

DOE/ER/75352-71

FINAL
SUMMARY REPORT

for

Sharing of the
RPI Reactor Critical Facility (RCF)
DOE Grant DE-FG07-87ER5352 *ER75352*
for the period of
January 1988 to September 1995

Dr. Donald R. Harris
Director RCF
Rensselaer Polytechnic Institute
Troy, NY 12180

September 1, 1995

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RPI REACTOR CRITICAL FACILITY (RCF) SHARING PROGRAM

Introduction

Rensselaer Polytechnic Institute (RPI) has participated for a number of years in Sharing of the Reactor Critical Facility (RCF) under the U.S. Department of Energy University Reactor Sharing Program. In September of each year a Sharing invitation is sent to 92 public and private high schools and to 74 colleges and universities within about a 3 hour drive to the RCF (Appendix B). Each year about 10 such educational institutions send groups to share the RCF.

RCF Sharing

January 1988 through September 1995

In the report interval there were 51 sharing events, 17 with colleges and the remainder with high schools and other organizations. The total attendance was 973 (Appendix A). Other schools indicated interest in sharing but were unable to do so because of financial problems, usually for transportation. Each sharing event involved (1) a tour of the facility, (2) a discussion of nuclear power production, safety, and economics, (3) operation of the reactor by each participant, and (4) an experiment which the class can plan, execute, analyze and report on. This experiment usually was the measurement of the reactivity worth of a fuel pin. When a fuel pin is removed from the regular array of fuel pins in the reactor, water fills its place. The reactor core is "water-starved" so as to make the temperature coefficient of reactivity negative, a safety requirement in all western reactors (not Chernobyl). Thus when the fuel pin is removed the reactivity increases, a perhaps surprising result and one of great interest to the sharing groups.

About 3 contact hours are required for each sharing event, involving 2-5 RPI personnel (up to 15 visitors are allowed per RPI staff person). About 3 additional hours are required per Sharing event for necessary maintenance, surveillance, and other activities.

Appendix A.

RCF Sharing Events January 1988
through September 1995

<u>DATES</u>	<u>SHARING GROUPS</u>	<u>SHARING ATTENDEES</u>
04/16/88	STEP	16
04/21/88	Vermont Technology College	12
04/23/88	Troy High School	9
06/07/88	Linton High School	8
11/18/88	New York State Health Department	4
12/02/88	Albany Academy for Girls	6
04/19/88	Adirondack Community College	15
12/16/88	Fulton-Montgomery Community College	16
01/20/89	LaSalle Institute	38
05/02/89	Vermont Technology College	7
02/04/89	STEP-GTE Physics Class	17
03/10/89	Adirondack Community College	17
04/14/89	Troy High School	23
04/07/89	Cambridge High School	15
06/21/89	Sch. Fire Department	35
12/04/89	Albany Academy for Girls	5
12/06/89	Wilton High School	17
12/20/89	Fulton Community College	11
03/22/90	St. Ambrose	31
04/26/90	Vermont Technology College	10
05/02/90	US Military Academy West Point	20
05/11/90	Catholic Central High School	46
09/29/90	Troy High School	30
03/06/91	U.S. Navy	6
04/16/91	US Military Academy West Point	11
04/24/91	KAPL	4

Continued
Appendix A.

		Sharing Attendees	Total
05/01/91	US Military Academy West Point	13	
05/08/91	Amsterdam High School	21	
05/21/91	Troy High School	7	
05/28/91	Burnt Hills High School	16	
08/02/91	Oneonta High School	25	
02/28/92	Adirondack Community College	7	
03/04/92	Fulton Community College	11	
12/07/92	Amsterdam High School	15	
05/12/92	Stillwater High School	14	
05/12/92	Williams College	3	
05/18/92	Guilderland High School	47	
05/19/92	Guilderland High School	45	
05/20/92	Guilderland High School	60	
08/04/92	State University of NY College at Oneonta	26	
03/27/93	American Nuclear Society Student Conference	28	
05/06/93	Vermont Technology College	6	
12/03/93	Adirondack Community College	9	
02/28/94	Boy Scouts of America	25	
05/31/94	Vermont Technology College	9	
05/05/94	State University of New York Delhi	9	
10/21/94	American Nuclear Society Teachers Conference	35	
03/02/95	Duanesburg Central School	45	
03/31/95	Duanesburg Central School	38	
05/05/95	Bethlehem Central High School	23	
05/09/95	Vermont Technology College	7	
			973

Appendix B.

