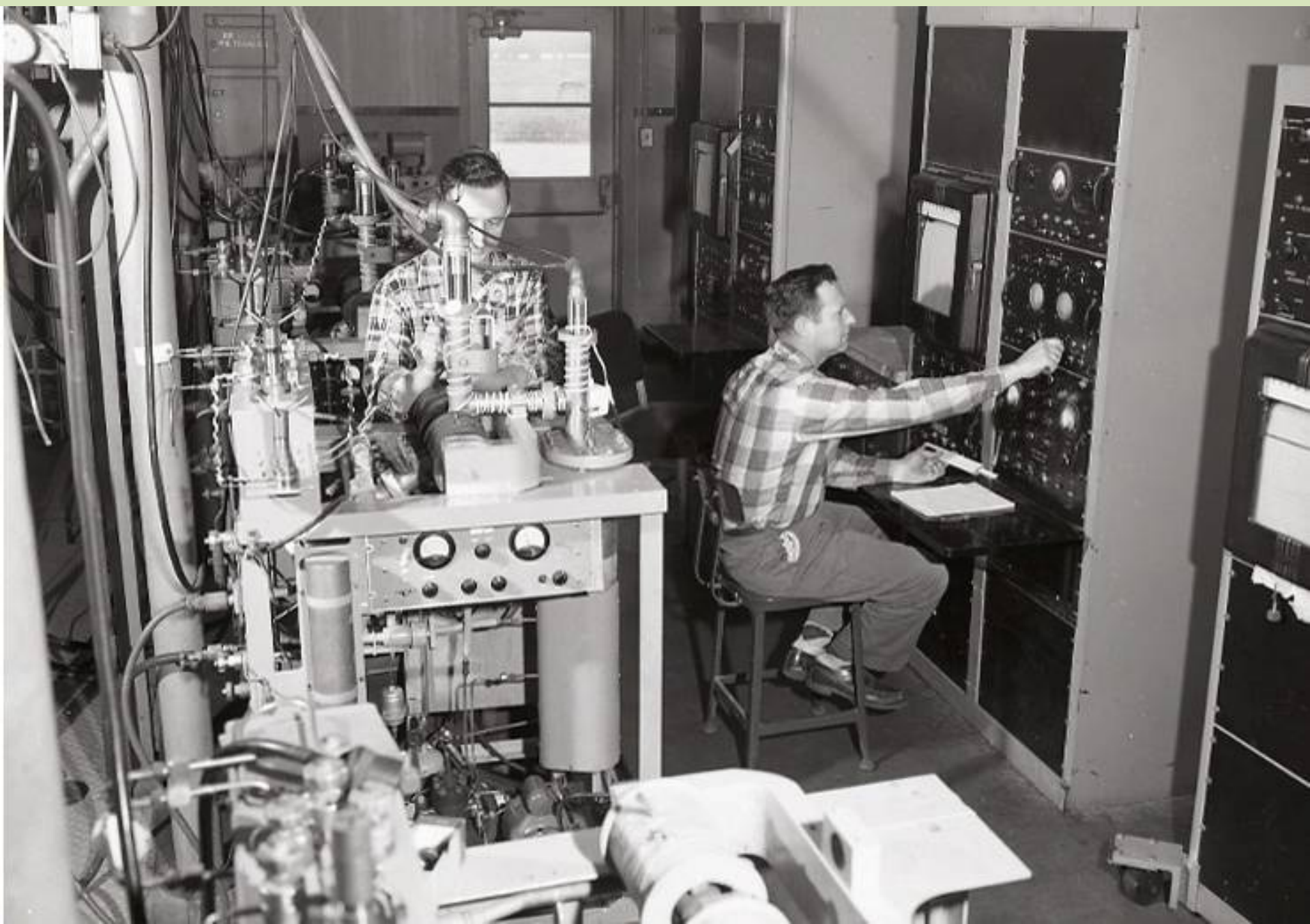
PADUCAH PLANT
PADUCAH, KENTUCKY

OPERATED BY
UNION CARBIDE CORPORATION - NUCLEAR DIVISION











**UNION CARBIDE NUCLEAR COMPANY
PADUCAH PLANT**

**AT HOME
ON THE ROAD
AT PLAY
AT WORK**

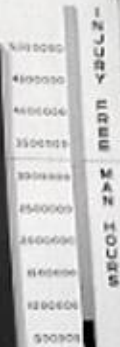
**SAFETY
EVERYWHERE**



... all the time!



**OUR PLANT HAS WORKED 86 DAYS
WITHOUT A DISABLING INJURY**





**UNION CARBIDE NUCLEAR COMPANY
PADUCAH PLANT**

**PRECAUTION
IS THE KEY
TO FIRE
PREVENTION**

FIRES DESTROY
LIVES • HOMES
JOBS

PRECAUTION IS THE *key* TO FIRE PREVENTION



**I
N
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S**



**OUR PLANT HAS WORKED 253 DAYS
WITHOUT A DISABLING IN JURY.**



5017 0 0

5024 0

5027 1

5015 1

TOTAL
LAST MONTH

15

TOTAL
LAST YEAR

323

YOU CAN PREVENT FIRES!

CHECK FOR
HAZARDS



**NO
SMOKING**



KEEP BLAZE
FROM SPREADING

WHERE IS
YOUR NEAREST
FIRE ALARM BOX
OR FIRE
EXTINGUISHER ?



PRECAUTION IS THE KEY TO FIRE PREVENTION !

