



REACTOR FACILITY
.....

October 12, 2005

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US Nuclear Regulatory Commission
Washington, DC 20555

Docket 50-288

Enclosed is Reed College Reactor's Annual Report.

This has been another good year. We continue to make progress on many of our long term projects. Details are shown in the report.

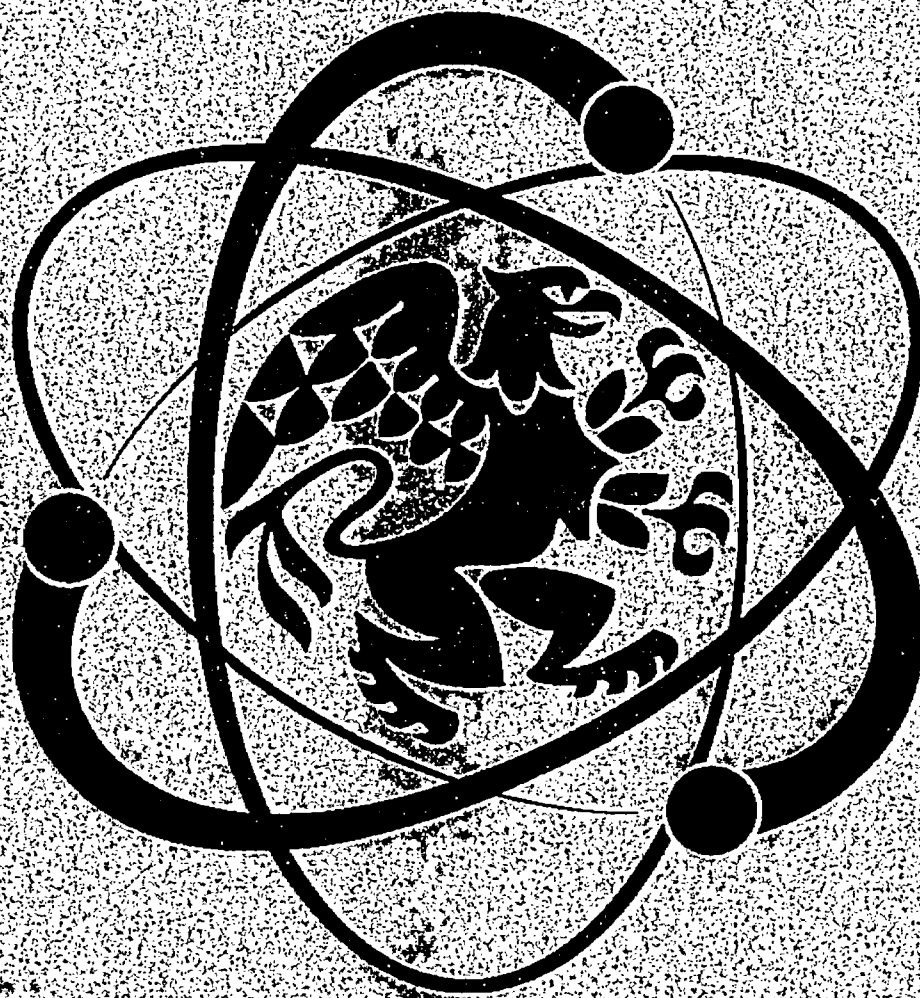
Please feel free to contact me for additional information.

Regards,

Stephen G. Frantz
Director, Reed College Reactor

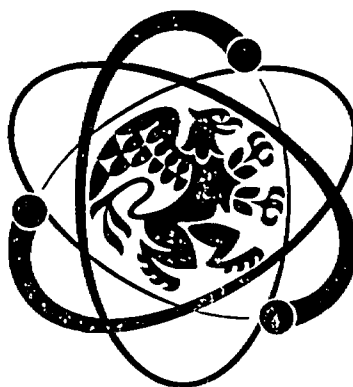
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REED RESEARCH REACTOR ANNUAL REPORT



September 1, 2004 -- August 31, 2005

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OVERVIEW

This report covers the period from September 1, 2004 to August 31, 2005, and is intended to fulfill the reporting requirements of the U.S. Nuclear Regulatory Commission, the U.S. Department of Energy, and the Oregon Department of Energy including:

- U. S. Nuclear Regulatory Commission, License No. R-112 (Docket 50-288)
- Oregon Office of Energy Rule No. 345-030-010
- U. S. Department of Energy Reactor Sharing Grant No. DE-FG07-02ID14387
- U. S. Department of Energy Reactor Instrumentation Grant No. DE-FG07-04ID14573

We specifically wish to thank other funding sources including:

Portland General Electric
Concordia University

Reed College operates a Triga Mark I reactor with zirconium hydride/uranium hydride fuel elements. The fuel elements are in a circular grid array at the bottom of a 25-foot-deep tank of water and are surrounded by a graphite reflector. The fuel is enriched to 19.9% in uranium-235.

The Reed College Research Reactor has been a resource for research and educational projects in the Portland area since its establishment in 1968. The main uses of the Reed Research Reactor are instruction and research, especially in the field of trace-element analysis. In addition to providing student research opportunities, the reactor staff works to educate the surrounding community on the principles of nuclear energy and radiation safety.

There were 2827 individual visits to the Reactor Facility during the year. Most were students in classes at Reed College or area universities, colleges, and high schools. Including tours and research conducted at the facility, the Reed Research Reactor contributed to the educational programs of 12 colleges and universities in addition to 12 pre-college groups and 4 special groups. The reactor was operated 377 times on 137 days. The thermal energy produced was 22.71 megawatt-hours.

The reactor staff consists of a Director, an Associate Director, a contract Health Physicist, Reed College undergraduate students, and a few non-students who are licensed by the Nuclear Regulatory Commission as reactor operators or senior reactor operators. As this

report is being written the licensed operating staff consists of 21 women and 27 men. During the reporting period, 21 reactor operator candidates passed their NRC exams and 11 senior reactor operator candidates passed their NRC exams.

There were no radiation exposures to individuals in excess of one percent of the limit during the year. There were no releases of liquid radioactive material from the facility and airborne releases were well within regulatory limits. There were no shipments of radioactive waste.

The Nuclear Regulatory Commission conducted their annual inspection during November 2004. There were no violations or concerns. There were no follow up items.

PEOPLE

Facility Staff

During the period September 1, 2004 to August 31, 2005, the facility staff consisted of:

Reactor Director: Stephen Frantz (4/94 – Present)
Associate Director: Rachel Barnett (5/03 – Present)
Reactor Supervisor: Elliot Naidus (8/05 – Present)
Carl Anderson (5/04 – 8/05)
Training Supervisor: Jessica Griffith (5/04- Present)
Radiation Safety Officer: Kathleen Fisher (1/03 – Present)
Contract Health Physicist: Marshall Parrott (8/91 – Present)
Senior Reactor Operators (SRO):

Carl	Anderson
Juliana	Arrighi
Drew	Atwater
Andre	Bach
Rachel	Barnett
Susan	Beaver
Nick	Chaimov
David	de Regt
Stephen	Frantz
Ben	Greenspan
Jessica	Griffith
Jesse	Hallett
Vanessa	Holfeltz
Steve	Katz
Ariah	Kidder
Beverly	Lau
Kristen	Lavavej
Elliot	Naidus
Andrea	Neuhoff
Derek	Oldridge
Zach	Schultz
Craig	Wagner

Reactor Operators (RO):

Rachel	Bond
Quincy	Cardinale
Asher	Davidson
William	Draper
Allison	Edgar
Michael	Flashman
Tyler	Freeman
Ryan	Gersovitz
Hilary	Gray
Edward	Griffith
Jeremy	Harper
Cindy	Joe
Matthew	King
Toms	Kreicbergs
Judith	Levine
Grant	Meadors
Tracy	Mehoke
Marianna	Mullens
Joseph	Parmalee
Zoe	Rem
Will	Rosenbaum
Alton	Sartor
Rebecca	Schoenberg-Jones
Julia	Schornack
Jacob	Schwartzman
Griffen	Thoma
Toms	Kreicbergs
Joy	Wattawa
David	Williams
Gillian	Woodruff
Trevor	Young

The list of operators includes everyone who held a license during the reporting period. ROs who upgrade their licenses to SRO during the reporting period are listed under SRO. All staff members are Reed College undergraduate students except Mr. Frantz, Ms. Barnett, Ms. Fisher, and Dr. Parrott.

As this report is being written there are 21 women with reactor licenses and 27 men with licenses.