David R. McGuire
Administrator
Albany High School
700 Washington Avenue
Albany, NY 12203

Thomas E. Marzeski
Administrator
Berne Knox School
Senior High School
Berne, NY 12023

Charles Gunner
Administrator
Bethlehem Central High School
700 Delaware Avenue
Delmar, NY 12054

James Proper
Administrator
Cohoes High School
Elm Street
Cohoes, NY 12047

Debbie N. Peppin
Administrator
Guilderland High School
Guilderland Center, NY 12085

Arthur Walker
Administrator
Shaker High School
445 Watervliet-Shaker Road
Latham, NY 12110

Victor Carrk
Administrator
Ravena Senior High School
Route 9
Ravena, NY 12143

Lonnie Palmer
Administrator
Averill Park High School
Gettle Road - RD 1
Averill Park, NY 12018

David Seaver
Administrator
Berlin Central Jr. -Sr. High Sch.
School Street, Box 259
Berlin, NY 12022

Theodore Gilkey
Administrator
Colonie Central High School
100 Hackett Avenue
Albany, NY 12205

O. Peter Griffen
Administrator
C.A. Bouton Jr. -Sr. High Sch.
Voorheesville, NY 12189

Thomas Sands
Administrator
Watervliet Jr. -Sr. High Sch.
Wiswall Avenue
Watervliet, NY 12189

Robert C. Munn
Administrator
Broadalbin-Perth High School
Ext. Bridge St.
Broadalbin, NY 12025

Edward Turco
Administrator
Gloversville High School
199 Lincoln Street
Gloversville, NY 12078

James Chupaila
Administrator
Johnstown Senior High School
Pearl Street
Johnstown, NY 12095

John G. Metallo
Administrator
Mayfield High School
School Street
Mayfield, NY 12117

Thomas Kirkwood
Administrator
Rensselaer Jr. -Sr. High School
655 Broadway
Rensselaer, NY 12144

Ralph DiMarino
Administrator
Maple Hill High School
1216 Maple Hill Road
Castleton-on-Hudson, NY 12033

Janet H. Meuwissen
Administrator
Northville High School
Third Street
Northville, NY 12134

Dale C. Schumacher
Administrator
Oppenheim Ephratah
Central School District
RD 2
St. Johnsville, NY 13452

Umberto J. Derose
Administrator
Amsterdam High School
Saratoga Avenue
Amsterdam, NY 12010

Richard G. Rose
Administrator
Canajoharie Senior High School
Erie Boulevard
Canajoharie, NY 13317

Michael J. Mongin
Administrator
Fonda Fultonville Sr. High Sch.
Cemetery Street
Fonda, NY 12068

E. Glenn Remington
Administrator
Fort Plain High School
West Street
Fort Plain, NY 13339

David A. Lapone
Administrator
St. Johnsville Jr. -Sr. High Sch.
50 Center Street
St. Johnsville, NY 13452

Emmet F. Prosser
Administrator
Mechanicville High School
Kniskern Avenue
Mechanicville, NY 12118

Paul Ripchik
Administrator
Saratoga Springs High School
West Circular Street
Saratoga Springs, NY 12866

Continued
Appendix B.