DAY-BY-DAY INJURIES

INJURIES THIS MONTH

17

INJURIES TO DATE

221

THIS YEAR

LAST YEAR

Fire Department











KENTUCKY AREA
LOOKING NE TOWARD BRANCH OF PEOPLES
NATIONAL BANK ON PROJECT SITE
9-12-51





Hazards



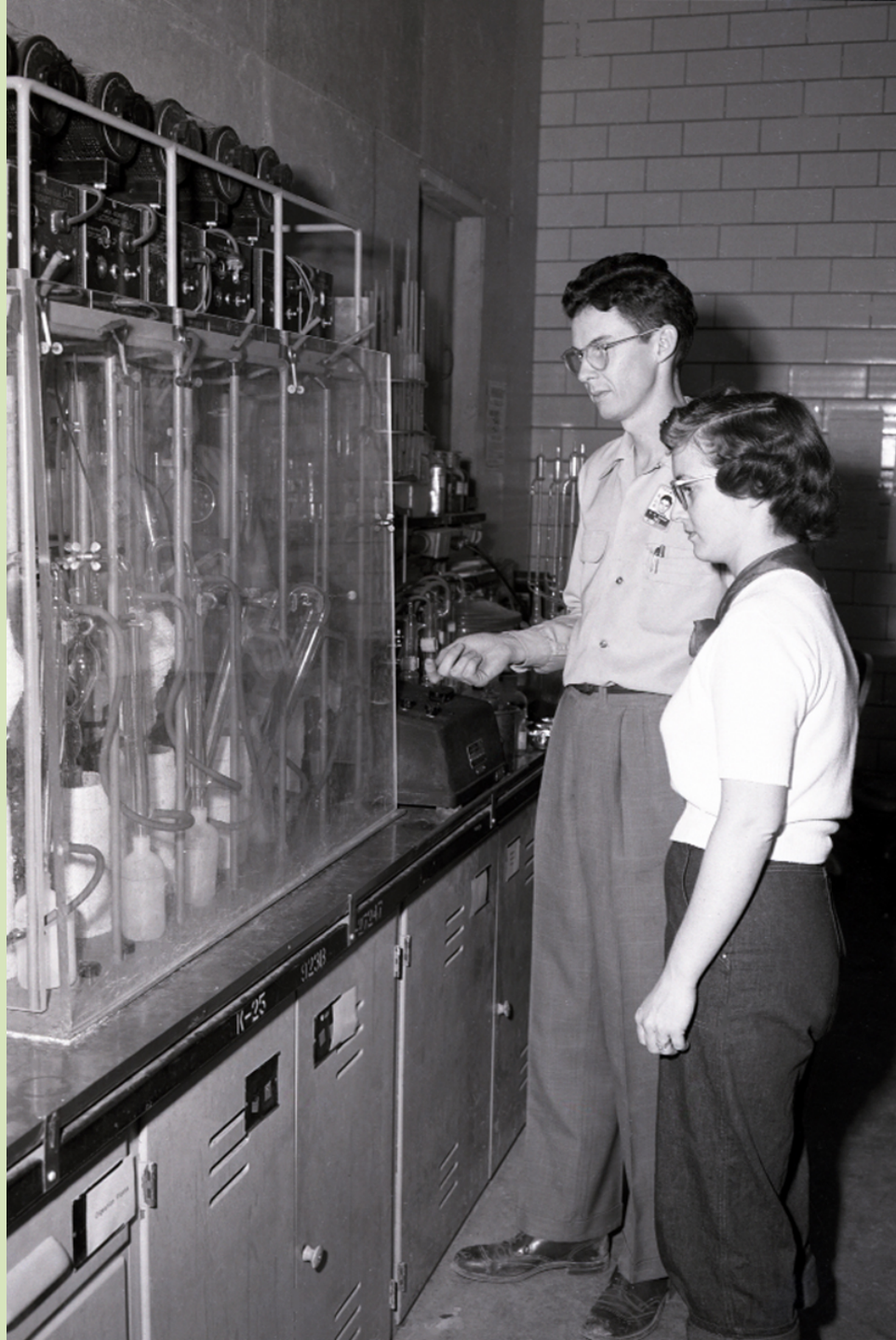


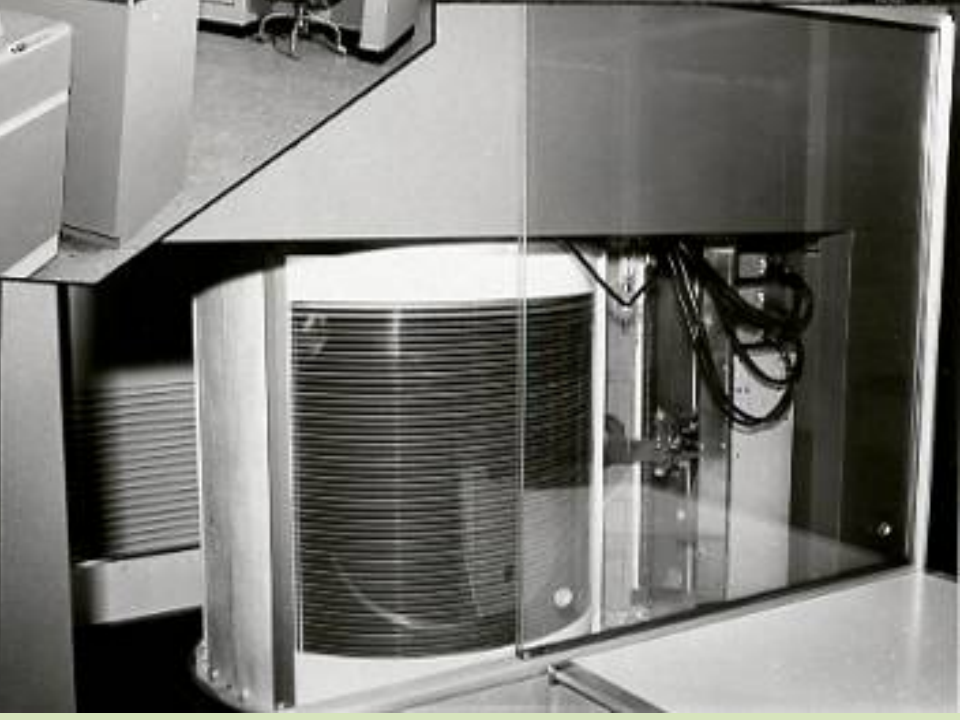
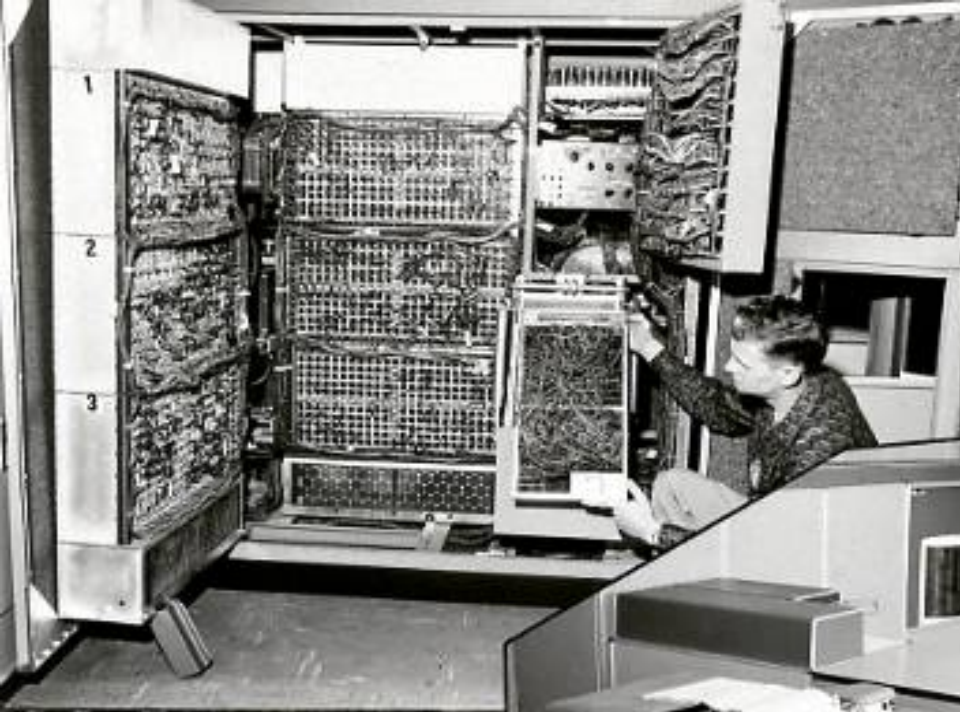
Plant Impacts