Reactor Review Committee

The Reed Research Reactor has two oversight committees: the Radiation Safety Committee and the Reactor Operations Committee. Together they comprise the Reactor Review Committee. The Radiation Safety Committee is concerned with emergency preparedness, health physics, radiation safety, physical security, environmental impact, and the interface between the Reed Research Reactor, Reed College, and the surrounding community. The Reactor Operations Committee deals with the day-to-day operations of the reactor, reactor maintenance, reactor safety, operator training, and operator requalification. The membership of the committees during the reporting period is shown below:

Radiation Safety Committee

Martha Dibble - Chair (*Neighborhood Resident*)
John Frewing (*Oregon Independent College Foundation*)
Wayne Lei (*Environmental Director, Portland General Electric*)
Tom Meek (*Radiation Protection Manager, Trojan Nuclear Power Plant*)
Kathleen Fisher (*Director, Reed Environmental and Safety*)

Reactor Operations Committee

Steve Reese - Chair (*Radiation Center Director, Oregon State University*)
Johnny Powell (*Physics Faculty, Reed College*)
Daniel Gerrity (*Chemistry Faculty, Reed College*)
Juliet Brosing (*Physics Faculty, Pacific University*)
Josh Filner (*Medical Student, Oregon Health Science University*)

Ex Officio (without vote) on Both Committees:

Peter Steinberger (*Dean of the Faculty, Reed College*)
Stephen Frantz (*Director, Reed Research Reactor*)
Rachel Barnett (*Associate Director, Reed Research Reactor*)
Marshall Parrott (*Contract Health Physicist*)
Carl Anderson (*Reactor Supervisor*)
Jessica Griffith (*Reactor Training Supervisor*)

FACILITIES

Reactor Facility

In addition to the reactor, the Reed College has space for a radiochemistry lab. The equipment available at the reactor facility includes high purity germanium gamma spectrometers, an X-ray fluorescence detector, surface barrier detectors, alpha spectrometers, silicon lithium X-ray detectors, a whole body counter, gas flow proportional counters, ion chambers, beta counters, Geiger Muller tubes, neutron detectors, alpha detectors, and thermoluminescent dosimeter readers. These instruments are used for experiments and training in nuclear science and radiation detection. Two hand and shoe monitors are in the reactor bay. A liquid scintillation detector serves the campus radioisotope committee. The reactor facility has several systems for performing irradiations, described below.

Rotating Specimen Rack Facility

The rotating specimen rack ("lazy susan") is located in a well on top of the graphite reflector surrounding the core. The rack consists of a circular array of 40 tubular receptacles, each of which can accommodate two irradiation tubes. Vials holding up to 17 ml (four drams) are used in this system. Samples are loaded in the specimen rack prior to the start-up of the reactor. The rack automatically rotates during irradiation to ensure each sample receives the same neutron flux. Typically, researchers use the rotating rack when long irradiation times (generally greater than five minutes) are required. The approximate thermal neutron flux in a rotating rack position at full power is 1.7×10^{12} n/cm²s with a cadmium ratio of 6. The specimen rack can be used for gamma irradiations (approximately 8 Rad/min) when the reactor is shutdown.

Pneumatic Transfer System

The pneumatic transfer system ("rabbit") consists of an irradiation chamber in the outer F-ring of the core and its associated pump and piping. This allows samples to be transferred in and out of the reactor core very rapidly while the reactor is at power.

Routine use of the pneumatic transfer system involves placing samples into vials, which in turn are placed in special capsules known as "rabbits." The capsule is loaded into the system in the laboratory next to the reactor and is then transferred pneumatically into the core-irradiation position. At the end of a predetermined time the sample is transferred back to the receiving terminal, where it is removed for measurement. The transfer time from the core to the terminal is about seven seconds, making this method of irradiating samples particularly useful for experiments involving radioisotopes with short half-lives. The flux in the core terminal is approximately 5×10^{12} n/cm²s when the reactor is at full power.

In-Core Facilities

The central thimble is a water-filled irradiation chamber about 3 cm in diameter. It provides the highest available neutron flux, about 1×10^{13} n/cm²s. Special sample holders are used in the central thimble to provide maximum flexibility in experiment design.

A fuel replacement source holder assembly can also be used as an irradiation facility. The chamber fits into a fuel-element position within the core itself. It holds only one specially positioned irradiation container 7.5 cm in length and 2.5 cm in diameter.

Foil-insertion holes, 0.8 cm in diameter, are drilled at various positions through the grid plates. These holes allow inserting special holders containing flux wires into the core, to obtain neutron flux maps of the core.

In-Pool Facilities

Near core, in-pool irradiation facilities can be arranged for larger samples. Neutron fluxes will be lower than in the lazy susan and will depend on the sample location.

An iridium gamma irradiator is also in the reactor pool for gamma only irradiations.

Beam Facilities

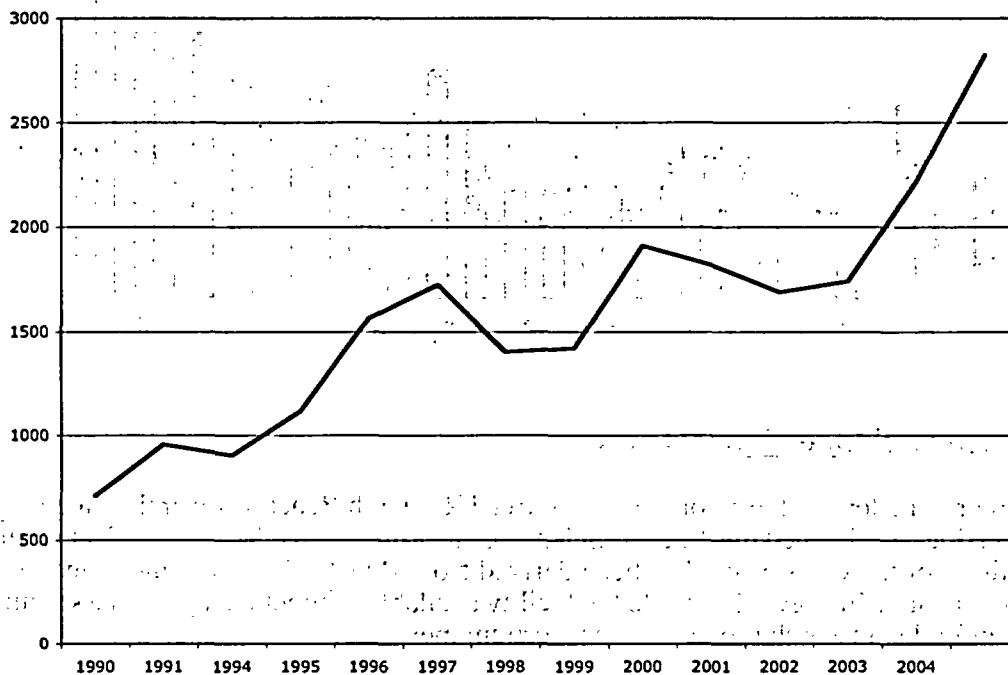
The central thimble can be evacuated with gas, producing a vertical neutron beam. This beam can be used to generate directional neutron flux, or for limited irradiations above the tank. Prompt gamma analysis and neutron radiography can be done. The flux above the beam exit is approximately 1×10^6 n/cm²s when the reactor is at full power.

USERS

Reactor Visitors

A total of 2827 individuals visited the Reed Research Reactor during the year, as derived from the visitor log - Entry List B. Individuals who visited more than once are counted for each visit. Visitors include all individuals who are not listed as facility staff. The visitors included 1965 individuals for training or tours, of whom 835 were in programs funded in part by the U.S. DOE Reactor Sharing program. A large percentage of these were students in classes at area colleges and schools as discussed below. A graph of the history of visitor attendance is shown in Figure 1, and a list for the current year is included as Appendix A.

Figure 1 - Reed Research Reactor Visitors



Reactor Operations Seminar

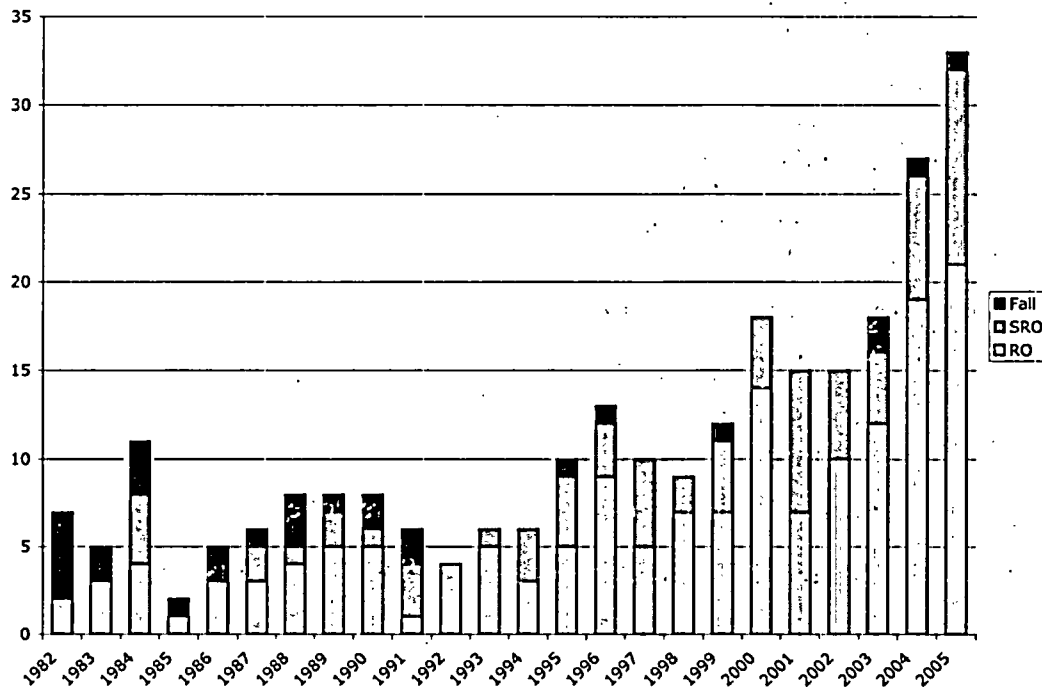
The Reed Research Reactor conducts an annual seminar series for students from Reed and other area educational institutions. This non-credit course serves as an introduction to nuclear reactor theory, health physics, and reactor operation. Some of the students continue with in-depth reactor operator training and subsequently apply for a reactor operator license. If successful, the individual may be hired to operate the reactor. In addition, existing reactor operators may take the NRC senior reactor operator exam to upgrade their licenses.

