I am pleased to be able to present the 2006 Health, Safety and Environmental Affairs Annual Report. The report summarizes several of our accomplishments, achievements, and programs that demonstrates our:

- Commitment to ensuring the health and safety of our students, faculty, staff and visitors;
- Stewardship to our environment;
- Responsibility to promote sustainable design and programs;
- Involvement in our community; and
- Compliance with federal, state and local regulations.

A successful Environmental, Health and Safety (EH&S) program does not just happen. You need the commitment and leadership of management, the development and implementation of policies and procedures, the establishment and measures of goals, the maintenance of a safe and healthful workplace, the desire to continually improve, and most importantly the participation of every member of the University community. We are successful because of your efforts.

REHS and I look forward to working with you and the University community as we continue our partnership to improve our program and achieve our goals.

Mark D. McLane
Director, Rutgers Environmental Health and Safety
University Environmental, Health and Safety (EH&S) Committees

A critical element of an effective Environmental, Health and Safety Management System (EHSMS) is the establishment of EH&S committees. In addition to many departmental EH&S committees, the University has established 6 university wide EH&S committees with representation from faculty, staff and students (sustainability committee) from various disciplines.

The following is a summary of the 2006 achievements of each committee:

**Radiation Safety Committee**
Chair: Dr. Drew Vershon, Professor, Waksman Institute of Biology
Selected Accomplishments include:
- Comprehensive, external audit of the radiation safety program;
- Decommissioning of the Environmental Services Building Annex (formerly known as the Gamma Greenhouse);
- Implementation of the “Increased Controls” for “Sources of Concern”;
- 10 year renewal of the University’s broad scope license; and
- Oversight of the use of radioactive materials including 166 authorized faculty users.
**Biological Safety Committee**  
Chair: Dr. Gail Arnold, Professor, Center for Advanced Biotechnology and Medicine  
Selected Accomplishments:  
- Integrated protocol submission with the Office of Research and Sponsored Programs and Lab Animal Services to improve compliance;  
- Renewed registration of the Select Agent laboratory and assisted in the regulatory inspection of the lab by the Center for Disease Control (CDC);  
- Incorporated biosafety information into the undergraduate curriculum for the School of Environmental and Biological Sciences; and  
- Reviewed and approved 17 rDNA protocols and 12 biohazard protocols.

**Laboratory Safety and Design Committee**  
Chair: Dr. Roger Jones, Professor and Chair, Chemistry and Chemical Biology  
Selected Accomplishments include:  
- Approved new guidelines for contact lens use in laboratories;  
- Revised laboratory ventilation design standards;  
- Commented on the proposed EPA Lab Rule for waste management in academic laboratories; and  
- Approved 3 standard operating procedures (phenol-chloroform extraction, HPLC, and Ethidium Bromide for Visualization of Nucleic Acid).

**Occupational Safety and Health Committee**  
Chair: Ms. Dawn Smith, Assistant Director, Housing  
Selected Accomplishments include:  
- Approved the Automatic External Defibrillator AED)/Public Access Defibrillator (PAD) policy and the creation of an AED committee;  
- Audited of the Hearing Conservation Program;  
- Participated in the Safety and Health Achievement Recognition Program (SHARP) designation for the Cook/Douglass Housing Unit; and  
- Assisted in the development of an on-line accident reporting system.
University Committee for Environmental Affairs
Chair: Dr. Michael Greenberg, Professor, Edward J. Bloustein School of Planning and Public Policy
Selected Accomplishments include:
• Recommended that the University be a leader in the innovative and sustainable design of newly constructed and renovated facilities;
• Reviewed the current status of compliance for various environmental programs; and
• Approved revised well water testing program.

Sustainability Committee
Chair: Dr. Clint Andrews, Associate Professor, Edward J. Bloustein School of Planning and Public Policy
Selected Accomplishments include:
• Coordinated Recyclemania project;
• Developed Sustainability website;
• Adopted C2E2 environmental measures;
• Provided input on sustainable concepts to College Avenue Greening project;
• Endorsed/supported the switch to biodiesel for all New Brunswick based diesel vehicles; and
• Supported several student environmental projects.
As part of our "Commitment to Health, Safety and Environmental Affairs", the University is committed to creating and maintaining a safe and healthful workplace.