- Economic Impacts
- Traffic
- Housing
- Schools/Hospitals
- Shopping
- Infrastructure
- Recreational facilities
- Crime













ALCOHOL
EXERCISE
OVER-ENTHUSIASM
**TONGUE
LOOSENERS**
PROTECT YOURTY ORATION

AUTOMATIC AMYXIN


1000
1000

Impacts

Plant Employment







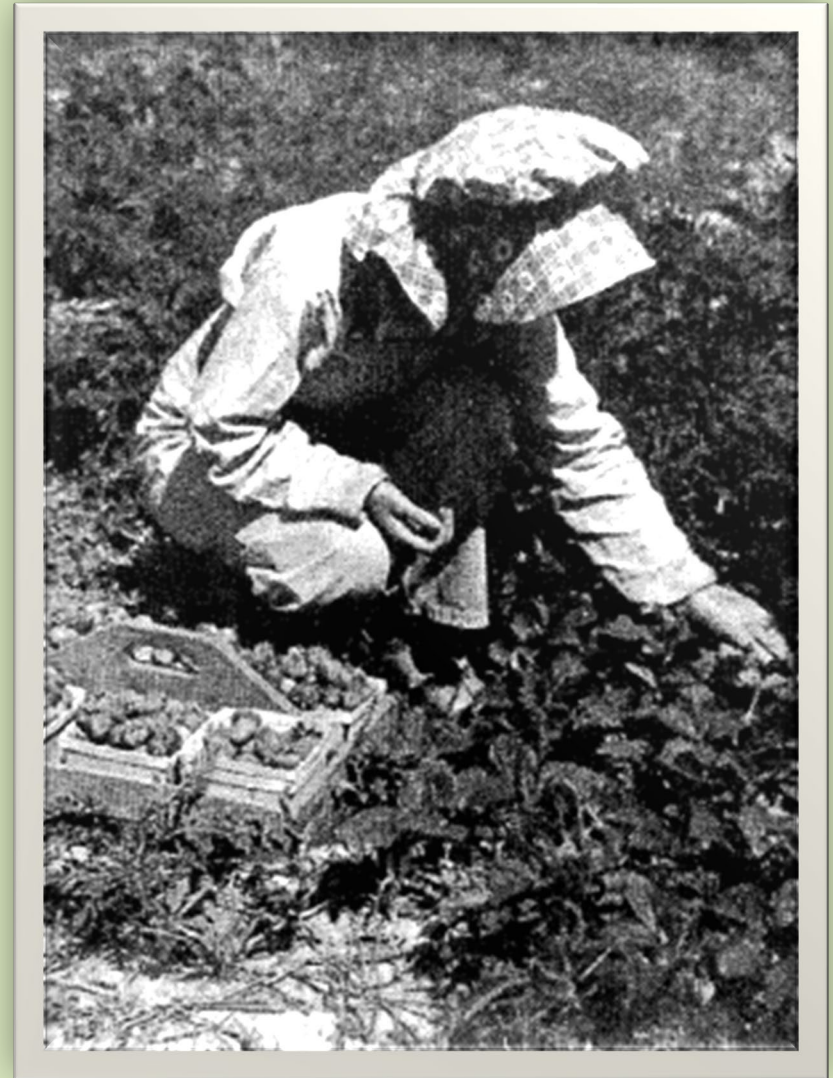
C-720
PAY POINT

Pay Day



Labor problems

Impact on Agriculture





PARKING LOT 7

TRAFFIC CONTROL

PENNEBANK BUS LINE NO.



