



**Office of Science
Laboratory Safety Reports**

**4th Quarter
October 1, 2002 – December 31, 2002**

**Ames
Argonne National Laboratory
Brookhaven National Laboratory
Fermi Laboratory
Lawrence Berkeley National Laboratory
Oak Ridge National Laboratory
Pacific Northwest National Laboratory
Princeton Plasma Physics Laboratory
Stanford Linear Accelerator Center
Thomas Jefferson National Accelerator Laboratory**

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QUARTERLY REPORT October – December 2002 Ames Laboratory

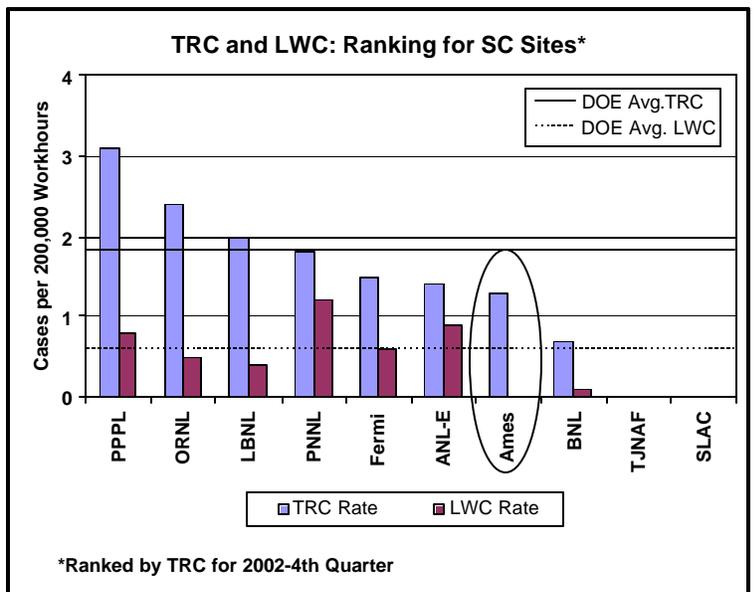
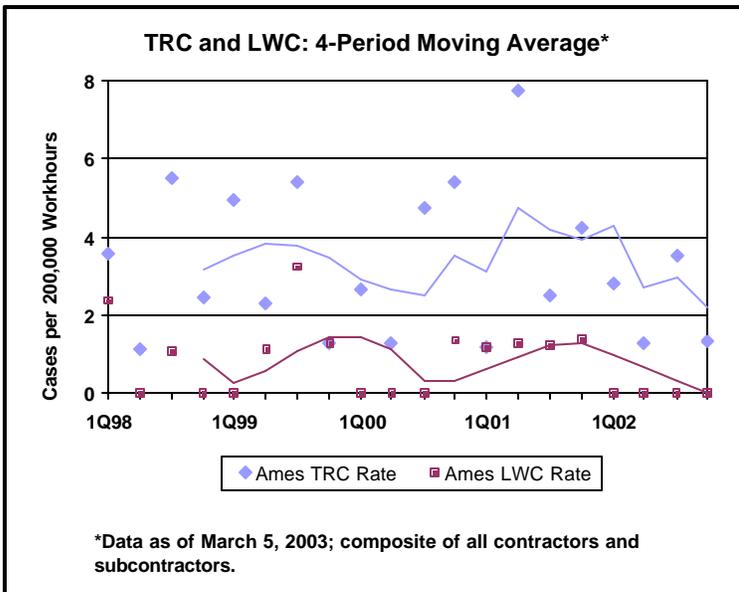
Safety-Related Mission Areas of Interest

Ames Laboratory's mission is to conduct fundamental research in the physical, chemical, materials, and mathematical sciences and engineering which underlie energy generating, conversion, transmission and storage technologies, environmental improvement, and other technical areas essential to national needs. Ames core competencies are in the areas of advanced materials synthesis, characterization and processing, computational and theoretical sciences, environmental characterization and remediation technologies.

Areas for Management Attention

1. There was one recordable injury and no occurrence reports in the fourth quarter. There were no lacerations in this quarter. Lacerations have accounted for a significant number of the recordable injuries at the Laboratory. The Laboratory has emphasized hazard awareness in safety meetings and group discussions and has implemented the use of new personal protection equipment. The Ames Area Office is continuing to closely monitor this issue.

DRAFT



Key Performance Areas (There were no occurrences this quarter.)	
Near Misses (0) <ul style="list-style-type: none">• None	Criticality Infractions (0) <ul style="list-style-type: none">• None
Radiological Concerns (0) <ul style="list-style-type: none">• None	AB Infractions (0) <ul style="list-style-type: none">• None
Shipping QA (0) <ul style="list-style-type: none">• None	Safeguards and Security (0) <ul style="list-style-type: none">• None
Other (0) <ul style="list-style-type: none">• None	Environmental Releases/Compliance (0) <ul style="list-style-type: none">• None

Progress on Safety Management Initiatives

- Ames Laboratory in coordination with the Ames Area Office has completed an independent baseline evaluation of their Environmental Management System December 2-6, 2002. A group from the Environmental Protection Agency (EPA) Region VII Office performed the review. The review team determined that the Laboratory's Environmental Management System could easily be incorporated into the existing Integrated Safety Management System and with some minor program improvements would be in compliance with the ISO 14001 Standard.

QUARTERLY REPORT

October-December 2002

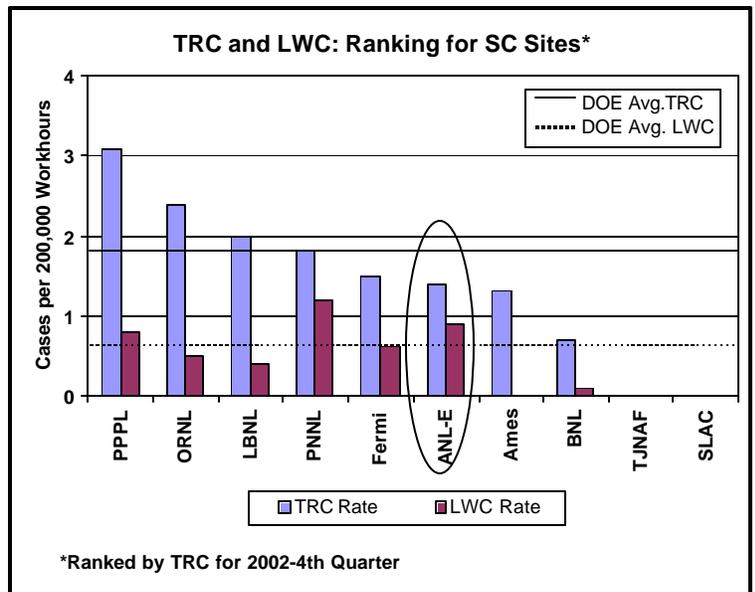
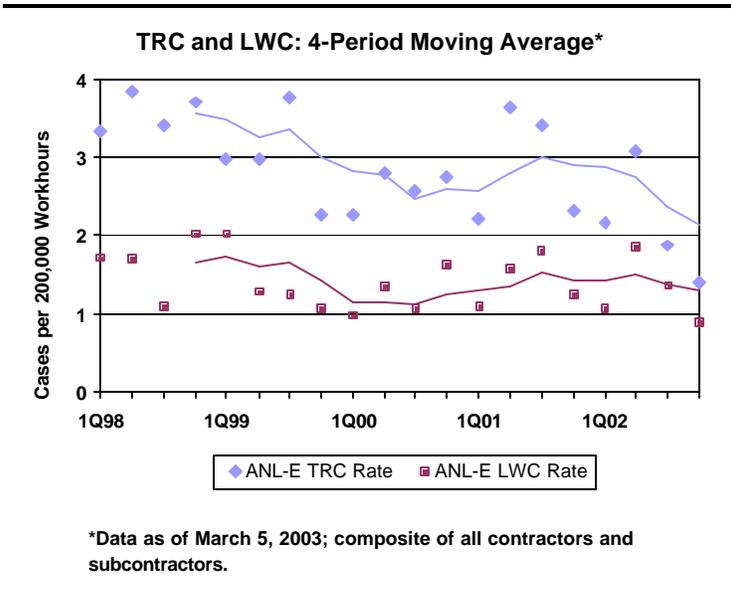
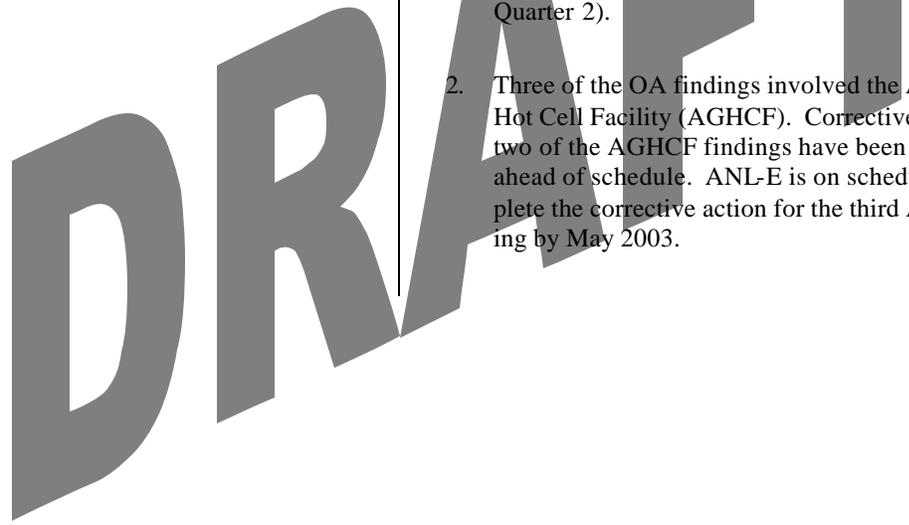
Argonne National Laboratory – East (ANL-E)

Safety-Related Mission Areas of Interest

ANL-E supports DOE's missions in science, energy resources, environmental stewardship, and national security, with lead roles in science, operation of scientific facilities, and energy.