In this section, we highlighted several of the activities and measures we use to meet this commitment.

**University Safety Performance**

A traditional measure for evaluating the effectiveness of a safety and health program is your accident experience. For 2006, we note the following:
- Our incident rate for 2006 was 1.84 (1.84 recordable incidents for every 100 employees). This marked the first time our incident rate has been below 2.0.
- We have experienced a 54% reduction in the number of recordable incidents since 1998.
- Our safety performance has consistently been better than the national and state averages for higher educational facilities.

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**Incident Rates (per 100 employees)**

*All Campuses*

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**Recordable and Lost Work Accidents Trend - All Campuses**

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**2006 Total Days Away from Work**

*All Campuses*

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Dining Services Accident Reduction Program

We have implemented several accident reduction programs in Dining Services, including a slip resistant shoe program and knife safety program. Since the implementation of these programs, we note the following:

• 74% reduction in the number of reported slips/falls;
• 50% reductions in the number of reported cuts; and
• 41% reduction in the number of recordable accidents.
Safety and Health Achievement Recognition Program (SHARP)

SHARP is an OSHA/PEOSHA program that recognizes employers who operate an exemplary health and safety program.

In 2006, Cook/Douglass Housing achieved this recognition and became:

- 1st higher educational and public facility in New Jersey to achieve SHARP designation;
- 1st University department to achieve this designation; and
- 2nd higher educational facility in the nation to achieve this designation.

Katrina Relief Effort

Under the guidance of Dr. Ed Levy, Cook College coordinated a volunteer relief effort to assist in the clean up and recovery from the devastating hurricane that struck the Gulf Coast in August of 2005.

- During the 2006 spring break, 84 college students and staff spent a week in St. Bernard Parish cleaning out damaged homes;
- Many University departments assisted in this effort including the Cook College Deans’ Office, Facilities Maintenance, REHS, UHR, and Student Health Services;
- Safety training and personal protective equipment (boots, gloves, respirators, eye protection, hard hats, tyvek suits, etc.) were provided; and
- All unused supplies and equipment were donated to assist other volunteers.
Lead Paint Program

The University has many buildings that were constructed prior to 1978. Many of these buildings contain lead paint. To address the potential health and environmental concerns, the University has a comprehensive lead paint program that:

- Evaluates and ensures the condition of painted surfaces in day care facilities, family housing, and apartments;
- Ensures occupants are notified of the presence of lead paint;
- Ensures proper precautions are used when repairing or maintaining surfaces with lead paint;
- Minimizes environmental impact; and
- Ensures regulatory compliance.

Select Agent Program

The University renewed registration of the Select Agent laboratory. Additionally, we were inspected by the Center for Disease Control and the inspection revealed no significant compliance issues.

Decommissioning the “Gamma Greenhouse”

The Environmental Services Building Annex (commonly referred to as the Gamma Greenhouse) was used initially to house an irradiator and later used to package, consolidate, and store hazardous and radioactive waste. The building is no longer used for these purposes and is scheduled to be demolished. Prior to demolition, we:

- Ensured all surfaces were suitably cleaned and decontaminated;
- Submitted the result of our evaluation, site history and clean up activities to the Nuclear Regulatory Commission (NRC) and the New Jersey Department of Environmental Protection (NJDEP);
- Conducted a site visit with the NRC; and
- Obtained approval from the Nuclear Regulatory Commission NRC and the New Jersey Department of Environmental Protection (NJDEP) to release the site.

Radon Program

Continued our efforts to re-evaluate radon levels in occupied areas. In 2006, 5 radon remediation systems were installed at the following locations:

- 2 buildings at Snyder Farm;
- 2 buildings at Hutchinson Forrest; and
- 18 Seminary Place
As part of our “Commitment to Health, Safety and Environmental Affairs”, The University is committed to protecting the environment by minimizing our impact to the environment, reusing/recycling materials, and by promoting environmental and sustainable initiatives.

In this section, we highlighted several of the activities and measures we use to meet this commitment.