Glenn G. Goodale

Administrator

Tamarac Senior High School

Box 200A, RD 3

Troy, NY 12180

Joseph C. Bickford

Administrator

Columbia High School

Couse Courners

East Greenbush, NY 12061

Allen Rydinsky

Administrator

Hoosick Valley Jr. -Sr. High School

Schagticoke, NY 12154

William R. Hunter

Administrator

Hoosick Falls Jr. - Sr. High School

River Road

P.O. Box 192

Hoosick Falls, NY 12090

Robert Swanick

Administrator

Lansingburgh Senior High School

320 Seventh Avenue

Troy, NY 12182

James Collins

Administrator

Duanesburg Jr. -Sr. High School

Delanson, NY 12053

Edward A. Carangelo

Administrator

Niskayuna High School

1626 Balltown Road

Schenectady, NY 12308

William G. Manikas

Administrator

Mohoness Senior High School

2072 Curry Road

Schenectady, NY 12309

Armand J. Reo

Administrator

Troy High School

1950 Burdett Avenue

Troy, NY 12180

Paul Perrault

Administrator

Ballston Spa Senior High School

Garrett Road

Ballston Spa, NY 12020

Jennie Pennington

Administrator

Burnt Hills-Ballston Lake

Senior High School

Burnt Hills, NY 12027

David E. Hall

Administrator

Corinth Jr. - Sr. High School

105 Oak Street

Corinth, NY 12822

Wallace V. Vanderwerker

Administrator

Galway Junior-Senior High School

Galway, NY 12074

William P. Walling

Administrator

William J. Golding

Junior-Senior High School

Cobleskill, NY 12043

Robert F. Herodes

Administrator

Middleburgh High School

181 Main Street

Jefferson, NY 12083

John L. Stoothoff

Administrator

Schoharie High School

Main Street

Schoharie, NY 12157

Pamela Culver

Administrator

Schuylerville Jr. -Sr. High Sch.

Schuylerville, NY 12871

Edward R. Curran

Administrator

Shenendehowa High School

970 Route 146

Clifton Park, NY 12065

Clarence L. Pelkie

Administrator

South Glens Falls Sr. High Sch.

7800 Merritt Road

South Glens Falls, NY 12803

Robert F. Quinn

Administrator

Waterford Jr. - Sr. High School

Stillwater, NY 12170

Gary Wank

Administrator

Waterford Jr. -Sr. High School

125 Middletown Road

Waterford, NY 12188

Daneil Connor

Administrator

Warrensburg Jr. -Sr. High Sch.

1 James Street

Warrensburg, NY 12885

Kenneth Bruyere

Administrator

Cambridge Jr. -Sr. High School

South Park Street

Cambridge, NY 128

Peter Livshin

Administrator

Fort Edward Jr. -Sr. High Sch.

220 Broadway

Fort Edward, NY 12828

Continued
Appendix B.

Theodore Avgerinos
Administrator
Schalmont Senior High School
825 Duaneburg Road
Schenectady, NY 12306

James Spafford
Administrator
Linton High School
The Plaza
Schenectady, NY 12308

Louis Mauro
Administrator
Mont Pleasant High School
Forest Road
Schenectady, NY 12303

Richard J. McGuire
Administrator
Scotia-Glenville Sr. High School
Sacandage Road
Scotia, NY 12302

Sister Constance Casey
Administrator
Academy of Holy Names
Upper School
1075 New Scotland Road
Albany, NY 12208

James F. Manning
Administrator
The Albany Academy
Academy Road
Albany, NY 12208

Kathleen G. Johnson
Administrator
The Albany Academy for Girls
140 Academy Road
Albany, NY 12208

Theodore Wolfstitch
Administrator
Bishop Maginn High School
99 Slingerland Street
Albany, NY 12202

Brother William Martin
Administrator
Christian Brothers Academy
1 De La Salle Road
Albany, NY 12208

William Kennedy
Administrator
Glens Falls Senior High School
Sherman Avenue
Glens Falls, NY 12801

Leo Stengel
Administrator
Hadley Luzerne High School
Lake Avenue
Lake Luzerne, NY 12846