During the reporting period, 21 out of 22 reactor operator candidates passed their NRC exams and 11 out of 11 senior reactor operator candidates passed their NRC exams.

Historically students who fail the NRC exam only fail one section and they are allowed to retake that section later. Figure 2 is a graph of the number of license application each year

showing how many new RO and SRO licenses were awarded at Reed and how many failed to obtain a license.

Figure 2 - Reed Research Reactor License Exam Results



Nuclear Science Consortium

In order to better use the resources of the Reed Research Reactor, several area colleges and universities established the Nuclear Science Consortium of the Willamette Valley in 1970. Funding for the Consortium has been derived from Reactor Use Sharing Grants of the U.S. Department of Energy. This made the facility available without charge to classroom groups and unfunded research projects for consortium members.

The following institutions have participated in facility tours, experiments, and research projects in the reporting period.

COLLEGE TOURS/USERS

- Camosun College Victoria BC
- Concordia University
- George Fox University
- Heal College
- Lewis and Clark College
- Linfield College
- Oregon State University
- Pacific University
- Portland State University
- University of Nevada at Las Vegas
- Warner Pacific College
- Willamette University

PRE-COLLEGE TOURS/USERS

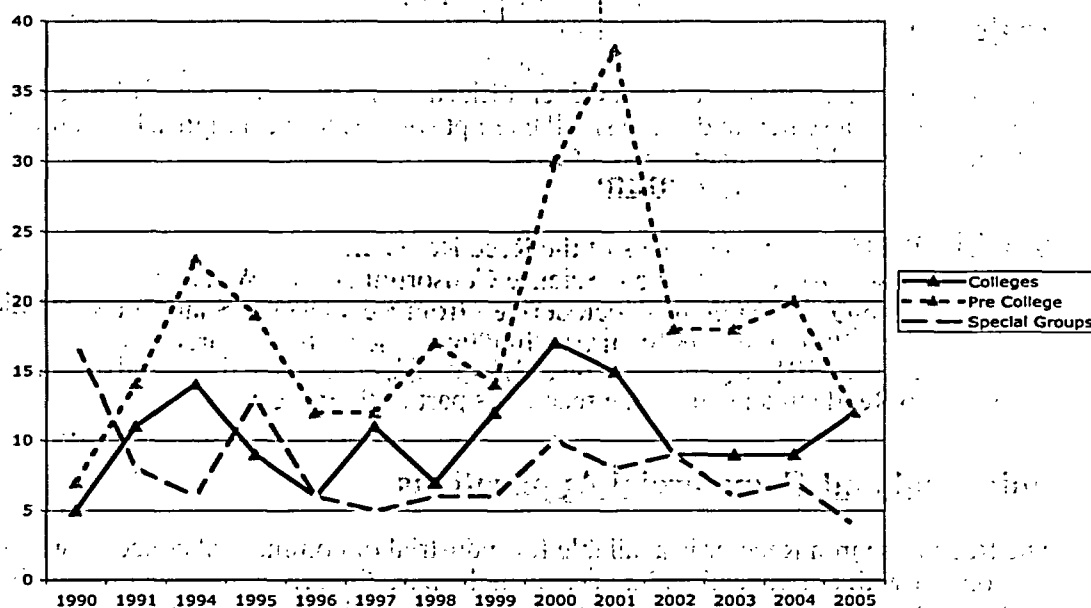
- C.S. Lewis Academy
- Centennial High School
- Cleveland High School
- David Douglas High School
- Jefferson High School
- JFK High School
- Mt. Tabor Middle School
- Oregon Episcopal School
- Poynter Middle School
- Rex Putnam High School
- Sellwood Middle School
- Southridge High School

SPECIAL GROUPS

- American Chemical Society
- Advocates for Women in Science, Engineering, and Math
- Our Lady of Lourdes
- Saturday Academy

Figure 3 is a graph showing the history of colleges, pre-college groups, and special groups.

Figure 3 – Colleges, Pre-College Groups, and Special Groups



Many reactor tours include hands-on use of facility equipment to conduct experiments in radiation science, health physics, and nuclear physics. A typical lab involves determining the background of a Geiger Muller scalar system and then determining the half-life of a sample of radioactive material. College classes are generally more closely tailored to the individual interests and needs of the Consortium faculty member involved. Experiments include more direct use of the reactor itself by the students, more detailed analysis of materials, and emphasize the incorporation of other classroom activities as much as possible.

Several special programs for gifted children use the reactor for projects. These are designed to enrich their educational program and prepare them for college. Some of the groups who

use the reactor target minority and disadvantaged youth who are historically under-represented in science professions.

High School Student Projects

The Reed Research Reactor continues to be used in independent science projects initiated by students from several Oregon and Washington State high schools.

Pacific University Modern Physics Lab

Each year the Modern Physics Lab at Pacific University spends lab sessions at the reactor. The students do several labs including basic health physics, sub-critical multiplication, and neutron activation analysis.

Concordia University

The reactor provides training and experiments involving radiation, radioactive material, environmental sampling, and trace element analysis for the Environmental Remediation & Hazardous Material Management Program (ERHMM) and General Chemistry at Concordia University

Scaler Kits

Through the generosity of Portland General Electric, the reactor lends out kits containing a Geiger counter, a scaler, and some small exempt sources to local high schools for their use in their Advanced Placement Physics Class.

Reed Classes

- Chemistry 271 students used neutron activation analysis to determine chemical composition of an unknown compound.
- Chemistry 101 students determined the half-lives of an activated silver dime.
- Two Reed students used the reactor as part of their thesis.

Industrial and Commercial Applications

The Reed Research Reactor is available for industrial or commercial concerns when it does not conflict with our educational goals. As in the past, the primary operations involved neutron activation analysis of materials or environmental samples. The facility also provides radiation protection training to interested parties and schools in the area.

REACTOR OPERATIONS

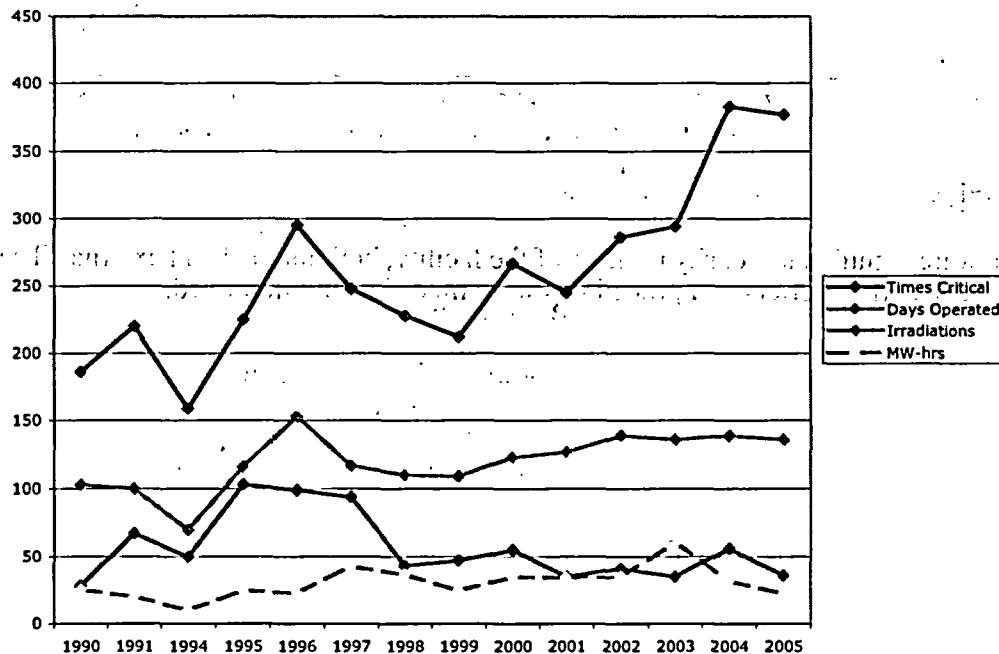
Operations

During the year the reactor was taken critical 377 times on 137 days. The total energy produced was 22.71 megawatt-hours. Operating history by month appears in Table A. A history of the data is shown in Figure 4.