U. S. A. E. C. PADUCAH AREA
LOOKING N. FROM INTERSECTION OF KY.
AVE. & 18th ST. AT PAVING OPERATION
75% COMPLETE
F. H. MCGRAW & CO., CONTRACTOR
AT-(15-1)-2 9-17-53

Instant Housing Crisis



KENTUCKY AREA
VIEW OF CONSTRUCTION OF TEMPORARY
BARRACKS AREA
F. H. MCGRAW & CO., CONTRACTOR



KENTUCKY AREA
GENERAL VIEW OF ERECTION OF
PREFAB HOMES
F. H. MCGRAW & CO., CONTRACTOR
FORREST HARMON, SUB-CONTRACTOR
AT-(15-1)-2 6-18-51

Business Impact

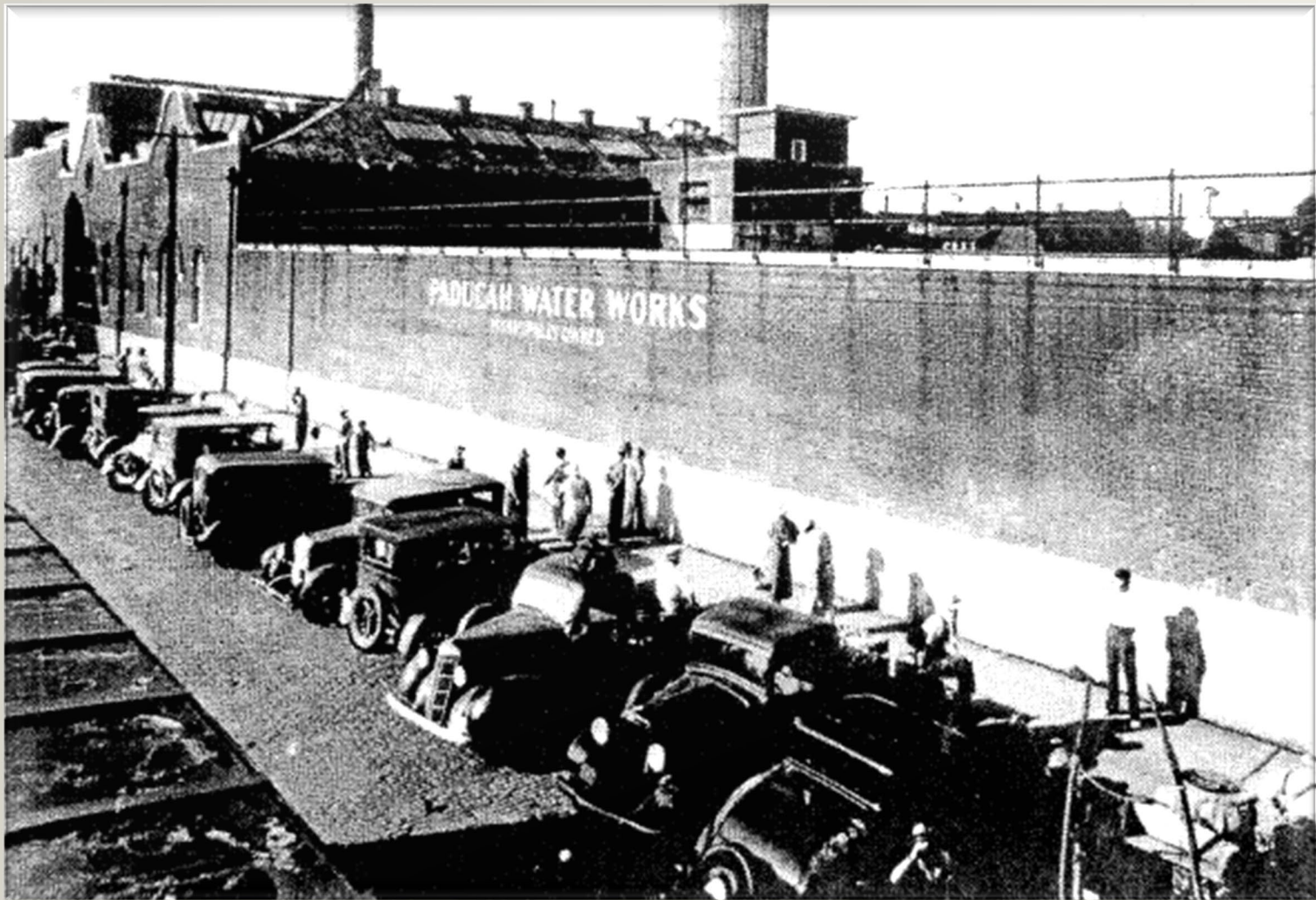
Shopping



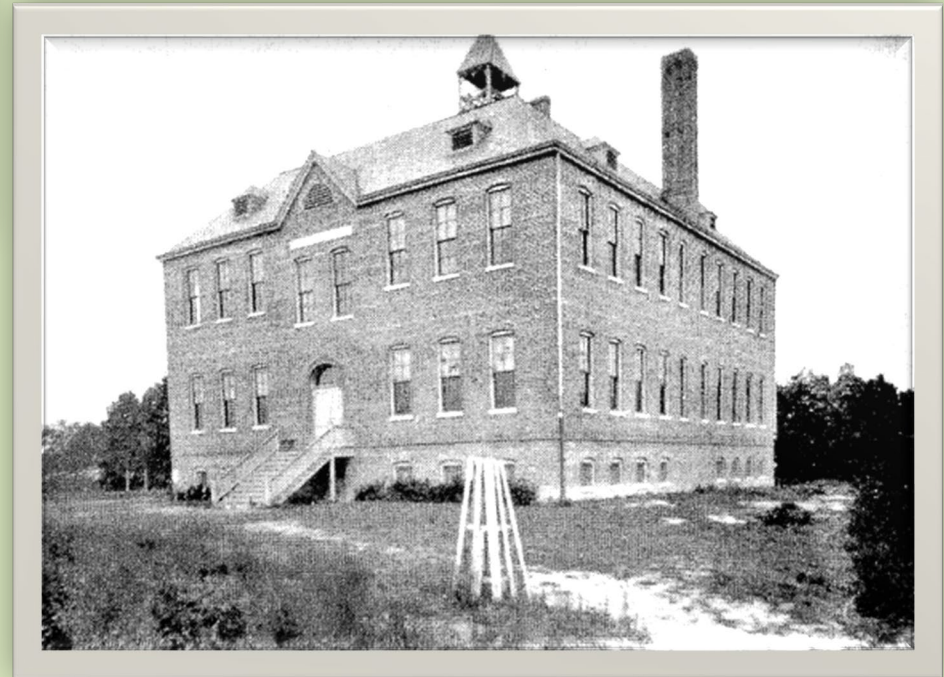
Business Impact

Public Services

Water Shortage