Glenn Nichols
Administrator
Lake George Jr. - Sr. High School
425 Canada Street
Lake George, NY 12845

James T. Kneeshaw
Administrator
Queensbury Senior High School
99 Aviation Road
Glens Falls, NY 12801

Brother Casimir Gundlach
Administrator
LaSalle School
391 Western Avenue
Albany, NY 12203

Sister Marilyn Murray
Administrator
Mercy High School
310 South Manning Boulevard
Albany, NY 12208

J. Craig Doherty
Administrator
Pineview Christian Academy
Washington Avenue Extension
Albany, NY 12205

Richard C. Riccio
Administrator
St. Anne Institute
25 West Lawrence Street
Albany, NY 12206

Brother Mark Staniecki
Administrator
Notre Dame Bishop Gibbons School
2600 Albany Street
Schenectady, NY 12304

James Allegretto
Administrator
Granville Senior High School
Quaker Street
Granville, NY 12832

Donald L. Bernhoft
Administrator
Hudson Falls Sr. High School
East LaBarge Street
Hudson Falls, NY 12839

William A. Cormier
Administrator
Salem High School
East Broadway
Salem, NY 12865

Neil Muscatiello
Administrator
Whitehall Jr. -Sr. High School
Buckley Road
Whitehall, NY 12887

Donn D. Wright
Administrator
Hoosac School
Box 8
Hoosick, NY 12089

Brother James Romond
Administrator
LaSalle Institute
174 Williams Road
Troy, NY 12180

James F. Kapp
Administrator
St. Mary's Academy High Sch.
4 Parson Avenue
Hoosick Falls, NY 12090

Steven G. Abelson
Administrator
Vanderheiden Hall
P.O. Box 218
Wynantskill, NY 12198

Sharon Delisio
Administrator
Ketchum-Grande School
Box 47
Burnt Hills, NY 12027

Continued
Appendix B.

Sister Lucie Nordmann
Administrator
The Doane Stuart School
Route 9
Albany, NY 12202

Robert C. Parker
Administrator
Emma Willard School
285 Pawling Avenue
Troy, NY 12180

Brother James Moffett
Administrator
Notre Dame-Bishop Maginn
High School
2600 Albany Street
Schenectady, NY 12304

Sister Marie McNamee
Administrator
Saint Mary's Academy-
North Country High School
10-12 Church Street
Glens Falls, NY 12801

Albany Medical College
47 New Scotland Avenue
Albany, NY 12208

Bard College
Annandale-on-Hudson, NY 12504

Cazenovia College
Sullivan Street
Cazenovia, NY 13035

Clarkson University
Potsdam, NY 13676

Colgate University
Hamilton, NY 13346

Sister Carolyn Schanz
Administrator
Catholic Central High School
116th Street & 7th Avenue
Troy, NY 12182

Dr. Leon Reed
Administrator
Schuyler Central School
18 Spring Street
Schuylerville, NY 12187

College of Saint Rose
423 Western Avenue
Albany, NY 12203

Columbia University
212 Hamilton Hall
New York, NY 10027

Junior College of Albany
140 New Scotland Avenue
Albany, NY 12208

Maria College
700 New Scotland Avenue
Albany, NY 12208

Marist College
North Road
Poughkeepsie, NY 12601

Mater Dei College
Riverside Drive
Ogdensburg, NY 13669

Agricultural and Technical Col.
at Morrisville
Morrisville, NY 13408

Gordon Sutla
Administrator
Saratoga Central Catholic
High School
247 South Broadway
Saratoga Springs, NY 12866

Mount Saint Mary College
Powell Avenue
Newburgh, NY 12500

New York University
of Technology
1855 Broadway
New York, NY 10023

Paul Smiths College
of Arts and Science
Paul Smiths, NY 12970

Polytechnic University
333 Jay Street
Brooklyn, NY 11201

Pratt Institute
200 Willoughby Avenue
Brooklyn, NY 12205

Rensselaer Polytechnic Institute
School of Engineering
JEC 3006
Troy, NY 12180-3590

Russell Sage College
57 First Street
Troy, NY 12180

State University of New York
College at Oneonta
Oneonta, NY 13820

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Appendix B.

