

DOE/ER/75352--71

FINAL  
SUMMARY REPORT

for

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

ER75352

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.

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

Sharing Attendees  
Total

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. Derosé  
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  
Schaghticoke, 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  
Mohannesen 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 Duanesburg 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

Continued  
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

Continued  
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

Hartford 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