Table A - Operating History

	Times Critical	Days Operated	MW-hrs
Sep.	54	14	3.34
Oct.	77	16	1.88
Nov.	41	11	4.02
Dec.	21	9	1.50
Jan.	1	8	0.24
Feb.	32	14	2.04
Mar.	23	20	2.77
Apr.	53	16	4.01
May	45	15	1.16
Jun.	6	3	0.18
Jul.	13	7	1.12
Aug.	11	3	0.46
Total	377	136	22.71

Figure 4 - Operations



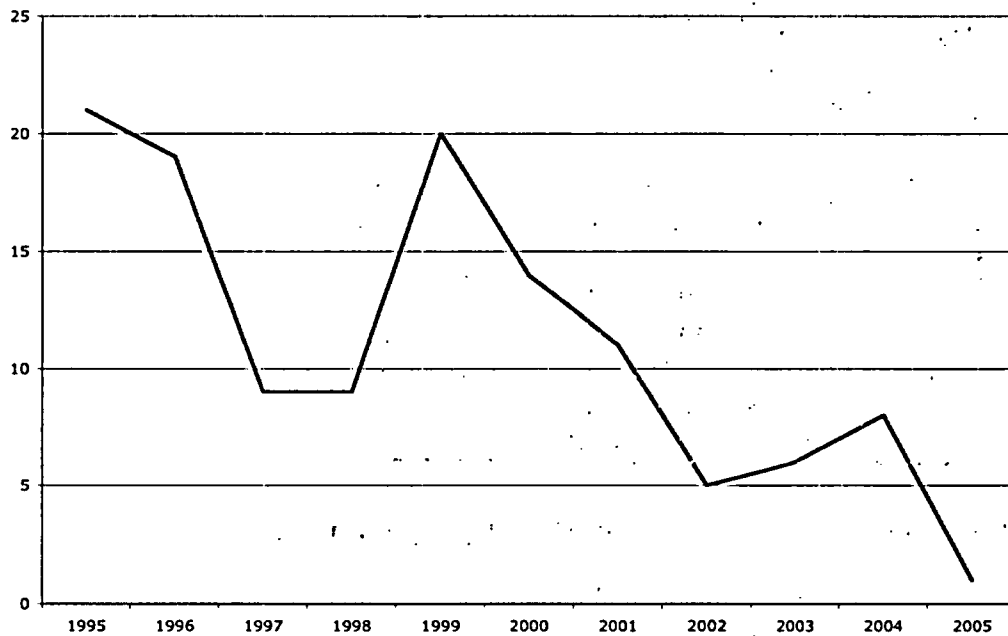
Unplanned Reactor Shutdowns

There was one inadvertent reactor shutdown (scram) as shown in Table B; it was explained. The number of unplanned reactor shutdowns is significantly lower than in the past as shown in Figure 5.

Table B - Unplanned Reactor Shutdowns

Date	Scram Type	Cause Of Scram
6/28/05	Percent	Operator Error; increased power too quickly

Figure 5 – Unplanned Shutdowns



Security

There were significant security reviews of the facility, both internal and external. The physical security barriers and procedures were modified and improved.

REACTOR MAINTENANCE

Significant Maintenance

Routine equipment checks are conducted by reactor staff members on a daily, weekly, bimonthly, semiannual (January and July) and annual (January) basis as required by facility procedures. Reed College maintenance personnel assist with routine preventative maintenance to auxiliary equipment. Significant maintenance operations that were not part of a regular schedule are listed in Table D.

Table D - Significant Maintenance Operations

Date	Maintenance
11/20/04	Changed primary filter
12/14/04	Replaced and balanced bearings on ventilation exhaust fan
1/10/05	Removed old count rate channel
2/2/05	Moved Regulating rod motor mount 1.25 inches toward center of core
2/3/05	Replaced absorber portion of Regulating rod with identical one
3/16/05	Changed primary filter
5/11/05	Changed primary filter
5/17/05	Replaced shim rod slave bypass jumper
5/19/05	Replaced and balanced bearings on ventilation supply fan
5/23/05	Changed primary filter
7/27/05	Changed primary filter

Safety Reviews Approved by Reactor Review Committee

Title: Gamma Irradiations in Pool

Date: November 8, 2004

Summary of Proposed Change:

This change allows gamma irradiations in the pool. This is one of the original irradiation methods conceived when the facility was built, but no routine experiment or procedure was written for it.

Often experiments require a gamma flux but no neutron flux because the purpose of the experiment is exposure to gamma radiation, not activation. These are currently accomplished by loading the sample into the lazy susan while the reactor is shutdown. The gamma flux in the lazy susan varies widely with time since shutdown; from approximately 3 Roentgen per minute to 8 Roentgen per minute. Also, shutdown irradiations need to be pulled out of the core every time the reactor is operated.

This procedure will allow us to construct a gamma irradiator at the west end of the reactor pool. The gamma source will be activated in a source holder element in the core and kept in the core until needed. It will then be moved to a fuel storage rack on the west end of the pool to provide the gamma flux for the samples. The gamma source will be moved with the fuel handling tool per SOP-40. The activation material will be iridium or cobalt. The activity will be less than 100 curies.

If the samples to be gamma irradiated could be damaged by water or if they could contaminate the water, they will be encapsulated before being placed in the pool.

Title: Replacing a Control Rod with a Stainless Steel Clad Control Rod

Date: January 13, 2005

Summary of Proposed Change:

During our biennial inspection of the control rods it appears that the wear on the absorber end of the Regulating Rod has become excessive. There were always two wear spots on the rod, but now they seem to be much worse. Measurements indicated that approximately 0.7 mm of the aluminum cladding has worn off at the worst location. The Triga Mechanical Maintenance Manual states that a control rod should be replaced if the pitting or cracks are 0.5 mm deep. In response to this we plan to replace the absorber end of the Reg Rod.

Fortunately, we have three spare control rods from the Westinghouse Triga Reactor at Hanford. The new control rods appear to be in excellent condition. Measurements indicate that the rods are the exact same diameter (31.75 mm) as our control rods, and are attached in exactly the same way. The two major differences are that the new control rods are clad with stainless steel instead of aluminum, and the absorber section is 35 mm shorter.

The stainless steel cladding will be an advantage in that the wear issue will probably not reappear. The control rod never comes in contact with any fuel element, so the stainless steel will not damage any aluminum clad fuel elements. The control rod is inside its own aluminum guide tube in the core. Wear of the aluminum guide tube should not be an issue.

The stainless steel cladding does raise health physics issues, since the cobalt in the stainless steel will stay radioactive much longer than the aluminum cladding with which we are familiar. Co-60 has a half-life of 5.27 years; Al-28 has a half-life of 2.25 minutes. Our procedure for control rod inspection (SOP 41) already takes this into account by requiring completion of a Radiation Work Permit (SOP 28) when inspecting stainless steel control rods. We will exercise much greater caution when we remove the Reg Rod for inspection in two years.

The shorter rod length raises two issues. The new control rod may be worth less than the existing one. If so, our core excess may increase. Our core excess is currently approximately \$2.40, and is limited by Technical Specifications to \$3.00. Since the total worth of the Reg Rod is only \$1.55, it seems unlikely that a 35-mm difference in length (out of a total of 545 mm) will have that large of an effect. 35-mm divided by 545 mm is 6.5%. 6.5% of \$1.55 is less than \$0.10. We will not reach our limit on core excess unless we lose an additional \$0.60, so we should not be anywhere near the limit. We will verify this after the control rod is replaced. The Westinghouse Triga Mechanical Maintenance Manual says their Reg Rod should be worth \$1.40, which is within an acceptable range for us.

The second issue raised by the shorter control rod is the possibility that when the rod is fully withdrawn, it may come out of its guide tube in the core structure. If so, it will not easily go back in, and may become stuck out. This, of course, is unacceptable. The control rods are 545 mm long and have a vertical travel of approximately 380 mm. When fully inserted, they are completely inside the guide tube and their tops are not visible. When the rod is fully withdrawn, the top of the control rod is still not visible. It appears that even with the new rod being 35 mm shorter, it will not come out of the guide tube. Additionally, although the absorber section is 35 mm shorter, the new rods have a spacer, so when installed the total length will only be 15 mm shorter. We will verify that the Reg Rod does not come out of the guide tube when the rod is fully

withdrawn: We will test for this before all of the fuel elements are returned to the core (we always remove three fuel elements before we physically remove a control rod to ensure the reactor remains subcritical). We may need to return one or two fuel elements before we do this test, in order to clear the source interlock that prevents control rod withdrawal if the shutdown neutron flux is too low. With three elements out of the core, this interlock is activated.

We will do a complete calibration, scram check, and other checks of the Reg Rod when it is replaced.

[NOTE: this modification was not made]

Title: Moving the Reg Rod Motor Mount

Date: January 17, 2005

Summary of Proposed Change:

While investigating the cause of the wear on the regulating rod, we discovered that its motor mount was out of alignment with its core location. It is 1.25 inches south of where it should be. This is about half a ring, so the motor is not directly over any core location. It has been this way since original construction in 1968. We want to fix the alignment problem.

Fixing the alignment will involve machining the opening for the reg rod by another 1.25 inches, producing an oblong hole. The current hole is 2.5 inches in diameter, so we cannot just drill a new hole. We will also need four new threaded holes for securing the motor in the new location.

The only apparent safety issue is ensuring that no metal shavings fall into the water during the machining. This will be accomplished by placing plastic sheeting under and around the bridge during the work. It is not possible to simply remove that section of the bridge for machining, because it also supports the other two control rods. To remove that section of the bridge, we would have to either completely unload the core, or somehow leave the other two control rods in the core while their motors are removed; neither is simple.

We will verify proper operation of the rod before commencing operation.
We intend to have Reed College physical plant, or a contractor, perform the work.

Title: Linear Scram Verification

Date: March 30, 2004

Summary of Proposed Change:

The Current Adjust on the Linear Power channel is not working properly. This is the method used to check the Linear Power scram. Instead of allowing the operator to adjust the test signal to the Linear Power channel with the potentiometer to test the scram setpoint, it goes to full scale and scrams the reactor. Thus it cannot be used to verify that the scram is below 110% of full power as required by Tech Spec F.5 and Table I. We are required to check this on the startup checklist per Tech Spec F.7. Tech Spec A.2 allows going to 287.5 kW to test the scram, but we don't want to use that technique.

This change will check the Linear Power scram with two other techniques during the startup checklist until the channel is repaired. The Linear Power scram will be tested

with the CAL HI position, which is already authorized by SOP 1, Startup Checklist. The Linear Power scram will also be tested by selecting the lowest range on the Linear Power channel, (2.5 mW) and withdrawing control rods to allow subcritical multiplication to increase the power until 110% of the 2.5 mW range is reached. This will cause a scram. At that power the reactor is still subcritical.