Overcrowded Schools



Hospitals







Say it with flowers

AUTO-LOANS

COLUMBIA

FRIGIDLY WAGGLY

SINGER

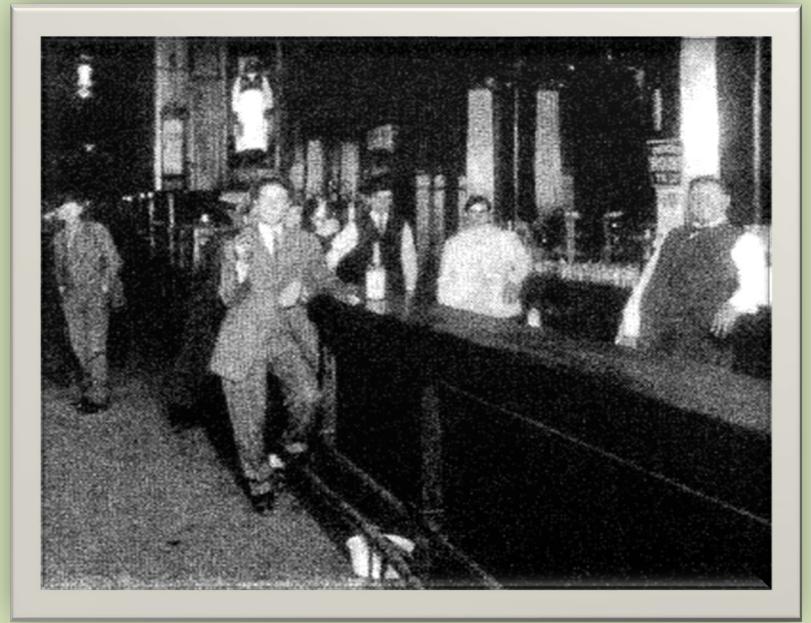
RESTAURANT

A GOOD





Entertainment



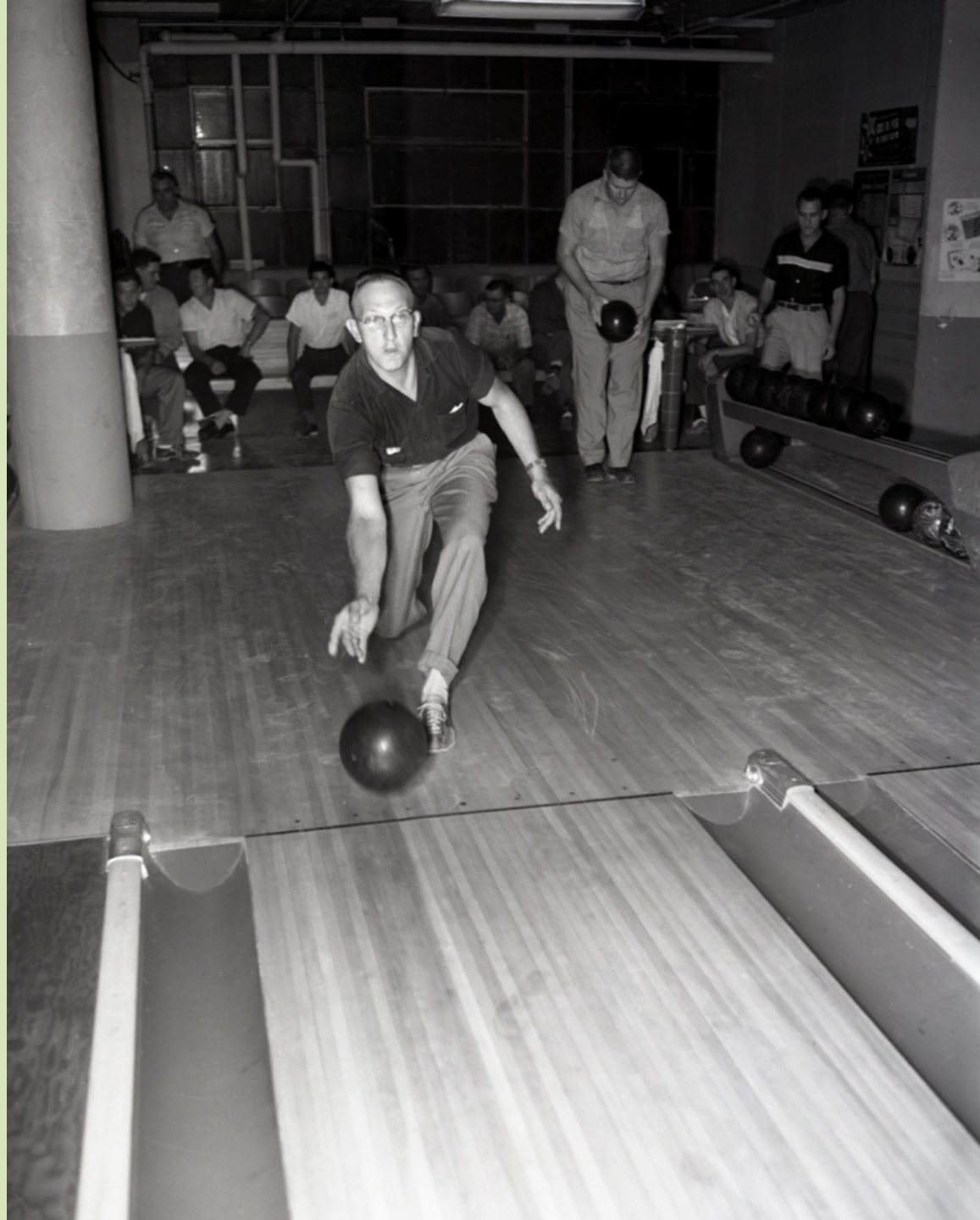
Plant Social Life









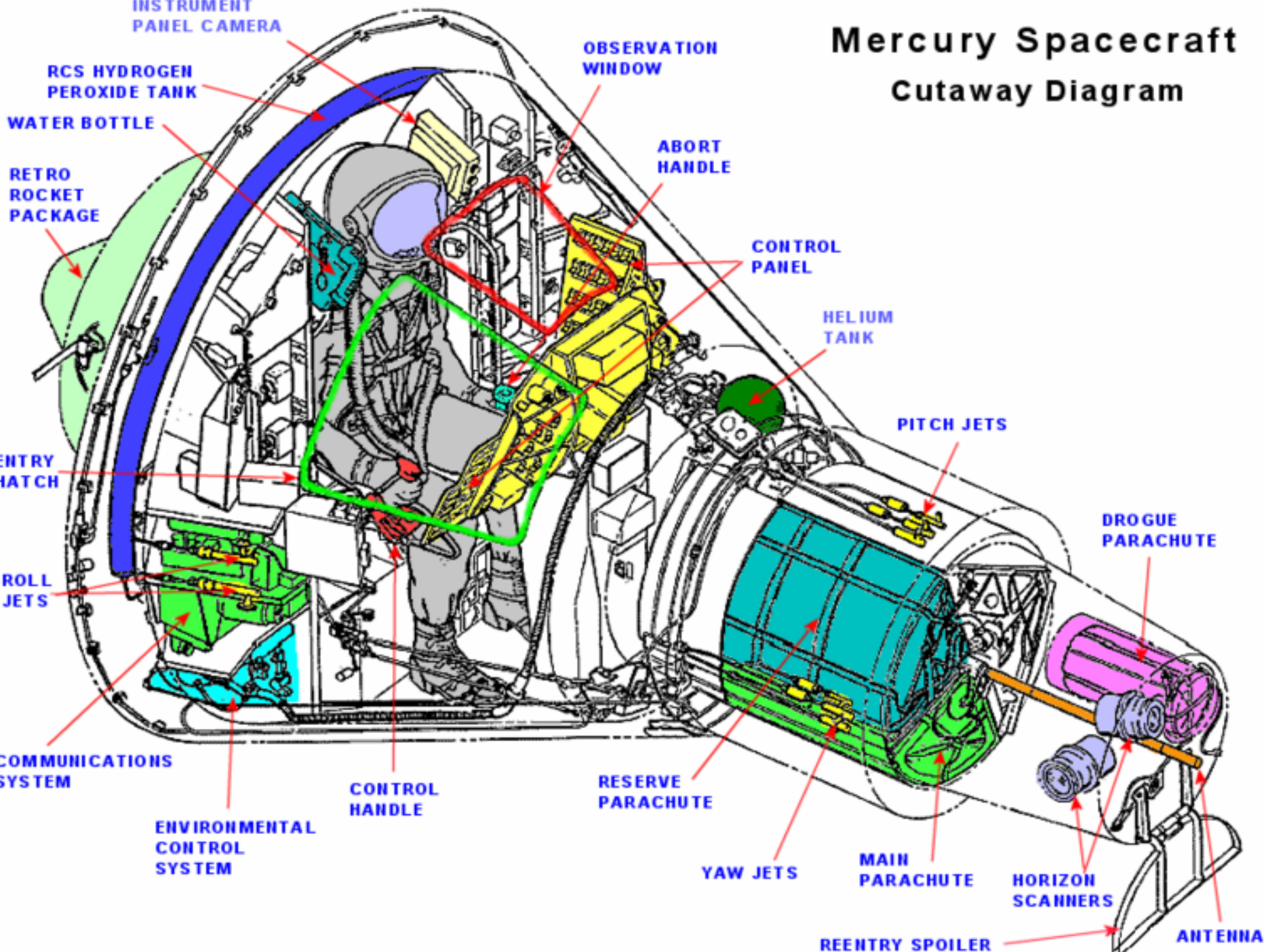