Saint Lawrence University
Park Street
Canton, NY 13617

Siena College
Loudonville, NY 12211

Skidmore College
Saratoga Springs, NY 12866

Adirondack Community Col.
Glens Falls, NY 12801

Agricultural and Technical Col.
at Canton
Canton, NY 13617

Agricultural and Technical Col.
at Cobleskill
Cobleskill, NY 12043

Agricultural and Technical Col.
at Delhi
Delhi, NY 13753

Fulton-Montgomery
Community College
Johnstown, NY 12095

Herkimer Community College
Reservoir Road
Herkimer, NY 13350

Hudson Valley
Community College
Troy, NY 12180

Jefferson Community College
Outer Coffeen Street
Watertown, NY 13601

State University of New York
at Albany
1400 Washington Avenue
Albany, NY 12222

State University of New York
at Binghamton
Vestal Parkway East
Binghamton, NY 13901

State University of New York
at Stony Brook
Stony Brook, NY 11790

Broome Community College
Upper Front Street
Binghamton, NY 13902

Clinton Community College
Plattsburgh, NY 12901

State University of New York
College at New Paltz
New Paltz, NY 12561

Schenectady County
Community College
Washington Avenue
Schenectady, NY 12305

Sullivan County
Community College
Loch Sheldrake, NY 12759

Ulster County
Community College
Stone Ridge, NY 12484

Syracuse University
Syracuse, NY 13210

State University of New York
College at Potsdam
Pierrepont Avenue
Potsdam, NY 13676

State University of New York
College of Arts and Sciences
at Plattsburgh
Plattsburgh, NY 12901

State University of New York
College of Technology
at Utica-Rome
P.O. Box 3050
Utica-Rome, NY 13504

Columbia-Green Comm. Col.
Box 1000
Hudson, NY

Dutchess County Comm. Col.
Pendell Road
Poughkeepsie, NY 12601

State University of New York
Empire State College
2 Union Avenue
Saratoga Springs, NY 1286

Utica College
of Syracuse University
Burrstone Road
Utica, NY 13502

Bennington College
Bennington, VT 05201

Burlington College
95 North Avenue
Burlington, VT 05401

Castleton College
Castleton, VT 0573

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Appendix B.

**Mohawk Valley
Community College
1101 Sherman Avenue
Utica, NY 13501**

**North Country
Community College
P.O. Box 89
Saranac Lake, NY 12983**

**Orange County
Community College
115 South Street
Middletown, NY 10940**

**Middlebury College
Middlebury, VT 05753**

**University of Vermont
194 South Prospect Street
Burlington, VT 05405**

**Vermont Technical College
Randolph Center, VT 05061**

**Amherst College
Amherst, MA 01002**

**Berkshire Community College
West Street
Pittsfield, MA 01002**

**Greenfield Community College
One College Drive
Greenfield, MA 01301**

**Holyoke Community College
303 Homestead Avenue
Holyoke, MA 01040**

**Union College
Union Street
Schenectady, NY 12188**

**United States
Merchant Marine Academy
Kings Point, NY 11024**

**United States Military Academy
West Point, NY 10996**

**Mount Holyoke College
South Hadley, MA 01075**

**Smith College
Northampton, MA 01063**

**University of Massachusetts
Amherst Campus
Amherst, MA 01003**

**Westfield State College
Western Avenue
Westfield, MA 01086**

**Williams College
Williamstown, MA 01267**

**Harfford Graduate Center
275 Windsor Street
Hartford, CT 06120-2291**

**Champlain College
163 S. Willard Street
P.O. Box 670
Burlington, VT 05701**

**College of Saint Joseph
Clement Road
Rutland, VT 05764**

**Green Mountain College
College Street
Poultney, VT 05764**