Finding Aid for

ENRICO FERMI ATOMIC POWER PLANT RECORDS, 1952-1975
Accession 75.2

Finding Aid Published: January 2011

BENSON FORD ResearchCenter

20900 Oakwood Boulevard · Dearborn, MI 48124-5029 USA
research.center@thehenryford.org · www.thehenryford.org

Updated: 1/10/2011

SUMMARY INFORMATION

CREATOR:	Detroit Edison Company
TITLE:	Enrico Fermi Atomic Power Plant records
INCLUSIVE DATES:	1952-1975
BULK DATES:	1960-1972
QUANTITY:	6 cubic ft.
ABSTRACT:	The records describe the design, construction, operation, and decommission of one of the earliest power generating nuclear reactors in the United States.

ADMINISTRATIVE INFORMATION

ACCESS RESTRICTIONS:	The records are open for research.
ACQUISITION:	Donation, 1975
COPYRIGHT:	Copyright has been transferred to The Henry Ford
PREFERRED CITATION:	Item, folder, box, Accession 75.2, Enrico Fermi Atomic Power Plant records, Benson Ford Research Center, The Henry Ford
PROCESSING INFORMATION:	Finding aid prepared by Pete Kalinski, May 2005

HISTORICAL NOTE

In 1955, an association of twenty regional power and industrial companies led by the Detroit Edison Company created a non-profit research-and-development company, the Atomic Power Development Association (APDA), to develop the initial proposal for a fast-breeder nuclear reactor in Michigan. Later in 1955, the APDA chartered the Power Reactor Development Company (PRDC) to design, construct, and operate the Enrico Fermi Atomic Power Plant, Unit I after federal approval of the APDA's proposal. Plant staffing included executives, managers, and technicians drawn from member companies with the bulk of employees transferred from Detroit Edison operations. Fermi I, built on the southwest shore of Lake Erie outside Detroit, Michigan, was one of the largest fast-breeder reactors in the world when construction was completed in 1960. The original design of the Fermi reactor allowed for power generating capabilities up to 430 megawatts although the plant never operated above 200 megawatts. As one of the earliest nuclear powered generating facilities in United States, the Fermi I plant construction and design process laid the ground work for subsequent nuclear power technology development through the 1970s. Fermi I was decommissioned in 1975.

SCOPE AND CONTENT NOTE

The Enrico Fermi Atomic Power Plant records consists of two series. The **Operations and Procedures series, 1956-1974 (2.5 cubic ft.)**, contains power plant and core design schematics, operating reports, manuals, and procedures binders. The procedures manuals cover pre-operational processes, plant facilities, and emergency shut down steps. The **Technical Reports series, 1952-1975 (3.5 cubic ft.)**, contains summary reports, test data, fuel pin development records, and supplier information. Of special note are analysis test reports and summaries that address the investigation and impact of the partial core meltdown that occurred at the Fermi I reactor in October, 1966. The original collection included several reactor fuel core sub-assemblies containing depleted, non-radioactive, uranium. The fuel sub-assemblies were deaccessioned in 2001 and donated to the Argonne National Laboratory-West, in Scoville Idaho, a U. S. government nuclear fuel training facility.

BOX AND FOLDER LISTING

Box no. Description

OPERATIONS AND PROCEDURES

Box 1 and Box 2

Pre-Operational Procedures: Fuel Rod End-Capping, 1958
Operations and Procedures, 1966-1972 (4 binders)

Box 3

Fermi Fuel Transport Facility Operations Manual, 1968 (3 binders)

Box 4

Monthly Operations and Testing Reports, 1963-1973 (129 reports)

Box 5

Enrico Fermi Power Plant-Summary of Design, 1959
Public Relations Material, 1963-1973
Retirement of the Enrico Fermi Atomic Power Plant, 1974
Technical Information and Hazards Summary Report, Section I – IV, 1961-1964 (10 folders)

TECHNICAL REPORTS

Analysis of the Power Feedback Relations in Fast Reactors, 1960
Calibration Measurements of Control and Safety Rods, 1968
Coolant Blockage to a Fermi Core-A Subassembly at Two Power Levels, Part I, 1969
Coolant Blockage to a Fermi Core-A Subassembly: Conditions Leading to a Fuel Melting and Reactor Scram, Part II, 1969
Data and Scripts for PRDC movie "Fuel Fabrication," 1960-1962
Deflection Propagation of Fermi Core-A Subassembly Wrapper Cans, 1969
Determination of Control Rod Float, 1963
Determination of Safety Rod Drop Time, 1966
Enrico Fermi Power Plant Unit 1: Operating Experience through 200 Mwt, 1961
Evaluation of Noise Analysis, 1968
Evaluation of the Possibilities that Corrosion Can Cause Rapid Simultaneous Failures in Primary Piping and Containment, 1969
Fuel Fabrication-History, 1959-1960
Fuel Pin End-Cap Development
- Babcock & Wilson, 1957-1958
- D.E. Makepeace, 1959-1961
- Data and Reports, Miscellaneous, 1952-1962
- Investigation Reports, 1959
- Gap Thickness Measurements of Mechanical Locked-on End-Caps, 1959
- Metallographic Examination of Four Fuel Pins that Burst at the End-Cap Junction in a Sodium Endurance Test, 1959
- Methods of Forming Mechanical End Closures on Zirconium Clad U-10 without Mo Fuel Pins, 1959

TECHNICAL REPORTS (CONT.)

Fuel Pin End-Cap Development (cont.)

Box 6

Sylcor, 1959
Test Results, 1959
Tests, Photos, 1959

Handbook of Maintenance Instructions: Beta, Gamma Hand and Foot Monitor Model ALM-2, 1960

Investigations of Core Reproducibility, 1965

Manual of Operation: Juno Radiation Survey Meter, Models SRJ-6 and HRJ-6, 1960

Material Specification for AISI 304, 316, 347 and 348 Stainless Steel Seamless Tubes, 1957

Measured and Calculated Response of Neutron Spectrum Indices in the Enrico Fermi Fast Breeder Reactor, 1969

Measurements and Calculation of the U-235 and U-238 Fission Distributions and U-238 Capture Distributions, 1957

Measurements of Sodium Worth, 1966

Measurements of Some Reactivity Effects in the Enrico Fermi Reactor, 1967

October 6, 1966 Fuel Damage Incident at Enrico Fermi Atomic Power Plant, Status as of February 24, 1967

On the Doppler Effects in Fast Reactors, 1957

Operating Control Rods, 1962

Oscillator Tests, 1967

Power Coefficient Measurements, 1967

Reactivity Changes in Meltdown Configurations of Fermi Core-A Subassembly at Two Power Levels, 1969

Reactor Components Tests, 1962

Safety Rods, 1962

Setback Tests to Determine Thermal Transients and Control Performance, 1968

Specification for Core and Blanket Elements and Core and Blanket Sub-Assemblies, #30-8, revisions 2-4, 1958-1960

Structural Response of a Fermi Sub-Assembly Wrapper Can and Safety Rod Guide Tube to Pressure Pulses, 1969

Summary of Fission Product Analysis Results to Date, 1966-1967

Summary of the APDA Fuel Development Programs, 1961

Temperature Response to Power Inlet Coolant Temperature and Flow Transients in Solid Fuel Reactors, 1959

Thermal Power Calibration, 1968

Transfer Functions from Reactivity Pulses Generated by the Regulating Rod, 1967

Transient Effects of Loss of One Coolant Circuit, 1968

Worth Measurements of Core and Blanket Sub-Assembly Materials, 1965