Areas for Management Attention

1. Argonne Area Office (AAO) and ANL-E continue to make excellent progress towards completing by July 2003 all corrective actions to address weaknesses identified during a May 2002 Office of Independent Oversight and Performance Assurance (OA) review. The review identified weaknesses in hazards identification and control for non-experimental work; ineffective radiation protection program elements; poorly implemented nuclear safety requirements; poorly defined emergency management roles and responsibilities; and inadequate training and drills (as reported in Quarter 2).
2. Three of the OA findings involved the Alpha Gamma Hot Cell Facility (AGHCF). Corrective actions for two of the AGHCF findings have been completed ahead of schedule. ANL-E is on schedule to complete the corrective action for the third AGHCF finding by May 2003.



Key Performance Areas (There were 6 occurrences this quarter.)	
Near Misses (0) <ul style="list-style-type: none"> • None 	AB Infractions (0) <ul style="list-style-type: none"> • None
Radiological Concerns (3) <ul style="list-style-type: none"> • Three personnel contaminations involving boot soles and a shirt. No uptakes or skin contaminations. <i>Corrective actions have included additional PPE and monitoring requirements, more stringent Radiological Work Permit and additional training. Further investigation into the common causes of these three related events is ongoing.</i> 	Criticality Infraction (0) <ul style="list-style-type: none"> • None
Shipping QA (0) <ul style="list-style-type: none"> • None 	Environmental Releases/Compliance (0) <ul style="list-style-type: none"> • None
Fire Safety (1) <ul style="list-style-type: none"> • During replacement of a fire alarm system, alarm bells were not installed with a temporary fire alarm system according to the facility manager's direction. Facility was never without a fire detection and alarm system; ANL-E Fire Department Alarm Office could provide alerts via a PA system upon receiving an alarm. <i>Corrective action is pending investigation.</i> 	Safeguards and Security (0) <ul style="list-style-type: none"> • None
Occupational Safety/Industrial Hygiene (0) <ul style="list-style-type: none"> • None 	Material Handling (0) <ul style="list-style-type: none"> • None
Equipment Degradation (1) <ul style="list-style-type: none"> • Operator discovered slow leak of liquid in shield window 1A of the Alpha Gamma Hot Cell Facility. The leak resulted from corrosion through the window tank and could not be easily stopped. <i>The leaking window assembly and another similar window assembly have been refurbished. Two more window assemblies are also being refurbished.</i> 	Conduct of Operations (1) <ul style="list-style-type: none"> • During an experiment, a sample container holding a low level radioactive sample was opened without following approved procedures or using prescribed equipment. <i>ANL-E revised the procedures used for the conduct of experiments with radioactive samples to assure they are clear.</i>

Progress on Safety Management Initiatives

- ANL-E management has adopted the TapRoot® system for root cause analysis, problem investigation, and proactive improvement. Training in the TapRoot® system was conducted in November 2002. Thirty-two ANL-E and DOE staff attended a two-day session and 16 ANL-E and DOE managers attended an overview session. Another training session is scheduled for February 2003.
- ANL-E conducted a Sustainable Design Workshop on December 5, 2002. ANL-E identified CY 2003 projects that could benefit from a sustainable design process to yield high performance buildings that are also healthy and environmentally responsible. ANL-E past sustainable design successes include design and construction of the only DOE building that has been certified under the Leadership in Energy and Environmental Design (LEED™) rating system.

QUARTERLY REPORT

October - December 2002

Brookhaven National Laboratory (BNL)

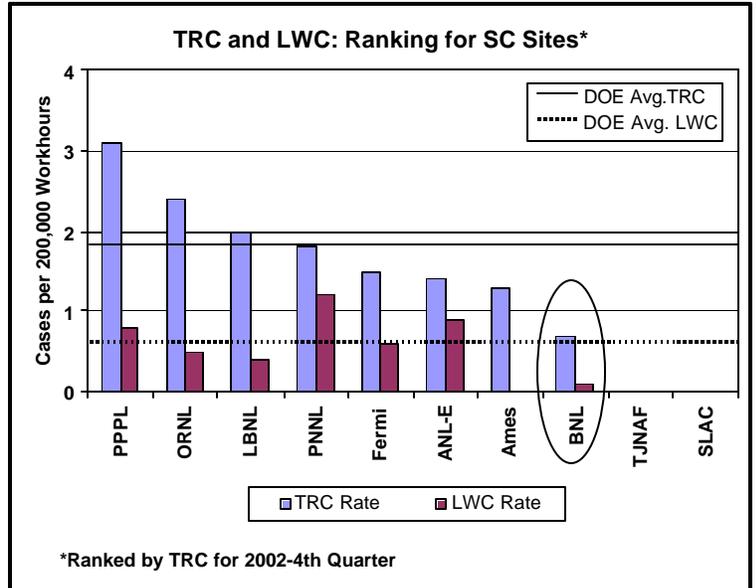
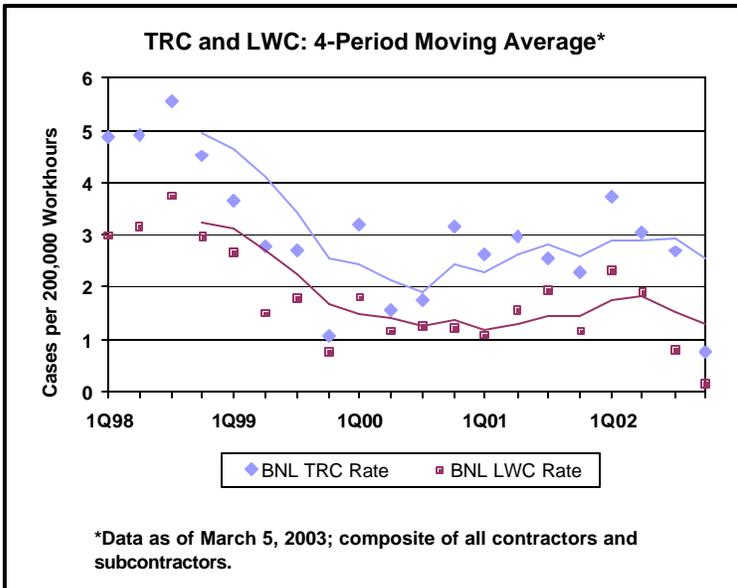
Safety-Related Mission Areas of Interest

BNL's major mission is to conceive, design, construct, and operate complex, leading edge, user-oriented facilities in response to the needs of the DOE and the international community of users; carry out basic and applied research in long-term, high-risk programs at the frontier of science; develop advanced technologies that address national needs, educate new generations of scientists and engineers.

1. BNL completed a Preliminary Hazard Analysis for the Center for Functional Nanomaterials in support of the Conceptual Design Report (CDR). No significant or unusual hazards were identified that would impact construction or operations of this new facility. Brookhaven Area Office (BAO) has also reviewed and concurs with the CDR findings.
2. The BNL Groundwater Protection Upgrades Project has been expanded to include the removal of all old, single-walled Underground Storage Tanks (UST's). Previously, only those tanks not part of a routine Tightness Testing Program (typically, tanks < 1100 gallons) were slated for removal. A total of seven tanks have been removed thus far, five of which were found to be leaking. All tanks are being replaced with above-grade storage tanks.
3. BNL has prepared and fully implemented the Subject Area, "Work Planning and Control for Experiments" as part of the BNL Standards-Based Management System (SBMS). This Subject Area establishes work control processes based on the Integrated Safety Management (ISM) Core Functions.

Areas for Management Attention

1. In the third quarter report, BNL reported a programmatic deficiency (noncompliance with 10CFR830) within the BNL Radioactive Waste Management Program (NTS-CH-BH-BNL-BNL-0003). The corrective/preventive actions are proceeding on schedule with 17 of the 23 actions having been completed.
2. The Pollution Prevention Program (P2) was recently transferred from DOE-EM to DOE-EH without funding. Organizations must now provide their own funds and still meet their site specific pollution prevention goals based on the DOE goals. In the past, this program has been very successful; however, it does take one to three years to see a cost savings. BNL spent \$119K in FY02 with a projected cost savings of approximately \$268K. BAO has provided an FY03 contract performance measure to further promote BNL involvement.
3. A suitable path forward for addressing legacy cleanup issues, not previously characterized or included in the EM scope, is being evaluated by BAO.