Note that the Percent Power scram still works as normal at less than 110% of its scale.

[NOTE: this has been changed back]

Title: Reactor On Light

Date: April 11, 2005

Summary of Proposed Change:

This change will add a light to indicate when the reactor console key is in the "On" position. Contacts on the console key switch will be used to enable a light in the control room (and possibly more lights) that indicate when the key is in the "On" position. This will increase operator awareness when the reactor is not shutdown and that an operator must be behind the console.

Specific care will be taken to ensure that the modification does not in anyway defeat or reset any scrams.

RADIATION PROTECTION

Personnel Dosimetry

During the period July 1, 2004 to June 30, 2005 personnel dosimeters were issued to 56 Reed students and staff, and to one contractor. Since dosimeters are changed on a calendar quarter schedule, this period is the closest to the reporting period. Individuals were issued beta-gamma sensitive ring badges and whole-body badges. The Director and Associate Director were issued beta-gamma-neutron sensitive dosimetry.

During the year the largest annual whole body dose was 13 mrem deep dose equivalent. The largest annual extremity dose was 240 mrem shallow dose equivalent. Both of these were staff members (not students). No one exceeded one percent of the federal limits.

Fixed Area Dosimetry

Radiation levels are continually monitored to provide an indication of the average radiation levels in the reactor bay and dose outside the facility. All dosimeters monitor beta and gamma radiation. Two locations also measure neutron dose.

The deep dose equivalent radiation measured by fixed dosimeters during the period July 1, 2004 to June 30, 2005 are shown in Table E. Since dosimeters are changed on a calendar quarter schedule, this period is the closest to the reporting period.

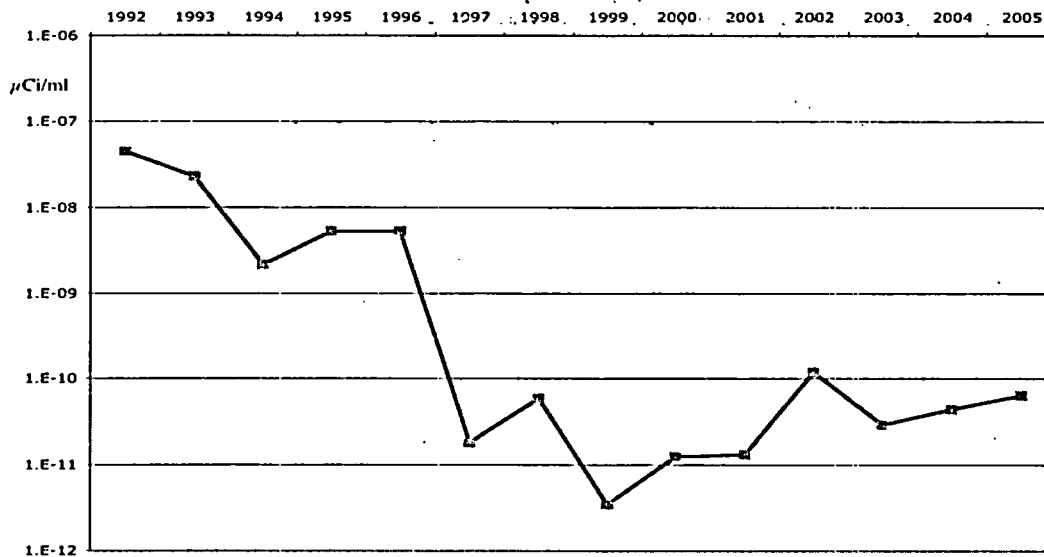
Table E - Area Radiation Dosimeters
(doses are in mrem per calendar quarter)

Location	Height (m)	Radiation Detected	Jul 1 - Sep 30	Oct 1 - Dec 31	Jan 1 - Mar 31	Apr 1 - Jun 30	Total
East Wall	1.5	β , γ , n	27	44	23	27	121
North Wall	1.6	β , γ	23	45	37	43	148
West Wall	1.0	β , γ , n	158	15	25	64	262
South Wall	1.6	β , γ	31	66	17	27	141
North Wall	2.3	β , γ	88	123	31	42	284
North Outside	2.8	β , γ	8	0	0	0	8
Roof Outside	0.4	β , γ	0	1	0	0	1
East Outside	1.5	β , γ	0	0	0	0	0
South Outside	0.4	β , γ	0	0	0	0	0

Gaseous Releases

The only routine release of gaseous radioactivity is from ^{41}Ar (1.83-hour half-life) and ^{16}N (7.13-second half-life). These come from activation of pool water and air in the pool water and in the irradiation facilities. For calendar year 2004, the average gaseous activity at the site boundary was $6.36 \times 10^{-11} \mu\text{Ci/ml}$, which would deliver a dose to a member of the public of approximately 0.32 mrem, well below regulatory guidelines and constraints. Figure 6 shows the gaseous releases for each year.

Figure 6 – Gaseous Releases Activity at Site Boundary



Liquid Waste Releases

No liquid radioactive waste was released from the Reed Research Reactor during this report period.

Solid Waste Disposal

There were no shipments of radioactive waste from the facility during this reporting period.

Environmental Sampling

Soil samples taken from the area surrounding the facility showed no activity above background. Water samples taken from the facility's secondary cooling system showed no activity above background.

APPENDIX A - VISITORS

Date	Institution	Purpose	Number	Funding
09/01/04	Reed	Tour	1	Reed
09/03/04	Reed	Tour	2	Reed
09/04/04	Reed	Operations	1	Reed
09/05/04	Reed	Tour	1	Reed
09/07/04	Reed	Shutdown	1	Reed
09/12/04	Reed	Tour	2	Reed
09/13/04	Reed	Tour	82	Reed
09/13/04	United Fire	Maintenance	1	Reed
09/16/04	Reed	Training	22	Reed
09/17/04	Reed	Tour	1	Reed
09/20/04	Reed	Chemistry Lab	22	Reed
09/21/04	Reed	Chemistry Lab	58	Reed
09/22/04	Reed	Chemistry Lab	23	Reed
09/23/04	Reed	Chemistry Lab	44	Reed
09/24/04	Reed	Chemistry Lab	23	Reed
09/27/04	Reed	Operations	1	Reed
09/27/04	Reed	Tour	8	Reed
09/29/04	Reed	Training	19	Reed
09/29/04	Reed	Operations	3	Reed
09/29/04	Reed	Shutdown	3	Reed
09/29/04	United Fire	Maintenance	2	Reed
09/30/04	Reed	Startup	1	Reed
09/30/04	Reed	Training	27	Reed
10/01/04	Reed	Training	1	Reed
10/03/04	Reed	Training	2	Reed
10/04/04	Reed	Training	2	Reed
10/05/04	Reed	Training	1	Reed
10/06/04	Prospective Reed Students	Tour	3	Reed
10/06/04	Reed	Training	13	Reed
10/07/04	Reed	Training	32	Reed
10/08/04	Reed	Training	2	Reed
10/11/04	Reed	Startup	1	Reed
10/11/04	Reed	Training	1	Reed
10/11/04	United Fire	Maintenance	1	Reed
10/12/04	Cleveland High School	Tour	35	US DOE
10/12/04	Reed	Shutdown	2	Reed
10/13/04	Reed	Startup	1	Reed
10/13/04	Reed	Training	6	Reed
10/13/04	Reed	Weekly	1	Reed
10/14/04	Reed	Shutdown	1	Reed
10/14/04	Reed	Training	20	Reed

Date	Institution	Purpose	Number	Funding
10/15/04	Reed	Startup	1	Reed
10/15/04	Reed Physical Plant	Tour	10	Reed
10/17/04	Reed	Photos	1	Reed
10/18/04	Reed	Startup	1	Reed
10/18/04	Reed	Training	2	Reed
10/19/04	Reed	Training	1	Reed
10/19/04	RSO Class	RSO Class	5	Reed
10/20/04	Reed	Training	2	Reed
10/21/04	Centennial High School	Tour	39	US DOE
10/21/04	Reed	Shutdown	1	Reed
10/21/04	Reed	Training	4	Reed
10/21/04	RSO Class	RSO Class	7	Reed
10/22/04	Reed	Shutdown	4	Reed
10/22/04	Reed	Training	7	Reed
10/25/04	Reed	Training	2	Reed
10/27/04	Reed	Training	10	Reed
10/27/04	Reed	Weekly	3	Reed
10/28/04	Reed	Training	23	Reed
10/29/04	Reed	Startup	1	Reed
10/29/04	Reed	Training	1	Reed
10/29/04	Reed	Tour	1	Reed
10/29/04	Sellwood Middle School	Tour	25	US DOE
10/29/04	United Fire	Maintenance	1	Reed
10/31/04	Oregon Episcopal School	Tour	14	US DOE
10/31/04	Reed	Training	3	Reed
11/02/04	US NRC	Inspection	1	Reed
11/03/04	George Fox University	Tour	2	US DOE
11/03/04	Lewis and Clark College	Tour	1	US DOE
11/03/04	Linfield College	Tour	1	US DOE
11/03/04	Pacific University	Tour	3	US DOE
11/03/04	Reed	Training	2	Reed
11/03/04	Reed	Training	8	Reed
11/03/04	Reed	Tour	2	Reed
11/03/04	Warner Pacific College	Tour	1	US DOE
11/03/04	Willamette University	Tour	3	US DOE
11/04/04	Reed	Training	25	Reed
11/04/04	University of Nevada at Las Vegas	Tour	1	Reed
11/05/04	Reed	Training	1	Reed
11/05/04	Reed	Training	2	Reed
11/05/04	Rex Putnam High School	Tour	25	US DOE
11/09/04	Reed	Training	3	Reed
11/10/04	Prospective Reed Students	Tour	2	Reed
11/10/04	Reed	Training	4	Reed
11/11/04	Reed	Training	4	Reed

