SAVANNAH RIVER SITE COLD WAR HISTORIC PROPERTY DOCUMENTATION

NARRATIVE AND PHOTOGRAPHY

## CMX AND TNX SAVANNAH RIVER'S PILOT PLANTS

Aiken County, South Carolina





## **ABSTRACT**

This documentation was prepared in accordance with a Memorandum of Agreement (MOA) signed by the Department of Energy–Savannah River (DOE-SR) and the South Carolina Historic Preservation Office (SHPO) dated February 27, 2003, as well as the Consolidated MOA of August 2004. The MOA stipulated a thematic study and photographic documentation of 679-T and 678-T, known respectively as the CMX and TNX buildings. Initially, this area was called the CMX-TNX Area, and was only later identified as T Area or 600 Area (in the early years, the CMX and TNX buildings were simply listed in G Area, or the "general" area of the plant). This thematic study tells the story of these buildings, including: their beginnings; operational history and development; and closure. New South Associates prepared the narrative and Westinghouse Savannah River Company (WSRC) completed the photographic documentation. T Area (the CMX-TNX Area) was one of the very first operational facilities at Savannah River Plant. The CMX facility was constructed and started up in 1951, followed just months later by TNX.

After more than three decades of use, the successful completion of the mission to produce plutonium and tritium for national defense led to the closure of both pilot plants. CMX was the first to close in the early 1980s. This was followed by the closure of the TNX facilities in the late 1990s. Deactivation of the T Area facilities began soon after. Photographic documentation (large format photography, 35 mm black and white photography, and photo keys) was completed in 2003. The research and compilation of the narrative history were completed in 2005.

## TABLE OF CONTENTS

ABSTRACT	iii
ACKNOWLEDGEMENTS	iv
TABLE OF CONTENTS	iv
ACRONYMS	vii
I. INTRODUCTION	1
SRS COLD WAR HISTORIC DISTRICT AND ITS SIGNIFICANCE	4
DOCUMENT ORGANIZATION	5
II. THE SAVANNAH RIVER SITE COLD WAR CONTEXT	9
COLD WAR DEFENSE MISSION	9
THE MANHATTAN PROJECT	11
ONSET OF THE COLD WAR	13
SAVANNAH RIVER PLANT AS PART OF THE BIG PICTURE	15
SAVANNAH RIVER PROJECT, 1950-1955	16
DU PONT SIGNS ON	17
SITE SELECTION	18
ANNOUNCEMENT	20
SITE DESCRIPTION	21
SITE LAYOUT	23
SUBCONTRACTORS	26
UNFOLDING SCOPE OF WORK AND FLEXIBLE DESIGN	28
SRP OPERATIONS	28
HEAVY WATER PRODUCTION AND REWORK	29

FUEL AND TARGET FABRICATION	30
REACTOR OPERATIONS	31
SEPARATIONS	32
WASTE MANAGEMENT	33
RESEARCH, DEVELOPMENT, AND TESTING	33
DEVELOPMENT OF PEACEFUL USE OF ATOMIC ENERGY, AND ITS IMPACT ON SRP	37
ENVIRONMENTALISM, EXPANSION, AND CHANGE AT SAVANNAH RIVER	39
RISE OF ENVIRONMENTALISM	40
REACTOR UPGRADES, L-RESTART, 700 AREA EXPANSION, AND CLOSE OF HEAVY WATER FACILITIES	42
DEFENSE WASTE PROCESSING FACILITY AND NAVAL FUELS PROGRAM	44
REACTOR SHUTDOWNS AND DU PONT'S DEPARTURE	45
END OF COLD WAR	46
III. SRS ANTECEDENTS	49
IV. PILOT PLANT CONSTRUCTION	53
CMX/TNX LAYOUT	53
CONSTRUCTION PARAMETERS	54
PILOT PLANT BUILDINGS	55
679-T CMX BUILDING	55
678-T TNX BUILDING	62
V. EARLY OPERATIONS	67
START UP AND EARLY WORK AT CMX	67
INITIAL WORK AT TNX	70
ENVIRONMENTAL AND HEALTH PHYSICS WORK AT CMX-TNX	71

CMX-TNX STABILIZATION	73
VI. OPERATIONS HISTORY	75
POWER ASCENSION AND SPECIAL PROGRAMS AT CMX (C. 1955-1970	75
POWER ASCENSION AND SPECIAL PROGRAMS AT TNX (C. 1955-1970)	80
CMX AND TNX IN AN ERA OF STABILIZATION AND WASTE MANAGEMENT	82
VII. CLOSING ERA	89
ENDNOTES	95
GLOSSARY	105
SUGGESTED READINGS	113
APPENDIX A – ORAL HISTORY TRANSCRIPTIONS	119
MR. PAUL DAHLEN	120
MR. CLAUDE GOODLET	157
MR. DAVE HONKONEN	177
MR. DAVE MAHLBAIER	191
MR. ART OSBORNE	211
MR. AL PETERS	224
MR. DAVID WARD	244
APPENDIX B – AS BUILT DRAWINGS AND IMAGES	261
T AREA AERIALS	262
679-T/CMX BUILDING	268
678-T/TNX BUILDING	276