Key Performance Areas (There were 4 occurrences this quarter.)	
Near Misses (0) <ul style="list-style-type: none"> • None 	AB Infractions (0) <ul style="list-style-type: none"> • None
Radiological Concerns (0) <ul style="list-style-type: none"> • None 	Criticality Infraction (0) <ul style="list-style-type: none"> • None
Material Handling (1) <ul style="list-style-type: none"> • Minor excavator vehicle accident. Accident reported previously but estimate for repairs underestimated – current estimate is in excess of \$14,000. No injuries. <i>Reduce equipment congestion at BGRR excavation work sites.</i> 	Environmental Releases/Compliance (1) <ul style="list-style-type: none"> • UST soil samples taken around an underground storage tank indicated 25 ppm Xylene exceeding the NY state clean-up standards of 1.2 ppm. <i>Corrective Actions to be determined.</i>
Fire Safety (0) <ul style="list-style-type: none"> • None 	Safeguards and Security (0) <ul style="list-style-type: none"> • None
Occupational Safety/Industrial Hygiene (0) <ul style="list-style-type: none"> • None 	Shipping QA (0) <ul style="list-style-type: none"> • None
Other (2) <ul style="list-style-type: none"> • Suspect bolts found in ratchet strap assemblies. (2) • A minor fire (not ORPS reportable) occurred in a modulator at the Source Development Laboratory (SDL), an accelerator facility that is part of the National Synchrotron Light Source (NSLS). The cause of the fire was determined to be arcing. The implementation of Lessons Learned (i.e., improved operator procedures, improved design for modulators and capacitors) developed from a previous NSLS fire that was ORPS reportable (January 1999) served to prevent a more destructive incident in this recent fire. 	Conduct of Operations (0) <ul style="list-style-type: none"> • None

Progress on Safety Management Initiatives

- BNL continues to work aggressively towards improvement of its occupational injury trends. Plans are being implemented to bring Dupont Safety Services on site in the first quarter of 2003 to assist the laboratory in identifying mechanisms to further reduce the occupational injury rate and meet the FY 03 performance measure to provide increased incentive to reduce the BNLLWCR to within 40% of the 2002 DOE Research Contractor Average.
- BNL is developing a Nuclear Strategic Plan (NSP) that will reduce the laboratory's nuclear footprint, further safeguard high-risk nuclear material, and dispose of legacy material, in it's move towards compliance with the new 10 CFR 830 Rule (Nuclear Safety Management, Subpart B), requiring all nuclear facilities to have a Documented Safety Analysis (DSA) process in place by 4/10/03. The rule will be effectively integrated into BNL programs, such as the Transportation Safety Program (onsite) and as part of the former "Atoms for Peace" Program. BAO is working closely with BNL in this effort through ad-hoc membership on the BNL Transportation Safety Working Group and involvement in the Nuclear Strategic Plan review process.
- BNL, in support of the External Regulation Costing Exercise, performed an in-depth OSHA evaluation of the Laboratory. It is anticipated that a significant portion of the identified violations will be addressed and corrected through maintenance and/or the ESH planning process.

QUARTERLY REPORT
October - December 2002

Fermi National Accelerator Laboratory

Safety-Related Mission Areas of Interest

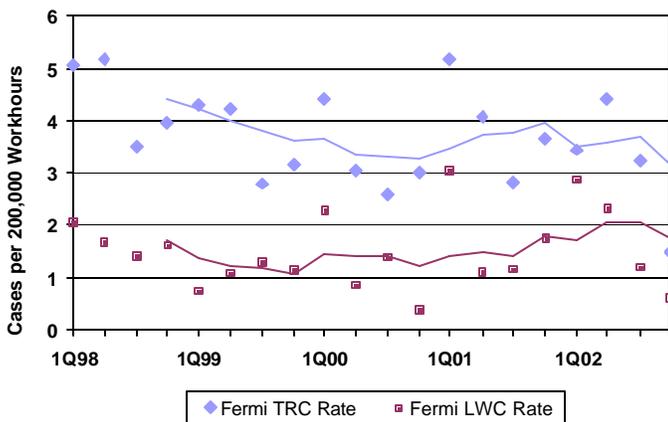
Fermi National Accelerator Laboratory advances the understanding of the fundamental nature of matter and energy by providing leadership and resources for qualified researchers to conduct basic research at the frontiers of high-energy physics and related disciplines.

1. The Beams Division conducted a spill/pollution prevention activity last quarter with funding assistance from the ES&H Section. Two dozen transformers from the old Main Ring had been stored as spares and represented potential spill sources. Due to their age and unusual secondary voltage, they were poor candidates for reuse elsewhere. In October 2002, the oil was drained and sent off site for fuel blending and the carcasses were shipped off site for scrap metal reclamation.
2. Fermilab completed \$38 million of work over the past three years to improve infrastructure. At the same time, the energy savings contributed to Fermilab's "ahead of schedule" achievement of energy reduction mandates directed in various Executive Orders. This work included 64 projects of varying complexity and involved as many as 28 different lower tier utility company subcontractors. One project was an 18-month complete electrical and mechanical rehabilitation of the Central Utility Building without disrupting scientific operations. In these three years, there has been only one lost workday injury (two recordable cases). This was only possible through close integration of construction managers and safety personnel from the utility, Fermilab, and DOE-Fermi Area Office.

Areas for Management Attention

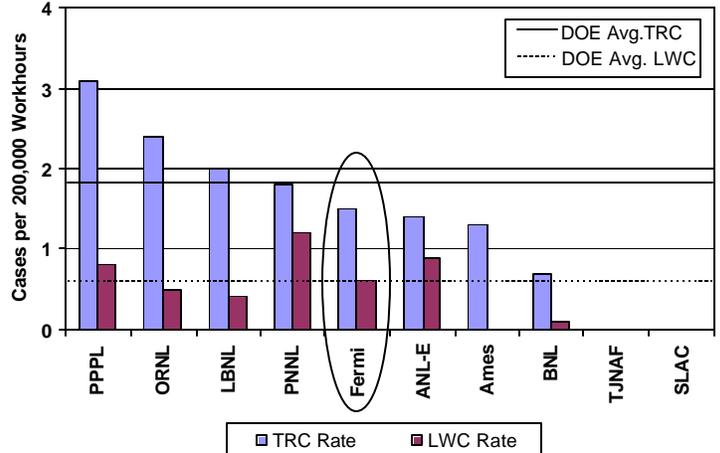
1. The injury rates continued to decrease over those in the 3rd Quarter CY02 (i.e., TRCR was 50% lower and LWCR 75% lower). There were 5 lost workday cases last quarter. Fermilab's subcontractors experienced only one LWC and have gone 83 days (as of 12/31/02) without a lost or restricted time injury. This is an indication that the recent efforts Fermilab has undertaken to reduce injuries are having a positive effect.
2. In December 2002, DOE-SC completed a review of Fermilab's Construction Safety Program. This was the final action described in the Corrective Action Plan developed in response to the Type A investigation of the Drill Rig Incident of June 2001. Preliminary conclusions of the Team were provided in a closeout on site on December 12 and then to SC management on December 20. The Team concluded that corrective action items had all been completed, but there was some evidence of uneven implementation of safety at Fermilab (particularly at the sub-tier level). The Team indicated that additional effort and focus is needed to bring the construction safety program to full maturity.

TRC and LWC: 4-Period Moving Average*



*Data as of March 5, 2003; composite of all contractors and subcontractors.

TRC and LWC: Ranking for SC Sites*



*Ranked by TRC for 2002-4th Quarter

Key Performance Areas (There were 3 occurrences this quarter.)	
Near Misses (1) <ul style="list-style-type: none"> Buried 480 volt, energized line cut with hand held cutter causing an arc and tripped circuit breaker. The line was inadvertently damaged during excavation to remove a water line. Subsequently, an electrical <u>subcontractor</u> tested the line, believed it was not energized, and cut the line. No injuries or property damage. <i>Corrective Actions (CA) included hazard analysis training for all subcontractor and sub-tier supervisors and employees; lock out/tag out training; written disciplinary warnings to the three individuals involved in the incident; development and implementation of a monthly maintenance program for electrical testing equipment including proximity testers; and meeting with subcontractor management to re-commit to working safely. A Tap Root Analysis was also conducted to verify the conclusions of the incident investigations and to indicate that the corrective actions implemented should be effective.</i> 	Other (1) <ul style="list-style-type: none"> Unoccupied trailer fire -- caused by a furnace blower motor seizing up and allowing furnace to build up heat causing combustion in duct-work. The trailer and furnace were over 15 years old, and thus were not subject to the 1995 American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) code mandating the protection of heating and air conditioning units in mobile homes/offices (e.g., "limit protection"). All trailers on site were inspected for similar conditions during December 2002.
Radiological Concerns (0) <ul style="list-style-type: none"> None 	Criticality Infraction (0) <ul style="list-style-type: none"> None
Shipping QA (0) <ul style="list-style-type: none"> None 	Environmental Releases/Compliance (0) <ul style="list-style-type: none"> None
Fire Safety (0) <ul style="list-style-type: none"> None 	Safeguards and Security (0) <ul style="list-style-type: none"> None
Occupational Safety/Industrial Hygiene (0) <ul style="list-style-type: none"> None 	Material Handling (0) <ul style="list-style-type: none"> None
Equipment Degradation (1) <ul style="list-style-type: none"> A multi-house quench occurred in the Tevatron while halo removal for store #2111 was in progress. This resulted in loss of helium >\$10K. The exact cause of the quench is unknown, although beam-position monitors show that the orbit shifted during scraping. 	Conduct of Operations (0) <ul style="list-style-type: none"> None
AB Infractions (0) <ul style="list-style-type: none"> None 	

Progress on Safety Management Initiatives

- None.