	Date	Institution	Purpose	Number	Funding
11/11/04	Reed	Training	5	Reed	
11/11/04	Saturday Academy	Tour	42	US DOE	
11/12/04	Lewis and Clark College	Tour	6	US DOE	
11/12/04	Our Lady of Lourdes	Tour	30	US DOE	
11/12/04	Prospective Reed Students	Tour	31	Reed	
11/12/04	Reed	Tour	3	Reed	
11/12/04	Reed	Training	2	Reed	
11/12/04	Reed	Training	1	Reed	
11/12/04	United Fire	Maintenance	1	Reed	
11/13/04	Lewis and Clark College	Tour	43	US DOE	
11/13/04	Reed	Training	2	Reed	
11/14/04	Reed	Training	2	Reed	
11/15/04	Reed	Training	2	Reed	
11/16/04	Reed	Maintenance	1	Reed	
11/17/04	Reed	Training	3	Reed	
11/18/04	Reed	Training	2	Reed	
11/18/04	Reed	Training	4	Reed	
11/18/04	Reed	Training	1	Reed	
11/22/04	Environmental Health & Safety	Inspection	1	Reed	
11/22/04	Reed	Training	2	Reed	
11/22/04	State Of Oregon	Inspection	1	Reed	
11/23/04	Camosun College Victoria BC	Tour	1	US DOE	
11/23/04	Prospective Reed Students	Tour	3	Reed	
11/24/04	Portland Fire Bureau	Training	10	Reed	
11/24/04	Reed	Training	3	Reed	
11/26/04	Portland Fire Bureau	Training	4	Reed	
11/27/04	Portland State University	Tour	2	US DOE	
11/29/04	United Fire	Maintenance	1	Reed	
11/30/04	Reed	Operations	2	Reed	
11/30/04	Reed	Training	2	Reed	
11/30/04	Reed	Chemistry Lab	6	Reed	
12/01/04	Portland Police Bureau	Training	6	Reed	
12/01/04	Reed	Training	22	Reed	
12/01/04	Reed	Weekly	2	Reed	
12/02/04	Lewis and Clark College	Tour	7	US DOE	
12/02/04	Reed	Training	5	Reed	
12/02/04	Reed	Startup	1	Reed	
12/02/04	Reed	Tour	8	Reed	
12/02/04	Reed	Training	13	Reed	
12/02/04	Reed Community Safety	Training	8	Reed	
12/03/04	Heal College	Tour	5	US DOE	
12/03/04	Reed	Operations	2	Reed	
12/03/04	Reed	Operations	2	Reed	
12/03/04	Reed	Training	3	Reed	

Date	Institution	Purpose	Number	Funding
12/03/04	Reed	Operations	1	Reed
12/03/04	Reed	Tour	2	Reed
12/06/04	Portland Fire Bureau	Training	4	Reed
12/06/04	Reed	Operations	1	Reed
12/06/04	United Fire	Maintenance	1	Reed
12/07/04	Portland Fire Bureau	Training	5	Reed
12/07/04	Poynter Middle School	Tour	29	US DOE
12/07/04	Reed	Training	1	Reed
12/08/04	Portland Fire Bureau	Training	4	Reed
12/08/04	Reed	Operations	1	Reed
12/08/04	Reed	Training	4	Reed
12/08/04	Reed	Training	1	Reed
12/08/04	Reed	Operations	2	Reed
12/08/04	Reed	Weekly	1	Reed
12/09/04	C.S. Lewis Academy	Tour	24	US DOE
12/09/04	Reed	Shutdown	2	Reed
12/12/04	Reed	Shutdown	1	Reed
12/13/04	Reed	Operations	1	Reed
12/13/04	Reed	Tour	3	Reed
12/14/04	Reed	Operations	1	Reed
12/15/04	Reed	Weekly	1	Reed
12/16/04	Reed	Training	1	Reed
12/16/04	Reed	Tour	1	Reed
01/04/05	Oregon Episcopal School	Operations	5	US DOE
01/07/05	Reed	Maintenance	1	Reed
01/07/05	Reed	Tour	1	Reed
01/07/05	United Fire	Maintenance	1	Reed
01/09/05	Reed	Training	7	Reed
01/10/05	Reed	Maintenance	1	Reed
01/10/05	Reed	Operations	3	Reed
01/10/05	Reed	Operations	2	Reed
01/10/05	Reed	Training	18	Reed
01/10/05	Reed	Operations	3	Reed
01/10/05	United Fire	Maintenance	1	Reed
01/11/05	Reed	Operations	1	Reed
01/11/05	Reed	Startup	2	Reed
01/11/05	Reed	Training	19	Reed
01/11/05	Reed	Maintenance	1	Reed
01/12/05	Reed	Operations	1	Reed
01/12/05	Reed	Training	1	Reed
01/12/05	Reed	Training	25	Reed
01/12/05	Reed	Weekly	1	Reed
01/13/05	Reed	Maintenance	1	Reed
01/13/05	Reed	Maintenance	1	Reed

Date	Institution	Purpose	Number	Funding
01/13/05	Reed	Shutdown	6	Reed
01/13/05	Reed	Training	21	Reed
01/14/05	Reed	Maintenance	7	Reed
01/14/05	Reed	Shutdown	3	Reed
01/14/05	Reed	Training	1	Reed
01/14/05	Reed	Training	6	Reed
01/14/05	Reed	Startup	3	Reed
01/17/05	Reed	Maintenance	2	Reed
01/17/05	Reed	Photos	1	Reed
01/17/05	Reed	Startup	2	Reed
01/17/05	Reed	Shutdown	2	Reed
01/17/05	Reed	Training	5	Reed
01/18/05	Reed	Maintenance	2	Reed
01/18/05	Reed	Training	9	Reed
01/19/05	Reed	Weekly	5	Reed
01/20/05	Reed	Training	18	Reed
01/20/05	Reed	Training	2	Reed
01/21/05	Reed	Maintenance	3	Reed
01/21/05	Reed	Startup	3	Reed
01/21/05	Reed	Training	4	Reed
01/24/05	Reed	Training	2	Reed
01/25/05	Reed	Maintenance	1	Reed
01/26/05	Reed	Training	4	Reed
01/26/05	Reed	Weekly	5	Reed
01/27/05	Reed	Training	7	Reed
01/30/05	Reed	Training	1	Reed
01/31/05	Oregon Electrical Group	Maintenance	1	Reed
01/31/05	Reed	Training	2	Reed
02/01/05	Reed	Maintenance	1	Reed
02/02/05	Reed	Maintenance	1	Reed
02/02/05	Reed	Maintenance	1	Reed
02/02/05	Reed	Shutdown	1	Reed
02/02/05	Reed	Training	1	Reed
02/02/05	Reed	Weekly	2	Reed
02/02/05	Reed	Training	2	Reed
02/03/05	Reed	Maintenance	4	Reed
02/03/05	Reed	Shutdown	1	Reed
02/04/05	Reed	Maintenance	1	Reed
02/04/05	Reed	Operations	1	Reed
02/04/05	Reed	Training	1	Reed
02/04/05	Reed	Training	1	Reed
02/05/05	Reed	Training	1	Reed
02/07/05	Oregon Electrical Group	Maintenance	1	Reed
02/07/05	Reed	Maintenance	1	Reed

Date	Institution	Purpose	Number	Funding
02/07/05	Reed	Shutdown	1	Reed
02/07/05	Reed	Training	1	Reed
02/07/05	Reed	Training	1	Reed
02/08/05	Jefferson High School	Tour	46	US DOE
02/08/05	Reed	Startup	2	Reed
02/08/05	Reed	Training	3	Reed
02/08/05	United Fire	Maintenance	1	Reed
02/09/05	Reed	Training	7	Reed
02/09/05	Reed	Training	2	Reed
02/09/05	Reed	Weekly	1	Reed
02/10/05	Advocates for Women in Science, Engineering, and Math	Tour	14	US DOE
02/10/05	Reed	Maintenance	2	Reed
02/10/05	Reed	Shutdown	4	Reed
02/10/05	Reed	Training	1	Reed
02/10/05	Reed	Training	6	Reed
02/10/05	Reed	Startup	2	Reed
02/11/05	Reed	Training	1	Reed
02/11/05	Reed	Training	2	Reed
02/13/05	Reed	Training	1	Reed
02/14/05	Jefferson High School	Tour	27	US DOE
02/14/05	Reed	Shutdown	1	Reed
02/14/05	Reed	Training	2	Reed
02/15/05	Jefferson High School	Tour	50	US DOE
02/15/05	Reed	Shutdown	2	Reed
02/15/05	Reed	Training	5	Reed
02/15/05	Saturday Academy	Tour	11	US DOE
02/16/05	Reed	Training	4	Reed
02/17/05	Reed	Startup	2	Reed
02/17/05	Reed	Training	1	Reed
02/17/05	Reed	Shutdown	1	Reed
02/18/05	Advocates for Women in Science, Engineering, and Math	Tour	11	US DOE
02/18/05	PCC Structural, Inc	Tour	2	US DOE
02/18/05	Reed	Shutdown	1	Reed
02/18/05	Reed	Startup	1	Reed
02/18/05	Reed	Training	1	Reed
02/20/05	Reed	Tour	1	Reed
02/21/05	Reed	Training	1	Reed
02/22/05	Reed	Operations	1	Reed
02/22/05	Reed	Startup	1	Reed
02/22/05	Reed	Tour	2	Reed
02/22/05	Reed	Training	1	Reed
02/22/05	Reed	Training	1	Reed