### Hazardous Waste Management

We continually evaluate our program and implement new procedures to reduce or minimize our hazardous waste generation and costs. This includes implementation of a variety of methods including substitution, neutralization, process changes and recycling. Our efforts in 2006 include the following:

- Neutralized 847 gallons of aqueous acidic waste;
- Processed/recycled 1,160 gallons of photographic fixer solution;
- Reused 1,897 pounds of chemicals through our Chemical Reuse Program;
- Recycled 3,230 pounds of lead;
- Recycled 1,400 gallons of used oil;
- Recycled solar panels that included 3,080 pounds of copper, 4,832 pounds of aluminum; and 10,300 pounds of steel.

**LLRW Decayed and Shipped as OCMW (Pounds)**

**LLRW Shipped Off-Site for Disposal (Pounds)**

**Hazardous Waste Disposal (Pounds)**

**Universal Waste Disposal (Pounds)**
Best Workplaces for Commuters

Best Workplaces for Commuters is an Environmental Protection Agency (EPA) innovative, voluntary program that distinguishes and recognizes employers who offer outstanding commuter benefits such as free or low cost bus or transportation services, tele-work programs, carpooling, etc. Through the efforts of the Rutgers Department of Transportation and other departments, the University has achieved this designation.

Biodiesel and Alternative Fuel Vehicles

We continue to expand our use of biodiesel and adding additional alternate fuel vehicles to our fleet. These programs are not only environmentally friendly, but lessen our dependence on foreign oil. In 2006, we:

- Expanded the use of biodiesel to include most diesel vehicles on the New Brunswick campuses.
- The use of bio-diesel will reduce carbon dioxide emissions by over 73 tons per year.
- Expanded the number of vehicles using these technologies. Our fleet now contains:
  - 55 vehicles using biodiesel
  - 18 compressed natural gas vehicles
  - 2 hybrid vehicles
Installation of Silver Recovery on Photographic Developers.

Photographic developers, without silver recovery units, generate significant amount of hazardous waste. Not only is this not environmentally friendly, it is also costly. With the assistance of several departments, we:

- Installed silvery recovery units or filtering devices on 20 units;
- Reduced the annual amount of hazardous waste generated by 9,925 pounds; and
- Saved approximately $12,000 in disposal costs.

Replacement of Water Aspirators.

The University is continually considering ways to conserve water and save our natural resources. Under the leadership of Dr. Roger Jones, the Wright-Reiman Chemistry Department on Busch Campus has replaced all research water aspirators with mechanical vacuum pumps in their organic chemistry labs. This eliminated:

- The use of a large volume of water. Water aspirators may consume approximately 22 liters/minute when in use. It is not uncommon for these to be used continuously up to 8 hours; and
- The potential of contaminating the wastewater with solvents.
Air Program Activities

We continue to maintain 2 Title V permits on the Busch/Livingston and Cook/Douglass campuses. Newark Campus will receive their Title permit in 2007. We have a general permit for the College Avenue campus. Our campus emissions for 2006 include the following:

New Brunswick Campus Emissions

EPA Compliance and Self-Audits

The Federal Environmental Protection Agency (EPA) has reviewed and approved our final disclosure submitted on March 31, 2003. This concludes our agreement with EPA, signed in November 2001, to self-audit and disclose violations of federal environmental regulations.

With their approval, the EPA has:
- Accepted all corrective actions;
- Waived all penalties (both gravity based and economic benefit penalties); a total of almost $1.5 million; and
- NJDEP also has waived all penalties associated with the disclosure of violations of state regulations.

<table>
<thead>
<tr>
<th>Waived Penalties Per Program</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>FIFRA - Pesticides</td>
<td>$0.00</td>
</tr>
<tr>
<td>Clean Air Act - RMP</td>
<td>$0.00</td>
</tr>
<tr>
<td>TSCA - PCB</td>
<td>$220.00</td>
</tr>
<tr>
<td>TSCA - Lead Based Paint</td>
<td>$15,070.00</td>
</tr>
<tr>
<td>Underground Tanks</td>
<td>$17,325.00</td>
</tr>
<tr>
<td>UIC - Class V Injection Wells</td>
<td>$29,547.00</td>
</tr>
<tr>
<td>SPCC Plans (Both)</td>
<td>$98,510.00</td>
</tr>
<tr>
<td>Clean Air Act - CFC's</td>
<td>$195,000.00</td>
</tr>
<tr>
<td>Clean Air Act - NSPS</td>
<td>$270,000.00</td>
</tr>
<tr>
<td>RCRA (Both)</td>
<td>$823,945.00</td>
</tr>
<tr>
<td>Total</td>
<td>$1,449,617.00</td>
</tr>
</tbody>
</table>