QUARTERLY REPORT
October - December 2002

Lawrence Berkeley National Laboratory (LBNL)

Safety-Related Mission Areas of Interest

LBNL performs research in advanced materials, life sciences, computing sciences, energy efficiency, detectors, and accelerators to serve America's needs in technology and the environment. As stewards of a national laboratory, the Lab is committed to fulfilling its scientific mission by performing all work safely, in a manner that strives for the highest degree of protection for employees, participating guests, visitors, the public, and the environment.

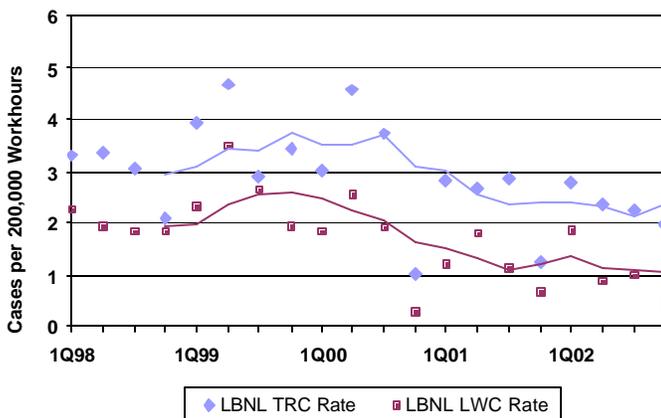
1. LBNL Health Services has computerized the Supervisor's Accident Analysis Report system, changing from faxing handwritten sheets for data entry to direct data entry into the database by the nurse, supervisor, and investigator. Notification and communication of results are by electronic mail. The benefits include faster response times, higher acceptance by supervisors, reduction in errors and about \$25,000 per year in data entry staff time.
2. An updated LBNL Radiation Protection Program Manual (revision 6) was completed, and reviewed and approved by the DOE Berkeley Site Office. Most changes are normal updates to the Radiation Protection Program (RPP). However, the manual includes a more detailed description of the revised X-Ray Protection Program and the change in renewal of radiation authorizations from 12 months to 18 months. The revised RPP manual is in compliance with requirements of 10 CFR 835.
3. LBNL is installing one of the first E85 (85% ethanol, 15% unleaded fuel) dispensing facilities in California. The dispensing facility will not only satisfy federal requirements for alternative fuel usage within vehicle

fleets but also meet requirements for vapor recovery systems. LBNL also ordered its first tank of biodiesel this quarter. The biodiesel will be used to power the Lab's fleet of buses.

Areas for Management Attention

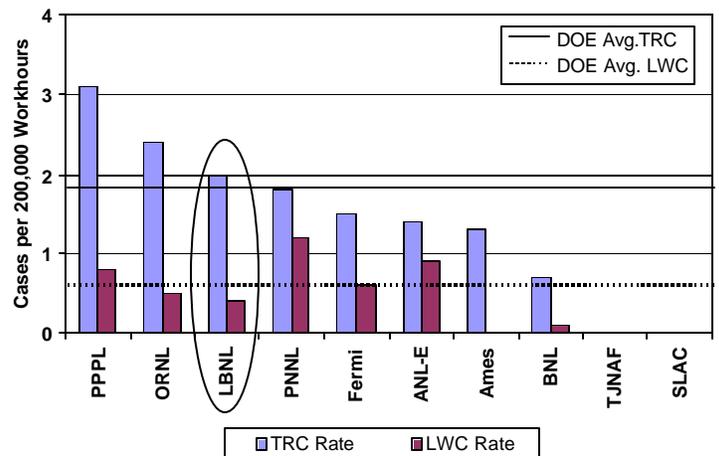
1. LBNL instituted new and more rigorous analyses of radioactive materials entering the sewer system. More radiological isotopes have been added to the analytical program. The more rigorous program recently investigated the source of positive gross beta results discovered in the sewer monitoring. The investigation confirmed that such results are attributed to naturally-occurring isotopes (e.g. K-40).
2. Central Contra Costa Sanitary District performed an inspection of the Production Genomics Facility (PGF) in Walnut Creek for both wastewater and stormwater issues. There were no citations or violations in either area. On the basis of the inspection, the District determined that PGF will not need a wastewater discharge permit.
3. LBNL presented information to the Regional Water Quality Control Board to seek an exemption from a draft federal permit requirement (MS4 Phase II Permit). The additional permit would be redundant and an unreasonable regulation to the Lab's existing industrial stormwater permit. The Board instructed LBNL to incorporate the requirements of the federal permit into the Laboratory's existing permit, allowing the Laboratory to be exempted and be covered by one stormwater permit.

TRC and LWC: 4-Period Moving Average*



*Data as of March 5, 2003; composite of all contractors and subcontractors.

TRC and LWC: Ranking for SC Sites*



*Ranked by TRC for 2002-4th Quarter

Key Performance Areas (There was one occurrence this quarter)	
Near Misses (0) <ul style="list-style-type: none"> • None 	Criticality Infractions (0) <ul style="list-style-type: none"> • None
Radiological Concerns (1) <ul style="list-style-type: none"> • Unauthorized Removal of Radiation Shielding. An LBNL staff at the Advanced Light Source (ALS) removed radiation shielding without following proper procedures. The facility was in a maintenance shutdown, so no x-rays were produced and no risk of radiation exposure to personnel occurred. 	AB Infractions (0) <ul style="list-style-type: none"> • None
Shipping QA (0) <ul style="list-style-type: none"> • None 	Safeguards and Security (0) <ul style="list-style-type: none"> • None
Materials Handling (0) <ul style="list-style-type: none"> • None 	Electrical Safety (0) <ul style="list-style-type: none"> • None
Occupational Safety/Industrial Hygiene (0) <ul style="list-style-type: none"> • None 	Con Ops (0) <ul style="list-style-type: none"> • None
Equipment Failure/Degradation (0) <ul style="list-style-type: none"> • None 	Environmental Releases/Compliance (0) <ul style="list-style-type: none"> • None
Fire Safety (0) <ul style="list-style-type: none"> • None 	

Progress on Safety Management Initiatives:

- **Hazard Analysis Review Panel Selected.** A best practice review panel consisting of leading industry experts conducted an assessment of LBNL's hazard analysis practices in mid-January, 2003. Leading experts from DOE, private industry, and Office of Science laboratories assist LBNL in identifying best practices for hazard analysis. A final report is pending.
- **Pilot for Accreditation of ES&H Self-Assessment Program.** LBNL agreed to be a pilot site for a voluntary accreditation program sponsored by DOE/EH. The program utilizes self-assessment principles and practices developed by the Institute of Nuclear Power Operations (INPO) as the basis for the accreditation of contractor's ES&H self-assessment programs. Accredited programs will benefit with less DOE oversight.
- **EMS Gap Analysis.** Existing programs and systems at LBNL have been reviewed and compared to the elements of an Environmental Management System standard established by the International Organization for Standardization (ISO) 14001. Gaps were identified for each ISO 14001 element and the significance of each element was evaluated. An EMS approach has been developed that contains the most crucial elements of ISO 14001, using existing elements of the LBNL Integrated Safety Management and focusing on environmental performance improvement and compliance management.

QUARTERLY REPORT

October – December 2002

Oak Ridge National Laboratory (ORNL)

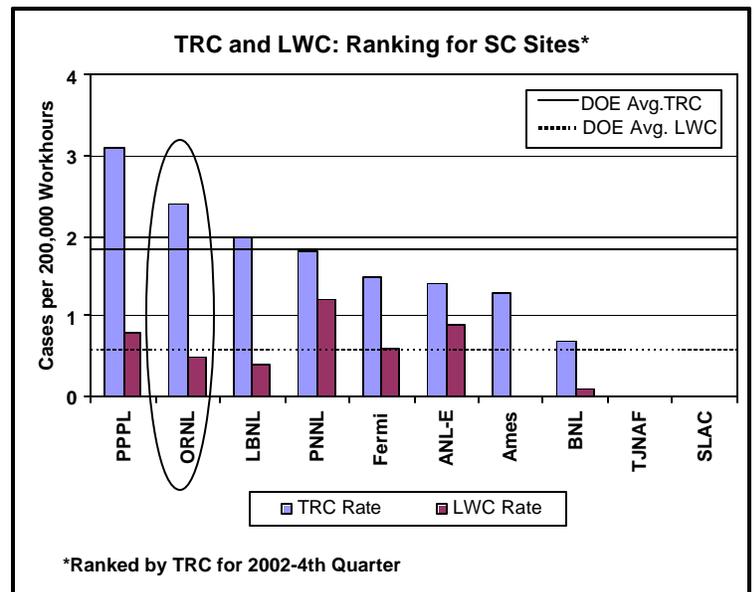
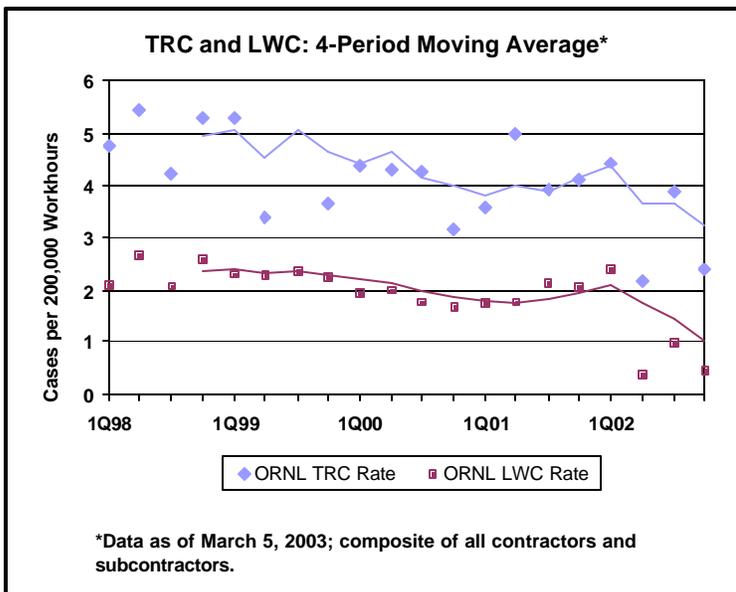
Safety-Related Mission Areas of Interest

ORNL is a multi-program science, technology, and energy laboratory with distinctive capabilities in materials science and engineering, neutron science and technology, energy production and end-use technologies, mammalian genetics, environmental science, and scientific computing. UT-Battelle, LLC, as the managing and operating contractor for the DOE, is committed to systematically carrying out its missions in a manner that achieves excellence, cost-effectiveness, and competitiveness in R&D, while simultaneously protecting its workers, the public, and the environment.