PGDP Work for Others

- Metal Recovery
- Metallurgy
- Parts Fabrication



Mercury Spacecraft Cutaway Diagram





2

4

8

8

8

8

8

8











Environmental Impacts

Environmental Impacts

Cleanup

P33

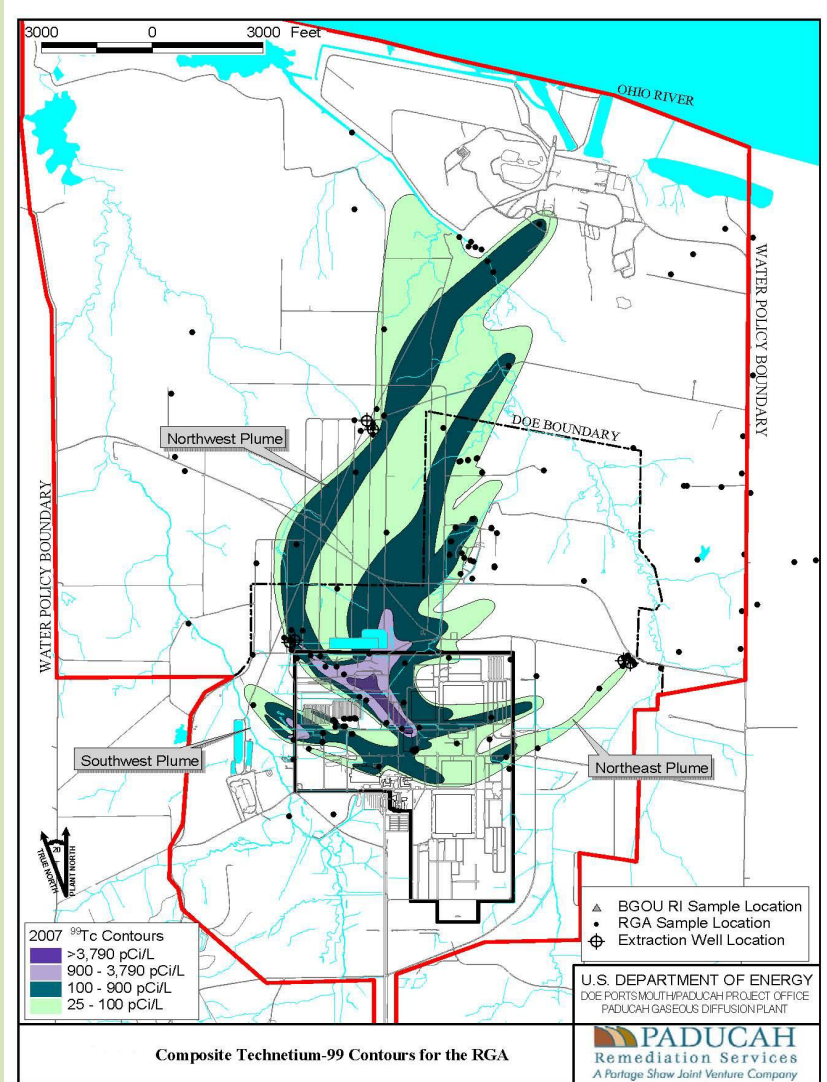
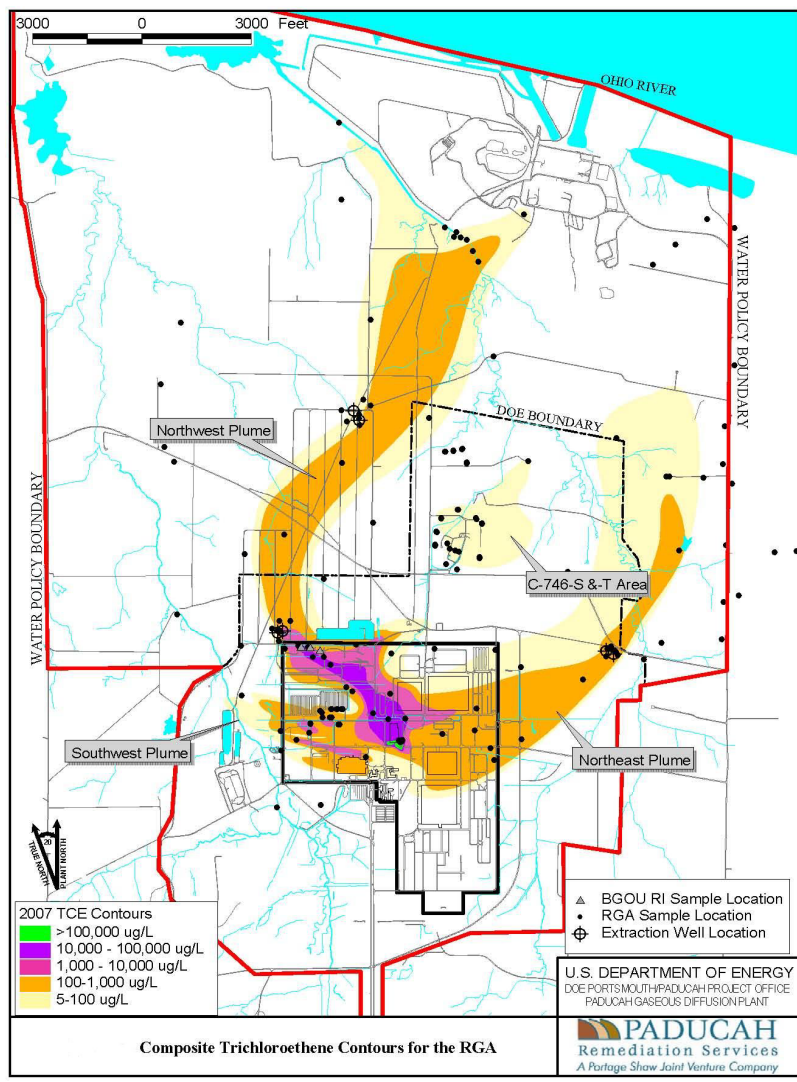