Camden Campus Co-Generation Plant Data for 2006 not included.
<table>
<thead>
<tr>
<th>Month</th>
<th>Agency</th>
<th>Activity</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>NJ DCA</td>
<td>Asbestos compliance inspection – Pharmacy</td>
<td>NO VIOLATIONS</td>
</tr>
<tr>
<td></td>
<td>NJ DOL</td>
<td>Asbestos compliance inspection – Corwin</td>
<td>NO VIOLATIONS</td>
</tr>
<tr>
<td>February</td>
<td>NJ DEP</td>
<td>Inspection of electron microscopes</td>
<td>NO VIOLATIONS</td>
</tr>
<tr>
<td></td>
<td>NJ DCA</td>
<td>Asbestos compliance inspection – Armitage Hall</td>
<td>NO VIOLATIONS</td>
</tr>
<tr>
<td>March</td>
<td>NJ DEP</td>
<td>Hazardous waste inspection Cook/Douglass campus</td>
<td>NO VIOLATIONS</td>
</tr>
<tr>
<td></td>
<td>US NRC</td>
<td>Radioactive waste compliance inspection</td>
<td>NO VIOLATIONS</td>
</tr>
<tr>
<td></td>
<td>NJ DEP</td>
<td>Field inspection of stack testing at Busch Cogen</td>
<td>NO VIOLATIONS</td>
</tr>
<tr>
<td></td>
<td>NJ DOL</td>
<td>Asbestos compliance inspection – Wright-Rieman Chemistry</td>
<td>NO VIOLATIONS</td>
</tr>
<tr>
<td>April</td>
<td>NJ DOH</td>
<td>Indoor air quality complaint Camden Campus</td>
<td>NO VIOLATIONS – citation issued initially for sulfur dioxide testing, but citation was rescinded</td>
</tr>
<tr>
<td></td>
<td>NJ DEP</td>
<td>Review of submitted stack testing report Busch Cogen</td>
<td>NO VIOLATIONS</td>
</tr>
<tr>
<td></td>
<td>NJ DEP</td>
<td>UST inspection Camden Campus</td>
<td>Citation for improper functioning of test boot abated</td>
</tr>
<tr>
<td></td>
<td>NJ DOL/DOH</td>
<td>Inspection required for SHARP for C/D Housing</td>
<td>Issued report of deficiencies for general safety hazards. All deficiencies abated.</td>
</tr>
<tr>
<td></td>
<td>NJ DOL/DOH</td>
<td>Inspection required for SHARP for Neuison Dining</td>
<td>Issued report of deficiencies for general safety hazards. All deficiencies abated.</td>
</tr>
<tr>
<td>May</td>
<td>NJ DEP</td>
<td>Hazardous waste inspection TSDF and Busch/Livingston</td>
<td>NO VIOLATIONS</td>
</tr>
<tr>
<td></td>
<td>NJ DCA</td>
<td>Asbestos compliance inspection – Jameson Hall</td>
<td>NO VIOLATIONS</td>
</tr>
<tr>
<td></td>
<td>NJ DCA</td>
<td>Asbestos compliance inspection – Stonier Hall</td>
<td>NO VIOLATIONS</td>
</tr>
<tr>
<td>June</td>
<td>NJ DEP</td>
<td>Inspection of bone densitometers</td>
<td>Citation issued for failure to have lead apron. Item abated.</td>
</tr>
<tr>
<td></td>
<td>NJ DEP</td>
<td>Air inspection for C/D Campus</td>
<td>Citation issued for excessive gasoline use in 2001. Permit modified.</td>
</tr>
<tr>
<td></td>
<td>NJ DEP</td>
<td>Air inspection for College Avenue Campus</td>
<td>NO VIOLATIONS</td>
</tr>
<tr>
<td></td>
<td>NJ DEP</td>
<td>Air inspection Busch Campus</td>
<td>NO VIOLATIONS</td>
</tr>
<tr>
<td></td>
<td>NJ DCA</td>
<td>Asbestos compliance inspection – Building 4116</td>
<td>NO VIOLATIONS</td>
</tr>
<tr>
<td></td>
<td>NJ DEP</td>
<td>General inspection stormwater program – All NB campuses</td>
<td>NO VIOLATIONS</td>
</tr>
<tr>
<td>August</td>
<td>NJ DOL/DOH</td>
<td>Diver fatality investigation Tuckerton</td>
<td>NO VIOLATIONS</td>
</tr>
<tr>
<td></td>
<td>NJ DEP</td>
<td>Witness inspection of natural gas sampling at Busch Cogen</td>
<td>NO VIOLATIONS</td>
</tr>
<tr>
<td>September</td>
<td>US NRC</td>
<td>Site investigation of decommissioning activities at ESB Annex</td>
<td>NO VIOLATIONS</td>
</tr>
<tr>
<td></td>
<td>NJ DEP</td>
<td>UST inspection of Busch, College Avenue and Cook/Douglass Campuses</td>
<td>Citation issued for failure to test inline leak detector on tank on Busch. Item abated.</td>
</tr>
<tr>
<td></td>
<td>CDC</td>
<td>Inspection of select agent lab</td>
<td>NO VIOLATIONS</td>
</tr>
<tr>
<td>October</td>
<td>NJ DEP</td>
<td>Hazardous waste inspection Blueberry/Cranberry facility</td>
<td>NO VIOLATIONS</td>
</tr>
<tr>
<td></td>
<td>NJ DOH</td>
<td>Indoor air quality complaint Busch Campus</td>
<td>NO VIOLATIONS</td>
</tr>
<tr>
<td></td>
<td>US NRC</td>
<td>Targeted inspection for Increased Controls for sources of concern</td>
<td>NO VIOLATIONS</td>
</tr>
<tr>
<td>November</td>
<td>NJ DCA</td>
<td>Asbestos compliance inspection – Pharmacy</td>
<td>NO VIOLATIONS</td>
</tr>
<tr>
<td></td>
<td>NJ DEP</td>
<td>UST inspection for Newark Campus</td>
<td>Citation for unregistered tank. Tank previously registered, but removed from state database. Tank re-registered.</td>
</tr>
<tr>
<td>December</td>
<td>Essex Co Cen</td>
<td>Emergency generator inspections</td>
<td>NO VIOLATIONS</td>
</tr>
</tbody>
</table>