1. In December, ORNL moved past the milestone of one million hours of safe work with no cases of lost time away. This is the second time this year that ORNL has achieved the million-hour milestone, a milestone that has not been accomplished since 1993.
2. Overall in 2002, the Laboratory reduced its lost time injury rate by 45% and the recordable injury rate by 21%.
3. Spallation Neutron Source (SNS) closed CY02 with continued safety success passing 1.5 million construction work hours without a lost time injury.

Areas for Management Attention

1. ORNL has established a program goal to eliminate process waste discharges, significantly reducing the risk of unauthorized contaminant discharges. By end of FY03, ORNL will have a strategic plan in place that identifies additional liquid/gaseous waste treatment systems for elimination.
2. The DOE Oak Ridge Operations (ORO) Chief Financial Officer (CFO) performed a study to determine funding responsibility for ORNL newly generated waste. (Note: On 10/28 the ORO CFO recommended that “it was in the best interest of the Government to leave the management, contractual, and budget responsibility for the newly generated waste activities at ORNL with the EM program under the current process configuration.”) Both EM and SC in Oak Ridge are developing a schedule to outline an orderly transition of newly generated solid waste back to the generator over several years as the EM backlog of legacy waste is worked off.
3. ORNL has concluded its investigation into the failed General Electric (GE) meters. The test report from GE on the 2 failed GE Type 45S meters attributes failure to either a “temporary over voltage condition” or to “defective” meters. The meters were correctly installed and at both building locations, the electrical load on the building (and the associated meter) was found to be approximately 5% or less of rated load. It is not possible to duplicate the exact conditions and events at the buildings on the day of failure. The decision was made by ORNL to return the 26 Type 45S meters to the supplier and to retain the use of the old electro-mechanical (analog) meters to record energy usage on the 480 volt ungrounded delta systems. The basic need of having a meter to record energy usage is still being met, and there are no immediate plans to replace these meters.



Key Performance Areas

(There were 29 occurrences this quarter.)

15 occurrences are associated with SC, 8 with NE, 4 with EM, and 2 with DP.

<p>Near Misses (2)</p> <ul style="list-style-type: none"> • 120/240-volt line severed by a hydraulic excavator. Buried line was properly marked. Operator violated procedure. No injury or significant impacts. (SC) • A metal measuring tape used by pipe fitters made contact with the exposed prong of an electrical plug producing an arc and flash. No injuries. (DP) 	<p>Equipment Degradation (7)</p> <p><u>HFIR</u></p> <ul style="list-style-type: none"> • Discovered a failed diaphragm in the clad failure detection isolation valve during routine functional test. (NE) • Reactor cooling system alarmed due to apparent drop in cooling water flow rate below set point caused by a small leak in an instrument air line that caused the switch to sense a below-set point pressure. Reactor manually scrammed. (NE) • Fire door louvers were found closed. Technical Safety Requirements (TSR) requires these to be open to equalize air pressure during tornado. (NE) • Flow indicator gave a low reading as compared to other low flow instruments. Operator determined no confidence in channel and declared it inoperable. (NE) • HFIR primary pumps vibration annunciator received due to a PU-1D vibration switch circuit breaker trip. (NE) <p><u>Other plant areas:</u></p> <ul style="list-style-type: none"> • A transformer failed on re-energization and caused a plant wide voltage transient. This sudden voltage spike caused damage to electronic equipment >\$10K. (SC) • Instrument air line damaged during construction excavation. Existing drawing showed instrument air line in different location. (NE)
<p>Fire Safety (1)</p> <ul style="list-style-type: none"> • A small fire occurred in a laboratory hood when the contents of a plastic flask ignited as a student attempted to flame sterilize it. No injury. (SC) 	
<p>Environmental Releases/Compliance (2)</p> <ul style="list-style-type: none"> • NOV issued by the State of Tennessee on September 19, 2002. Violation was for arsenic monthly average at Outfall XO2, Coal Yard. ORNL is operating under pre-1997 limits and there is not a violation in accordance with these limits. The NOV was rescinded on December 19, 2002. (SC) • PCBs containing paint chips identified from a single exterior elevator door. (SC) 	
<p>Criticality Infractions (2)</p> <ul style="list-style-type: none"> • Level 4 Nuclear Criticality Safety Assessment (NCSA) technical infraction at Building 2026. No actual safety risk. (SC) • Material canister's height one inch less than minimum mandated by Nuclear Criticality Safety (NCS) specifications; deviation was sufficiently small that double contingency was intact for storage conditions. (DP) 	<p>Occupational Safety/Industrial Hygiene (2)</p> <ul style="list-style-type: none"> • Elevated carbon monoxide levels were detected in hallways adjacent to subcontractor demolition activities in Building 5500. Although instantaneous readings found levels in the range of 35-45 ppm, the American Conference of Governmental Industrial Hygienists (ACGIH) 8-hour threshold limit value of 25 ppm was not exceeded. (SC) • Procedural violation occurred when asbestos floor tile was removed prior to obtaining sample analysis. (SC)
<p>Radiological Concerns (12)</p> <ul style="list-style-type: none"> • 8 occurrences of contamination found outside radiologically posted areas. (6 SC, 2 EM) • 4 personnel contamination occurrences (2 NE, 2 EM) 	<p>Shipping QA (1)</p> <ul style="list-style-type: none"> • Commercial hauler provided with "Poison Gas" labels instead of "Inhalation Hazard" for a hazardous waste lab pack shipment. Driver notified ORNL and changed label and placards. (SC)
<p>Conduct of Operations (0)</p> <ul style="list-style-type: none"> • None 	<p>AB Infractions (0)</p> <ul style="list-style-type: none"> • None
<p>Safeguards and Security (0)</p> <ul style="list-style-type: none"> • None 	<p>Material Handling (0)</p> <ul style="list-style-type: none"> • None

QUARTERLY REPORT October - December 2002 Pacific Northwest National Laboratory (PNNL)

Safety-Related Mission Areas of Interest

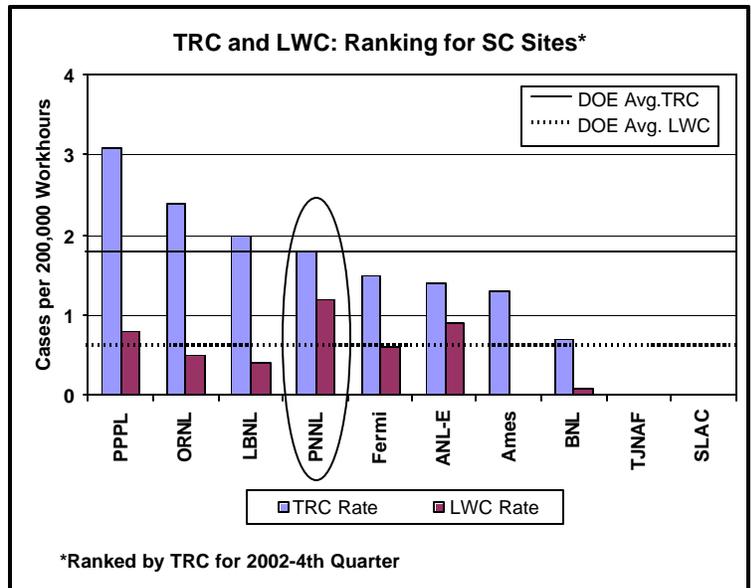
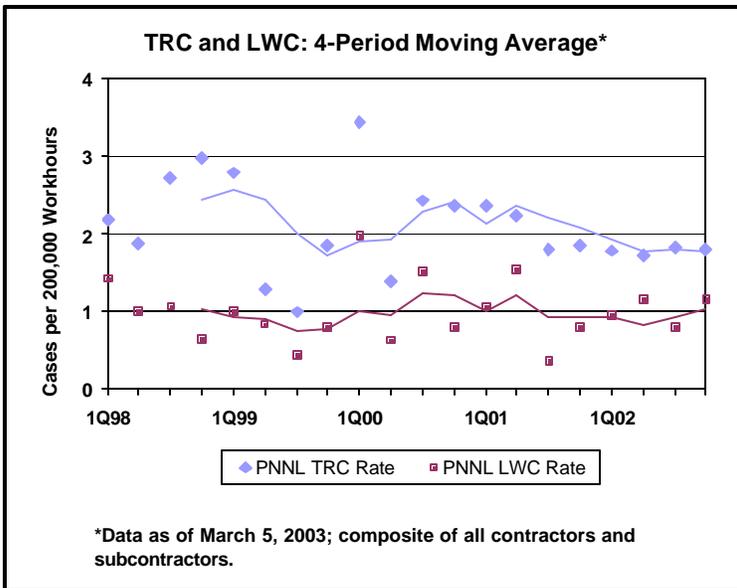
PNNL conducts high quality, leading edge, scientific research in the areas of fundamental science, environmental technology, energy science and technology, and national security. PNNL work is conducted in both government and private facilities, and includes a major user facility, the Environmental Molecular Sciences Laboratory.