	Date	Institution	Purpose	Number	Funding
	02/22/05	Saturday Academy	Tour	6	US DOE
	02/23/05	Reed	Training	13	Reed
	02/23/05	Reed	Weekly	2	Reed
	02/24/05	Reed	Operations	3	Reed
	02/24/05	Reed	Training	12	Reed
	02/25/05	United Fire	Maintenance	1	Reed
	02/26/05	Reed	Startup	4	Reed
	02/26/05	Reed	Tour	2	Reed
	02/26/05	Reed	Training	3	Reed
	02/26/05	Reed	Shutdown	1	Reed
	02/28/05	Reed	Training	1	Reed
	03/01/05	Reed	Shutdown	1	Reed
	03/01/05	Reed	Startup	1	Reed
	03/01/05	Reed	Training	1	Reed
	03/01/05	Saturday Academy	Tour	5	US DOE
	03/02/05	Reed	Training	11	Reed
	03/03/05	Mt. Tabor Middle School	Tour	9	US DOE
	03/03/05	Reed	Training	2	Reed
	03/03/05	Reed	Training	2	Reed
	03/03/05	Reed	Training	6	Reed
	03/04/05	Reed	Training	1	Reed
	03/04/05	Reed	Training	1	Reed
	03/04/05	Reed	Training	3	Reed
	03/04/05	Reed	Tour	3	Reed
	03/05/05	Reed	Training	13	Reed
	03/06/05	Reed	Startup	1	Reed
	03/06/05	Reed	Training	1	Reed
	03/06/05	Reed	Training	7	Reed
	03/06/05	Reed	Training	3	Reed
	03/07/05	Reed	Startup	4	Reed
	03/07/05	Reed	Training	2	Reed
	03/07/05	United Fire	Maintenance	1	Reed
	03/08/05	Reed	Operations	4	Reed
	03/08/05	Reed	Startup	1	Reed
	03/08/05	Reed	Training	1	Reed
	03/08/05	Reed	Shutdown	1	Reed
	03/08/05	Reed	Training	1	Reed
	03/08/05	Reed	Training	1	Reed
	03/08/05	Saturday Academy	Tour	1	US DOE
	03/09/05	Reed	Operations	1	Reed
	03/09/05	Reed	Startup	3	Reed
	03/09/05	Reed	Training	2	Reed
	03/09/05	Reed	Weekly	2	Reed
	03/09/05	Reed	Training	7	Reed

Date	Institution	Purpose	Number	Funding
03/09/05	Reed	Wipes	7	Reed
03/10/05	Pacific University	Tour	11	US DOE
03/10/05	Reed	Maintenance	1	Reed
03/10/05	Reed	Maintenance	1	Reed
03/10/05	Reed	Operations	1	Reed
03/10/05	Reed	Operations	3	Reed
03/10/05	Reed	Shutdown	1	Reed
03/10/05	Reed	Startup	3	Reed
03/10/05	Reed	Training	1	Reed
03/10/05	Reed	Training	5	Reed
03/11/05	Reed	Training	2	Reed
03/13/05	Reed	Training	1	Reed
03/14/05	Reed	Training	2	Reed
03/15/05	Reed	Maintenance	1	Reed
03/15/05	Reed	Startup	1	Reed
03/15/05	Reed	Training	2	Reed
03/16/05	Reed	Maintenance	2	Reed
03/16/05	Reed	Startup	2	Reed
03/16/05	Reed	Weekly	3	Reed
03/17/05	Hunter-Davidson, Inc	Maintenance	1	Reed
03/17/05	Reed	Shutdown	2	Reed
03/17/05	Reed	Startup	1	Reed
03/17/05	Reed	Training	1	Reed
03/17/05	Reed	Training	5	Reed
03/17/05	Southridge High School	Tour	27	US DOE
03/18/05	Reed	Operations	5	Reed
03/18/05	Reed	Shutdown	1	Reed
03/18/05	Reed	Startup	1	Reed
03/18/05	Reed	Tour	1	Reed
03/18/05	Reed	Training	2	Reed
03/19/05	Reed	Training	8	Reed
03/20/05	Reed	Training	2	Reed
03/20/05	Reed	Training	2	Reed
03/21/05	Reed	Training	1	Reed
03/22/05	Reed	Training	2	Reed
03/23/05	Oregon Electrical Group	Maintenance	1	Reed
03/23/05	Reed	Operations	1	Reed
03/23/05	Reed	Operations	1	Reed
03/23/05	Reed	Startup	1	Reed
03/23/05	Reed	Tour	4	Reed
03/23/05	Reed	Training	4	Reed
03/23/05	Reed	Training	3	Reed
03/23/05	Reed	Training	1	Reed
03/23/05	Reed	Training	1	Reed

	Date	Institution	Purpose	Number	Funding
03/23/05	Reed	Weekly	5	Reed	
03/23/05	Reed	Wipes	2	Reed	
03/24/05	Reed	Operations	5	Reed	
03/24/05	Reed	Shutdown	1	Reed	
03/24/05	Reed	Training	1	Reed	
03/24/05	Reed	Training	7	Reed	
03/24/05	Reed	Training	4	Reed	
03/25/05	Reed	Training	1	Reed	
03/25/05	Reed	Training	7	Reed	
03/26/05	Reed	Shutdown	2	Reed	
03/26/05	Reed	Startup	5	Reed	
03/26/05	Reed	Startup	2	Reed	
03/26/05	Reed	Tour	6	Reed	
03/26/05	Reed	Training	12	Reed	
03/26/05	Reed	Weekly	2	Reed	
03/27/05	Reed	Operations	1	Reed	
03/27/05	Reed	Operations	1	Reed	
03/27/05	Reed	Shutdown	1	Reed	
03/27/05	Reed	Tour	3	Reed	
03/27/05	Reed	Training	14	Reed	
03/27/05	Reed	Startup	3	Reed	
03/27/05	Reed	Weekly	1	Reed	
03/28/05	Radiation Safety Committee	Audit	1	Reed	
03/28/05	Reed	Thesis	1	Reed	
03/28/05	Reed	Training	4	Reed	
03/28/05	Reed	Startup	2	Reed	
03/29/05	Reed	Training	1	Reed	
03/30/05	Reed	Startup	3	Reed	
03/30/05	Reed	Tour	1	Reed	
03/30/05	Reed	Training	3	Reed	
03/30/05	Reed	Weekly	3	Reed	
03/31/05	Reed	Training	2	Reed	
03/31/05	Reed	Training	2	Reed	
03/31/05	Reed	Maintenance	1	Reed	
04/01/05	David Douglas High School	Tour	35	US DOE	
04/01/05	Reed	Shutdown	2	Reed	
04/01/05	Reed	Startup	2	Reed	
04/01/05	Reed	Tour	1	Reed	
04/01/05	Reed	Training	1	Reed	
04/01/05	Reed	Training	2	Reed	
04/02/05	Reed	Tour	9	Reed	
04/04/05	Reed	Training	1	Reed	
04/05/05	David Douglas High School	Tour	36	US DOE	
04/05/05	Reed	Chemistry Lab	1	Reed	

Date	Institution	Purpose	Number	Funding
04/05/05	Reed	Shutdown	1	Reed
04/05/05	Reed	Startup	1	Reed
04/05/05	Reed	Training	1	Reed
04/06/05	Reed	Shutdown	2	Reed
04/06/05	Reed	Training	2	Reed
04/06/05	Reed	Training	1	Reed
04/06/05	Reed	Wipes	1	Reed
04/07/05	Concordia University	Tour	17	US DOE
04/07/05	Reed	Shutdown	1	Reed
04/07/05	Reed	Startup	1	Reed
04/07/05	Reed	Training	4	Reed
04/11/05	Hunter-Davidson, Inc	Maintenance	1	Reed
04/11/05	Reed	Operations	2	Reed
04/11/05	Reed	Training	1	Reed
04/12/05	Reed	Training	1	Reed
04/12/05	Reed	Training	3	Reed
04/12/05	United Fire	Maintenance	1	Reed
04/13/05	Reed	Startup	1	Reed
04/13/05	Reed	Training	7	Reed
04/13/05	Reed	Training	2	Reed
04/13/05	Reed	Weekly	2	Reed
04/14/05	Reed	Tour	2	Reed
04/14/05	Reed	Tour	18	Reed
04/14/05	Reed	Training	12	Reed
04/14/05	Reed	Training	1	Reed
04/15/05	Reed	Reed Activity Days Tour	33	Reed
04/15/05	Reed	Shutdown	1	Reed
04/15/05	Reed	Training	1	Reed
04/15/05	Reed	Startup	1	Reed
04/16/05	Reed	Maintenance	1	Reed
04/16/05	Reed	Shutdown	1	Reed
04/16/05	Reed	Startup	1	Reed
04/16/05	Reed	Tour	12	Reed
04/18/05	Reed	Operations	2	Reed
04/18/05	Reed	Reed Activity Days Tour	15	Reed
04/18/05	Reed	Shutdown	2	Reed
04/18/05	Reed	Startup	1	Reed
04/18/05	Reed	Training	1	Reed
04/18/05	Reed	Training	1	Reed
04/18/05	Reed	Maintenance	1	Reed
04/19/05	American Chemical Society	Tour	2	US DOE
04/19/05	Reed	Tour	4	Reed
04/19/05	Reed	Training	2	Reed
04/19/05	Reed	Training	2	Reed