1980s to 2007

P34



Environmental Impact



Hazardous Waste Landfills



Landfills



Cleanup Efforts



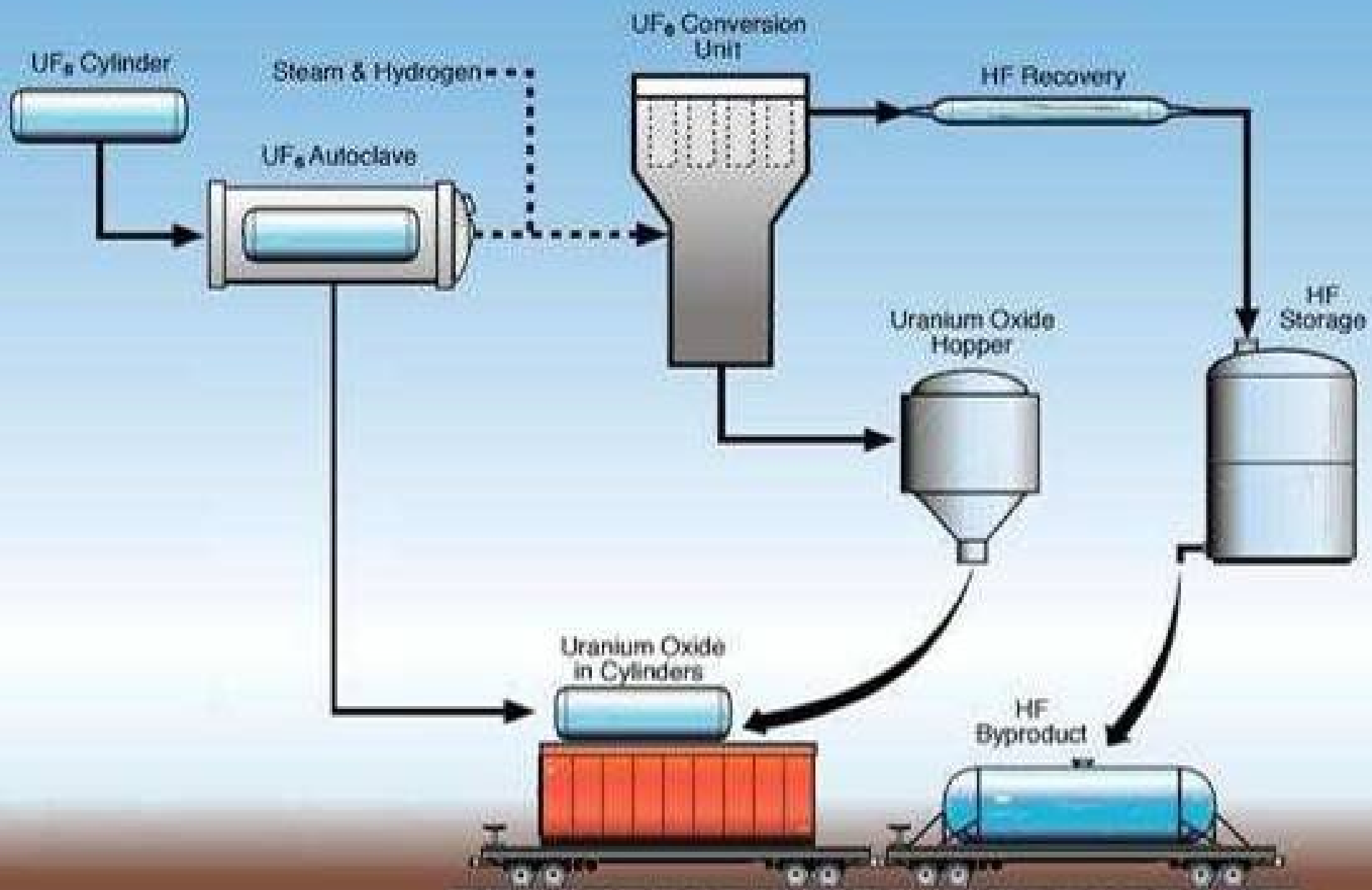
Human Health Impacts





Legacy

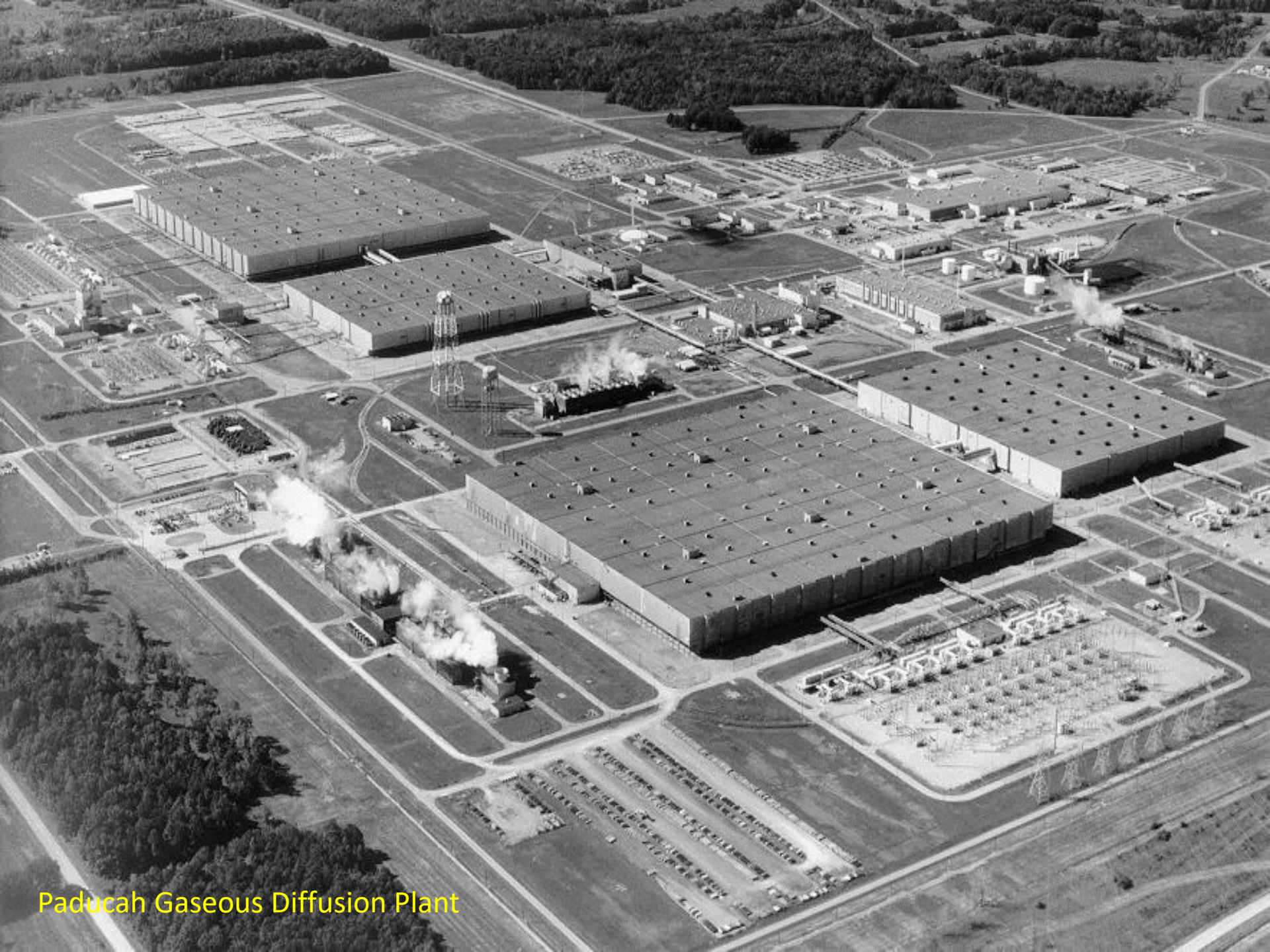
UF₆ Conversion Process







Environmental Impacts



Paducah Gaseous Diffusion Plant

NO TRESPASSING
BY ORDER OF
UNITED STATES
DEPARTMENT OF ENERGY





The Future

Megatons – to Megawatts





Woburn Rd