1. The annual Voluntary Protection Program (VPP) Program Evaluation was conducted during this quarter. A team of PNNL worker representatives (supported by Environment, Safety, Health, and Quality management), the DOE Site Office, and a representative from another contractor performed the evaluation. The evaluation consisted of a survey of 1500 staff along with face-to-face interviews of approximately 136 workers, managers, subject matter experts, and management system owners. The evaluation was a comprehensive review of worker safety and health that crosscuts across the entire Laboratory and focuses on the areas of management leadership, employee involvement, worksite analysis, hazard prevention and control, and safety and health training. The results of the evaluation confirmed that PNNL has an excellent safety program and is continually improving implementation of its program.

Areas for Management Attention

1. During this quarter, out of 4,725 staff entries to radiological areas, PNNL had four (4) personnel radioactive contamination off-normal occurrence events. All of these events were detected by routine exit survey processes designed to prevent the spread of any contamination beyond radiological control zones. The contaminations, three clothing and one skin, resulted in no dose to staff, no uptakes of radioactive material into the body, and no spread of contamination outside of radiological areas.

None of these events, either singularly or collectively comprise an issue requiring a new level of management attention. However, PNNL has identified improvements that can be made to the radiological control system including activities to minimize personnel contaminations, enhancements to radiological work planning processes, procedure revisions, orientation of staff, and the issuance of lessons learned.



Key Performance Areas (There were 10 occurrences this quarter.)	
<p>Near Misses (1)</p> <ul style="list-style-type: none"> A staff member was traveling in a government vehicle on Interstate I-84 in the early morning hours, (dark). The vehicle he was driving struck an unattached truck wheel located in his lane. The vehicle ran over the wheel and sustained extensive damage, (truck was totaled. There were no injuries or other vehicles involved. <i>A lessons learned article is being prepared.</i> 	<p>Shipping QA (1)</p> <ul style="list-style-type: none"> Vendor shipped used equipment to PNNL that contained undeclared hazardous chemicals, (3-15ml bottles and 1-4oz bottle of chemical standards) and no documentation. Package was subsequently shipped from one PNNL facility to another. This is in violation of USDOT Hazardous Material Regulations 49 CFR Parts 172 and 173. <i>CA: Perform timely receipt inspections with appropriate staff.</i>
<p>Radiological Concerns (6)</p> <ul style="list-style-type: none"> PNNL had four personnel radioactive contamination off-normal occurrence events (3 clothing, 1 skin) out of 4,725 controlled staff entries to radiological areas this quarter. The contaminations resulted in no dose to staff, no uptakes of radioactive material into the body, and no spread of contamination outside of radiological areas. All of these events were detected by routine exit survey processes. Analysis shows that these contaminations are only slightly above the 3-year average of 1 event per 2,000 entries and are well within statistical control boundaries. <i>CA: Measures are being taken to minimize contamination events.</i> Nuclear accident dosimeters (NADs) potentially assembled with incorrect chip types. NAD configuration requires both a neutron-gamma and gamma-measuring chip to estimate neutron dose. <u>No criticalities occurred during the time frame of concern, and all the defective NADS have been retrieved, therefore no impact to ES or H.</u> <i>CA: NAD's are being redesigned to make the different types of chips distinguishable. Process and procedure changes are planned, and independent second party verification of chip set will be required.</i> High Contamination Area (HCA) crucibles were opened in a contaminated area (CA) hood w/o requesting radiological control technician (RCT) assistance. Procedures require a RCT be present during opening of HCA material in a CA. By chance, an RCT was present in the CA and supported the evolution. <i>CA: Revise procedure, instruct staff member.</i> 	<p>Conduct of Operations (1)</p> <ul style="list-style-type: none"> An Oregon Health Sciences University (OHSU) staff member brought 3 culture plates of attenuated bacterial pathogens to PNNL for collaborative research. The hazards did not fall within the identified risks for the lab in which the work was to be conducted, as such, no work was permitted at PNNL. It was recognized that with collaborative research efforts, (no formal project) unevaluated risks could be introduced to PNNL. <i>CA: Formalize & implement processes to address work that falls outside the scope of a defined project.</i>
<p>Criticality Infraction (0)</p> <ul style="list-style-type: none"> None 	<p>Environmental Releases/Compliance (0)</p> <ul style="list-style-type: none"> None
<p>AB Infractions (0)</p> <ul style="list-style-type: none"> None 	<p>Material Handling (0)</p> <ul style="list-style-type: none"> None
<p>Fire Safety (0)</p> <ul style="list-style-type: none"> None 	<p>Safeguards and Security (0)</p> <ul style="list-style-type: none"> None
<p>Equipment Degradation (0)</p> <ul style="list-style-type: none"> None 	<p>Occupational Safety/Industrial Hygiene (1)</p> <ul style="list-style-type: none"> Suspected asbestos insulation knocked off abandoned overhead steam line by a commercial truck. Insulation material found on the truck and in the road. Remediation contractor hired by commercial hauler. <i>Corrective Actions Pending.</i>

Progress on Safety Management Initiatives

- The Laboratory is currently investigating the value of achieving EPA Performance Track status. Performance Track is a voluntary program created by EPA to reward and recognize facilities and organizations who have implemented an environmental management system that has a proven track record of regulatory compliance, is able to demonstrate environmental performance and a commitment to continued improvement, and commits to and can demonstrate outreach to the local community and public. The Laboratory is currently performing cost/benefit analysis and is meeting with regulators to determine what potential regulatory benefits may be available if this status is achieved and maintained.
- The Laboratory's Office of Audit and Oversight recently completed an independent evaluation of the Integrated Operations System (IOPS). IOPS is a process of hazard communication by which researchers in a specific laboratory or room can convey the hazards associated with that space to other personnel. The study concluded that IOPS is a valuable tool and is supported by management and staff. Several recommendations were made and are being pursued by the Integrated Environmental, Safety and Health (IESH) Program. The recommendations included streamlining of the IOPS tool, improved mentoring for new staff, and increased management involvement.

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QUARTERLY REPORT *October – December 2002* Princeton Plasma Physics Laboratory (PPPL)

Safety-Related Mission Areas of Interest

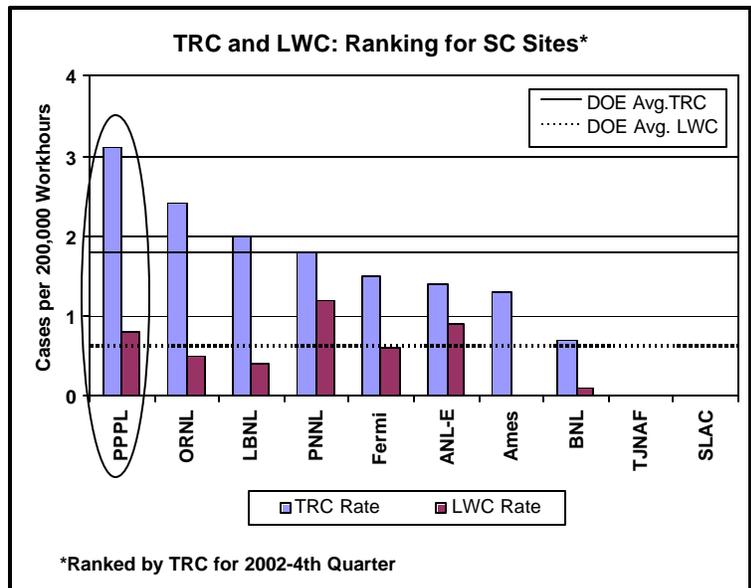
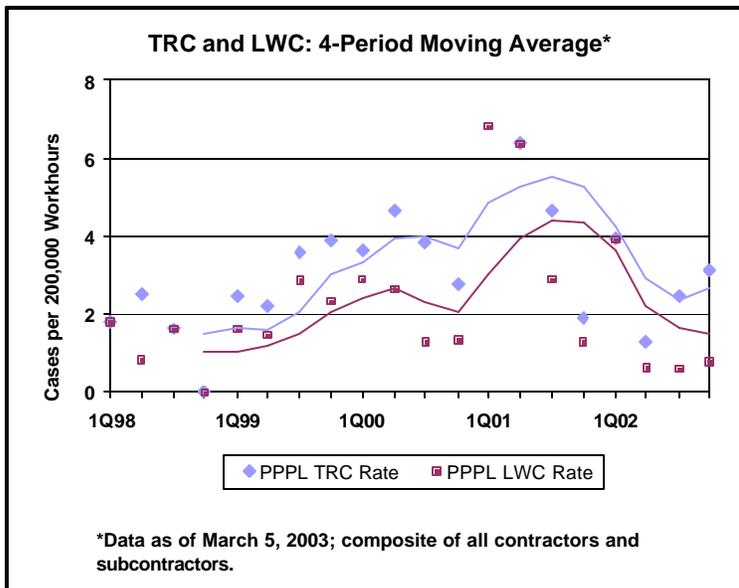
PPPL is a Collaborative National Center for plasma and fusion science. Its primary mission is to develop the scientific understanding and the key innovations, which will lead to an attractive fusion energy source. Associated missions include conducting world-class research along the broad frontier of plasma science and technology, and providing the highest quality of scientific education.