Date	Institution	Purpose	Number	Funding
04/20/05	Reed	Startup	1	Reed
04/20/05	Reed	Tour	2	Reed
04/20/05	Reed	Training	1	Reed
04/20/05	Reed	Weekly	1	Reed
04/21/05	Reed	Shutdown	1	Reed
04/21/05	Reed	Shutdown	1	Reed
04/21/05	Reed	Startup	1	Reed
04/21/05	Reed	Training	2	Reed
04/21/05	Reed	Training	3	Reed
04/22/05	Reed	Training	1	Reed
04/22/05	Reed	Training	5	Reed
04/23/05	Reed	Training	1	Reed
04/25/05	Reed	Training	3	Reed
04/26/05	Reed	Training	4	Reed
04/27/05	Pacific University	Tour	19	US DOE
04/27/05	Reed	Maintenance	1	Reed
04/27/05	Reed	Shutdown	1	Reed
04/27/05	Reed	Training	1	Reed
04/27/05	Reed	Training	5	Reed
04/27/05	Reed	Weekly	1	Reed
04/28/05	Reed	Training	1	Reed
04/28/05	Reed	Training	2	Reed
04/28/05	Reed Take your Kid to Work Day	Tour	33	Reed
04/28/05	United Fire	Maintenance	1	Reed
05/01/05	Reed	Shutdown	1	Reed
05/01/05	Reed	Training	2	Reed
05/02/05	Reed	Shutdown	1	Reed
05/02/05	Reed	Startup	1	Reed
05/02/05	US NRC	NRC Exam	1	Reed
05/03/05	US NRC	NRC Exam	2	Reed
05/03/05	US NRC	NRC Exam	1	Reed
05/03/05	US NRC	NRC Exam	2	Reed
05/04/05	Reed	Weekly	2	Reed
05/04/05	US NRC	Inspection	2	Reed
05/04/05	US NRC	NRC Exam	1	Reed
05/04/05	US NRC	NRC Exam	4	Reed
05/04/05	US NRC	NRC Exam	1	Reed
05/05/05	Reed	Shutdown	2	Reed
05/05/05	US NRC	NRC Exam	1	Reed
05/05/05	US NRC	NRC Exam	2	Reed
05/05/05	US NRC	Training	1	Reed
05/06/05	Reed	Shutdown	1	Reed
05/06/05	Reed	Startup	1	Reed
05/06/05	US NRC	NRC Exam	3	Reed

Date	Institution	Purpose	Number	Funding
05/07/05	US NRC	NRC Exam	2	Reed
05/07/05	US NRC	Training	2	Reed
05/09/05	Reed	Shutdown	1	Reed
05/09/05	US NRC	NRC Exam	2	Reed
05/10/05	Reed	Shutdown	1	Reed
05/10/05	United Fire	Maintenance	1	Reed
05/10/05	US NRC	NRC Exam	5	Reed
05/11/05	US NRC	NRC Exam	5	Reed
05/12/05	US NRC	NRC Exam	5	Reed
05/15/05	Lewis and Clark College	Tour	4	US DOE
05/16/05	Lewis and Clark College	Tour	23	US DOE
05/17/05	Oregon Electrical Group	Maintenance	1	Reed
05/18/05	Lewis and Clark College	Tour	9	US DOE
05/18/05	Reed	Photos	1	Reed
05/18/05	Reed	Shutdown	1	Reed
05/18/05	Reed	Tour	2	Reed
05/18/05	Reed News and Publication	Tour	1	Reed
05/20/05	Lewis and Clark College	Tour	11	US DOE
05/23/05	United Fire	Maintenance	1	Reed
05/24/05	JFK High School	Tour	11	US DOE
06/01/05	Reed	Weekly	1	Reed
06/08/05	Reed	Weekly	1	Reed
06/10/05	Reed	Tour	3	Reed
06/13/05	Reed	RSO Course	1	Reed
06/14/05	Reed	RSO Course	6	Reed
06/14/05	Reed	RSO Course	5	Reed
06/14/05	United Fire	Maintenance	1	Reed
06/15/05	Reed	Weekly	1	Reed
06/16/05	Reed	RSO Course	6	Reed
06/20/05	Oregon Electrical Group	Maintenance	2	Reed
06/22/05	Reed	Tour	2	Reed
06/22/05	Reed	Weekly	1	Reed
06/22/05	Reed Physical Plant	Maintenance	1	Reed
06/23/05	Environmental Health & Safety	Inspection	2	Reed
06/27/05	Reed Physical Plant	Maintenance	2	Reed
06/28/05	Reed	Shutdown	1	Reed
06/28/05	United Fire	Maintenance	1	Reed
06/29/05	Reed	Weekly	2	Reed
07/06/05	Reed	Weekly	2	Reed
07/06/05	Reed Physical Plant	Maintenance	1	Reed
07/11/05	Reed	Operations	2	Reed
07/11/05	Reed	Startup	2	Reed
07/11/05	Saturday Academy	Tour	19	US DOE
07/12/05	Portland State University	Tour	6	US DOE

Date	Institution	Purpose	Number	Funding
07/12/05	Reed	Maintenance	2	Reed
07/12/05	Reed	Shutdown	1	Reed
07/12/05	Reed	Startup	1	Reed
07/12/05	Reed	Operations	2	Reed
07/12/05	United Fire	Maintenance	1	Reed
07/13/05	Reed	Maintenance	1	Reed
07/13/05	Reed	Maintenance	1	Reed
07/13/05	Reed	Operations	1	Reed
07/13/05	Reed	Operations	2	Reed
07/13/05	Saturday Academy	Tour	12	US DOE
07/14/05	Reed	Operations	1	Reed
07/14/05	Reed	Startup	2	Reed
07/14/05	Reed	Training	1	Reed
07/14/05	Saturday Academy	Tour	24	US DOE
07/14/05	Saturday Academy	Tour	11	US DOE
07/18/05	Reed	Shutdown	1	Reed
07/19/05	Reed	Maintenance	2	Reed
07/19/05	Reed	Operations	2	Reed
07/20/05	Reed	Weekly	2	Reed
07/21/05	Advocates for Women in Science, Engineering, and Math	Tour	31	US DOE
07/21/05	Reed	Startup	2	Reed
07/22/05	Reed	Operations	1	Reed
07/25/05	United Fire	Maintenance	1	Reed
07/26/05	Environmental Health & Safety	Inspection	1	Reed
07/27/05	Reed	Operations	2	Reed
07/27/05	Reed	Shutdown	2	Reed
07/27/05	Reed	Startup	2	Reed
07/27/05	Reed	Wipes	2	Reed
07/28/05	Reed	Maintenance	1	Reed
07/28/05	Reed	Operations	1	Reed
08/01/05	Reed	Operations	1	Reed
08/02/05	Reed	Operations	1	Reed
08/03/05	Reed	Operations	2	Reed
08/04/05	Reed	Operations	1	Reed
08/05/05	Reed	Operations	1	Reed
08/08/05	Reed	Operations	1	Reed
08/08/05	United Fire	Maintenance	1	Reed
08/09/05	Reed	Operations	1	Reed
08/10/05	Reed	Audit	1	Reed
08/10/05	Reed	Operations	1	Reed
08/10/05	Reed	Weekly	1	Reed
08/11/05	Portland State University	Tour	2	US DOE
08/11/05	Reed	Operations	1	Reed

Date	Institution	Purpose	Number	Funding
08/16/05	LSM	Maintenance	1	Reed
08/16/05	Oregon State University	Maintenance	1	Reed
08/16/05	Reed	Maintenance	1	Reed
08/17/05	Oregon State University	Maintenance	1	Reed
08/17/05	Reed	Weekly	1	Reed
08/18/05	Reed	Maintenance	2	Reed
08/18/05	Reed	Public Affairs	2	Reed
08/19/05	Oregon State University	Maintenance	1	Reed
08/22/05	Oregon Electrical Group	Maintenance	5	Reed
08/22/05	Oregon State University	Maintenance	2	Reed
08/23/05	Oregon Electrical Group	Maintenance	5	Reed
08/23/05	Reed	Tour	2	Reed
08/24/05	Oregon State University	Maintenance	1	Reed
08/24/05	Reed	O-Week Tour	64	Reed
08/24/05	Reed	Startup	2	Reed
08/24/05	Reed	Training	1	Reed
08/24/05	Reed	Weekly	2	Reed
08/25/05	Reed	O-Week Tour	44	Reed
08/25/05	Reed	Shutdown	3	Reed
08/25/05	Reed	Startup	1	Reed
08/30/05	Reed	Operations	3	Reed
08/30/05	Reed	Shutdown	3	Reed
08/30/05	Reed	Startup	1	Reed
08/31/05	Oregon Electrical Group	Maintenance	1	Reed
08/31/05	Reed	Operations	1	Reed
08/31/05	Reed	Maintenance	2	Reed
08/31/05	Reed	Weekly	4	Reed
09/02/05	Reed	Startup	1	Reed
09/02/05	Reed	Shutdown	2	Reed
09/07/05	Reed	Startup	1	Reed