1. The Manager of DOE Chicago Operations (CH) signed the Finding of No Significant Impact for construction and operation of the National Compact Stellarator Experiment (NCSX). This completes the National Environmental Policy Act (NEPA) process for NCSX, which was supported by preparation of an Environmental Assessment, and helps pave the way for the Conceptual Design (CD)-2 decision on this project. Thanks to close collaboration among PPPL, DOE-Princeton Area Office (PAO), DOE-CH and DOE-SC, the NEPA process was completed more than three months ahead of the schedule that had been set during the NCSX Conceptual Design Review in May 2002.
2. Numerous capacitors and other hazardous materials were removed from excess equipment located in the Warehouse.
3. The sprinkler head replacement project at C-Site was completed. Approximately 650 sprinkler heads at PPPL were affected. The problem was due to a manufacturing quality problem. The manufacturer replaced the heads at no cost to PPPL as part of a manufacturer recall program.

Areas for Management Attention

PPPL continues to focus on the importance of minimizing injuries and illnesses.

1. Early identification of a potential slip hazard led to preemptive planning to treat the front PPPL entrance of the Lyman Spitzer Building with a slip resistant sealer. The work can only be accomplished with temperatures above freezing. For the time being, the front entrance is open for emergency egress only.
2. The number of recordable occupational injuries was cut in half in calendar year 2002. Analysis of injuries in 2001 uncovered high rates in the following areas:
 - Strains / sprains from lifting / repetitive motion,
 - Hand cuts incurred while using sharp tools, and
 - Bruises from slips and falls during winter storms.
 Special initiatives to attack each of these injury types proved very effective in significantly reducing all of those injury types in 2002. Injuries related to ice and snow were avoided completely, hand cuts were reduced from eight to only one in 2002, and sprains/strains were reduced from 14 in 2001 to nine in 2002.
3. Implementation of the PPPL Job Hazard Analysis (JHA) form and procedure (ESH-004) has been implemented Lab-wide. There is added emphasis on including field workers in the preparation and review of the JHA forms prior to work beginning. Pre-job briefings of workers are now a requirement. This implementation has impacted worker safety by raising their awareness of hazards present, available controls, including the variety of personal protective equipment. Communication with workers and line managers has improved.



Key Performance Areas (There were no occurrences this quarter.)	
Near Misses (0) <ul style="list-style-type: none"> • None 	Radiological Concerns (0) <ul style="list-style-type: none"> • None
Criticality Infractions (0) <ul style="list-style-type: none"> • None 	Shipping QA (0) <ul style="list-style-type: none"> • None
Safeguards and Security (0) <ul style="list-style-type: none"> • None 	AB Infractions (0) <ul style="list-style-type: none"> • None
Environmental Releases/Compliance (0) <ul style="list-style-type: none"> • None 	Fire Safety (0) <ul style="list-style-type: none"> • None
Con Ops (0) <ul style="list-style-type: none"> • None 	Equipment Degradation (0) <ul style="list-style-type: none"> • None
Occupational Safety/Industrial Hygiene (0) <ul style="list-style-type: none"> • None 	Materials Handling (0) <ul style="list-style-type: none"> • None

Progress on Safety Management Initiatives

- The new Integrated ES&H Assessment Schedule has been approved. This document was compiled by PPPL in cooperation with DOE-PAO. The schedule integrates PAO, PPPL and external ES&H assessment activities for the Fiscal Year into a comprehensive plan for assessing the PPPL ISM program. This integrated approach considers each ES&H area and all physical Laboratory areas. The result is the efficient allocation of PPPL and PAO assessment resources where they are most warranted. The schedule is considered a “living document” that will be updated as assessments are completed, added or rescheduled. At the end of the Fiscal Year, the matrix will serve as a tool to help evaluate PPPL’s overall ISM performance, and subsequently determine what assessments are warranted for future years. The Integrated ES&H Assessment Schedule is posted on the PPPL intranet.
- PPPL hosted the 2002 DOE Contractor ES&H Managers Forum on November 6-7. The meeting included ES&H Managers from nearly all of the Laboratories, as well as General Atomics and the University of California. There was a consensus of opinion that it was a very productive and valuable meeting. A variety of topics were discussed including:
 - successful approaches to reducing accidents and injuries
 - leading and lagging indicators/the EFCOG 'Annunciator' system
 - update on the 'new' contract at PNNL and its effect on safety programs
 - the benefits and costs of ISO EMS certification.
- PPPL held America Recycles Day activities on October 22. Deputy Director Dr. Richard Hawryluk presented "Green Machine" awards to employees who have contributed to PPPL's recycling and environmentally preferred purchasing programs. Several vendors displayed many recycled and environmentally friendly products that are available.
- The second annual PPPL Safety Forum was held on October 24-25. The Safety Forum was a special opportunity to collectively consider ways to improve safety and reduce the risks of injury while working at PPPL. Activities included presentations by PPPL’s Director Rob Goldston, Deputy Director Rich Hawryluk and the Head of the ES&H and Infrastructure Support Department, Jack Anderson. Michael Roberts from the DOE-Office of Fusion Energy Sciences also addressed the audience and joined PPPL for the entire session. Renowned guest speaker Mr. David Sarkus provided a rousing talk on *Leading with Passion, Principles and Performance*. Workgroup Sessions provided a forum for staff to focus discussion on six specific topics, which included Hazard Analysis, Training, and Communication to name a few. Facilitators led each workgroup and presented the results to management, and staff, in a three-hour session on October 25. The feedback was reviewed and action plans are now being implemented. The staff approached the Safety Forum activities with enthusiasm and provided constructive ideas on how to improve our safety program. It was a very productive series of meetings.

QUARTERLY REPORT October - December 2002 Stanford Linear Accelerator Center (SLAC)

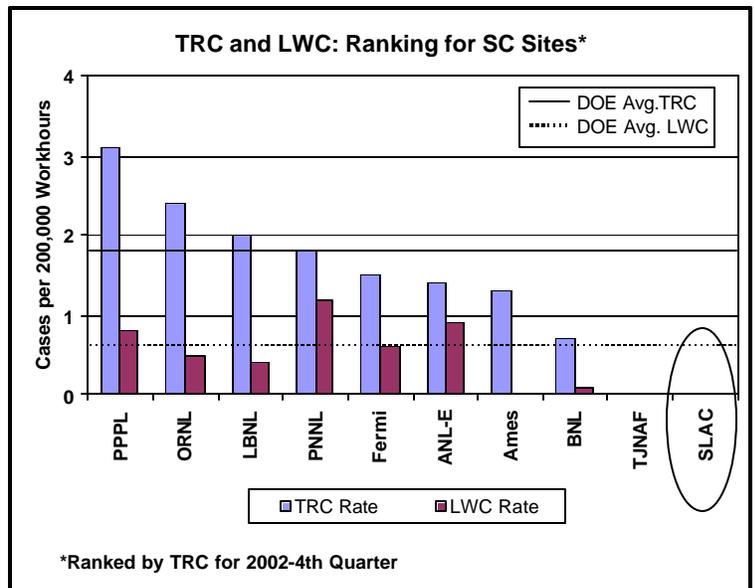
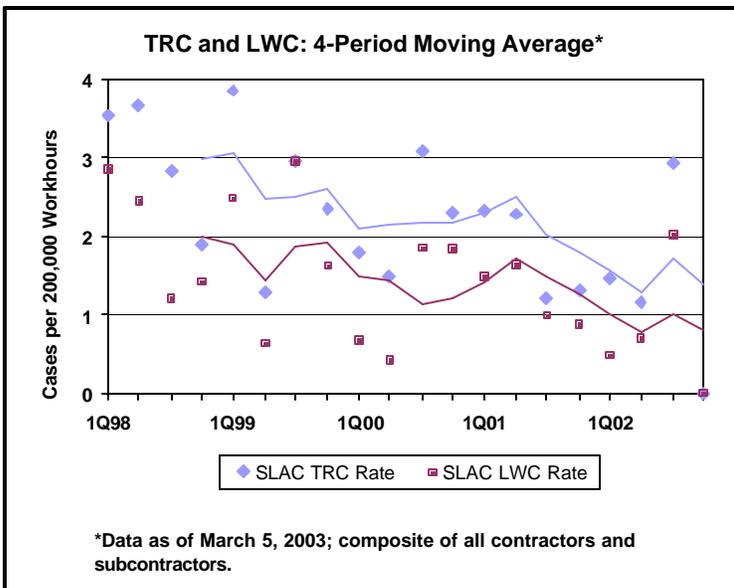
Safety-Related Mission Areas of Interest

SLAC's mission is experimental and theoretical research in elementary particle physics using electron beams, as well as a broad program of research in atomic and solid state physics, chemistry, biology, environmental science, and medicine using synchrotron radiation.

1. The Stanford Site Office (SSO) will be reporting on the details of the ongoing DOE Type B accident investigation of the ladder-related injury that occurred at SLAC in the first quarter of 2003. The accident resulted in the hospitalization of a SLAC employee. The DOE Accident Investigation Board is currently at the site reviewing documents and conducting interviews to determine causes and developing judgements of need. A report is expected to be submitted to the DOE Appointing Official (SSO Director) by February 25. The Appointing Official is then responsible for submitting a corrective action plan to address those needs identified by the Board.

Areas for Management Attention

1. Due to the ORPS-reportable hoisting/rigging incidents that occurred during the third quarter, SLAC has revised its training program to include practical lab demonstrations of loads, crane operation, lifting equipment and hoisting and rigging. Work assignments are being reviewed to ensure that employees assigned to operate cranes have the appropriate level of practical training and licensing/certifications. Job orders (work authorizations) are being revised to require identification of large/heavy items or unique rigging conditions.
2. SLAC has inventoried fixed ladders used in the Positron Electron Project (PEP) utility shafts. There is no access allowed to these locations until the corrective actions have been implemented. Corrective actions can only be completed when the beamline is not in operation and the locations can be accessed (downtime). SLAC has also implemented additional changes to contract terms and conditions to help ensure that workers provided to SLAC by personnel service organizations have met the necessary licensing requirements before they are allowed to perform work at the site (pre-job planning).
3. SLAC did not report any injuries during the fourth quarter of 2002. SLAC reported 19 DOE-reportable injuries during the entire calendar year 2002, a 26% reduction in injuries from calendar year 2001.



Key Performance Areas (There were 2 occurrences this quarter.)	
Near Misses (1) <ul style="list-style-type: none"> Electrician incorrectly wired 110V AC branch circuit to the 208V AC circuit in the panel box. The incident was located at an employee break room in Building 113 and involved the discovery by a SLAC employee that a 110V AC branch circuit was incorrectly wired to a 208V AC circuit. No injuries or electrical shock resulted from the event with minor damage to SLAC and employee property. Electricians were notified and the hazard was corrected. The causes of the event are believed to be: failure of the electricians to verify line voltage, inadequate pre-job planning and management inattention to detail. SLAC and SSO are evaluating any additional enhancements needed to the implementation of the subcontractor management program. 	Radiological Concerns (1) <ul style="list-style-type: none"> Magnet string B2&4 is interlocked as a "Personal Protective System" beam stopper. An interlock jumper was installed that caused a magnet 'in/off' condition signal, independent of its true state. Modifications were made without appropriate documentation/authorization and administrative controls (i.e., locking the power supply for the magnet string B2&4). No workers affected. <i>CA: Formalize and improve procedure for proper handling of PPS-interlocked magnets that are unavailable during PPS testing.</i>
AB Infractions (0) <ul style="list-style-type: none"> None 	Criticality Infraction (0) <ul style="list-style-type: none"> None
Shipping QA (0) <ul style="list-style-type: none"> None 	Environmental Releases/Compliance (0) <ul style="list-style-type: none"> None
Fire Safety (0) <ul style="list-style-type: none"> None 	Safeguards and Security (0) <ul style="list-style-type: none"> None
Equipment Degradation (0) <ul style="list-style-type: none"> None 	Conduct of Operations (0) <ul style="list-style-type: none"> None
Occupational Safety/Industrial Hygiene (0) <ul style="list-style-type: none"> None 	Material Handling (0) <ul style="list-style-type: none"> None

QUARTERLY REPORT October - December 2002

Thomas Jefferson National Accelerator Facility (TJNAF)

Safety-Related Mission Areas of Interest

TJNAF's main mission is basic research into the quark structure of matter. TJNAF is also active in the development of high power free electron lasers. Core competencies include superconducting radiofrequency technology, 2K, cryogenics, and high power free electron lasers.

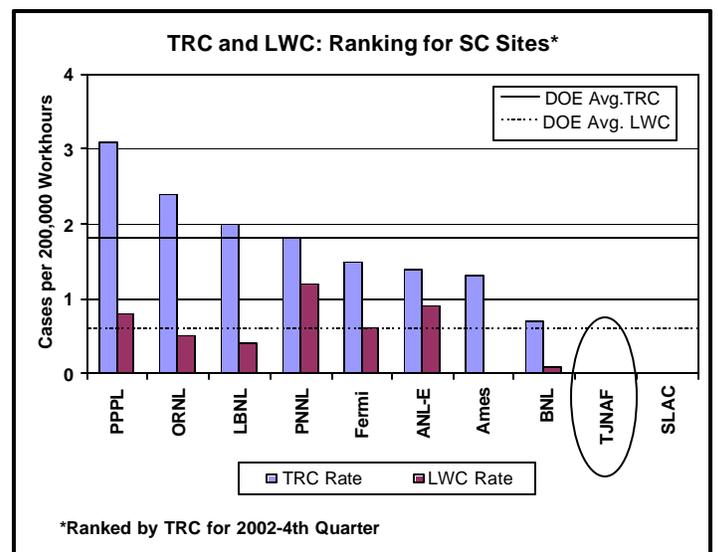
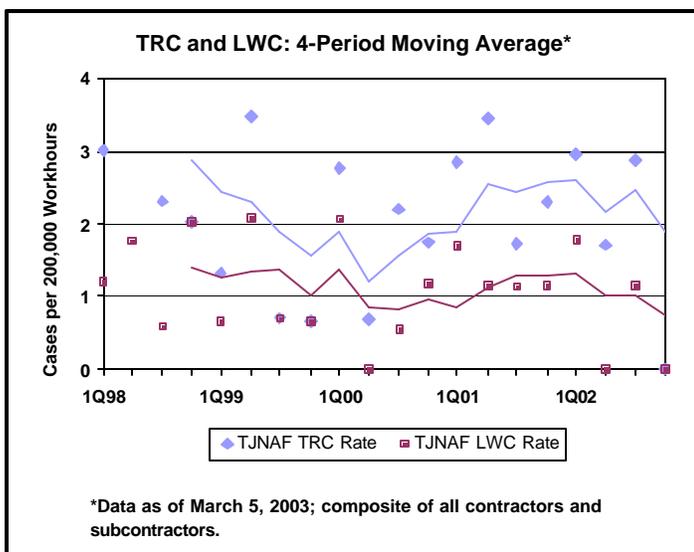
1. TJNAF completed the fourth quarter with no (including Laboratory staff and subcontractors) recordable injuries/illnesses.
2. TJNAF received a \$35,000 workers' compensation premium ("rebate") on their insurance policy for year 2001, the most recent year with all claims paid. This continued the five-year trend at the Lab of better-than-expected injury experience and related medical expenses. The rebate on insurance is an extra \$35,000 that can be applied to mission related work.
3. An Experiment Readiness Certificate was issued to the Hall B run group for the latest e1 (experiment designator) and an Operational Safety Procedure was approved for the G Zero Superconducting Magnet System in Hall C. The review process for the certificate and Operational Safety Procedure is working well and ensures that the experiments operate safely to further the mission.

Areas for Management Attention

1. The Deputy Radiation Control Manager has left the Laboratory to accept a position as the DOE Accreditation Program (DOELAP) Manager. This is an important position that needs to be filled as quickly as possible and requires senior management's support.

Update from previous quarters:

2. Implementation plans were developed for the recommendations from the internal assessment of the Laboratory's ISMS. The Plans are maintained in the Office of Assessment.
3. The Laboratory continued to make progress in the fourth quarter on the design of a comprehensive electrical/electronic safety-training plan. A site assistance visit by a LANL subject matter expert is planned for January 2003 (completed).
4. The concern about going to a "Large Quantity Generator" status for the year has been resolved with the Virginia Dept of Environmental Quality. We will develop site-specific actions for the planned "episodic high quantity generator" status of hazardous waste. The Laboratory will remain a "Small Quantity Generator" with only minor changes in reporting requirements for the three to four months when the Laboratory will exceed the quantities of a small generator. No compliance issues are expected.



Key Performance Areas (There was 1 occurrence this quarter.)	
Near Misses (1) <ul style="list-style-type: none"> Presumed de-energized wires arced during maintenance evolution. Technician applied administrative LO/TO rather than maintenance LO/TO to each breaker labeled for system being worked on. No injury. Investigation indicated that previously unidentified power supply to circuit. All systems were checked and rewired. 	ConOps (0) <ul style="list-style-type: none"> Corrective action for the Near Miss involved verification and labeling by qualified electricians of all electrical circuits in the area and a checklist of area energy sources was compiled for use in future work plans. A review of similar activities determined that there were no systemic issues associated with the implementation of safe work controls.
Radiological Concerns (0) <ul style="list-style-type: none"> None 	AB Infractions (0) <ul style="list-style-type: none"> None
Shipping QA (0) <ul style="list-style-type: none"> None 	Safeguards and Security (0) <ul style="list-style-type: none"> None
Fire Safety (0) <ul style="list-style-type: none"> None 	Environmental Releases/Compliance (0) <ul style="list-style-type: none"> None
Criticality Infractions (0) <ul style="list-style-type: none"> None 	

Progress on Safety Management Initiatives

- A review of the Laboratory’s Self-Assessment Program including a critique against the DOE prototype certification criteria has been initiated and is ongoing. Expected completion date is March 31, 2003.
- Two web-based electrical/electronic safety training courses (including high voltage electrical safety) were made available online during the fourth quarter. At this time, access to the training is on the internal network and not accessible from outside the Laboratory.
- An Inspector General inspector reviewed the medical emergencies procedures for the Laboratory and verbally informed us that there was an excellent working relationship with emergency responders and that the program was excellent overall.