**Regulatory Inspections**

**DCA** = Dept. of Consumer Affairs  
**DOL** = Dept. of Labor  
**DEP** = Dept. of Environmental Protection  
**NRC** = Nuclear Regulatory Commission  
**DOH** = Dept. of Health  
**CDC** = Center for Disease Control and Prevention  
**UST** = Underground Storage Tank  
**SHARP** = Safety & Health Achievement Recognition Program  
**TSDF** = Treatment Storage and/or Disposal Facility  

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2006 Annual Report ● Rutgers Environmental Health and Safety
2007 Goals

- Revise Radiation Safety Guide
- Register cyclotron with NJDEP
- Implement Title V requirements for Newark Campus
- Implement Well Testing Program
- Complete groundwater remediation study on Busch Campus
- Continue accident reduction efforts and achieve a 10% improvement in the University’s incident rate for 2007
- Continue with our efforts to obtain additional departmental SHARP designations

Fast Facts

**General**
Performed over 250 training sessions for more than 3,000 employees
Participated in 34 federal, state and local regulatory inspections
In conjunction with the Occupational Health Department, administered the medical monitoring program that has over 3,400 employees in the program

**Occupational Health and Safety**
Performed 29 ergonomic evaluations
Performed 58 indoor air quality investigations
Performed over 60 accident investigation
Performed 85 RTK/Chem Hyg/RCRA training sessions
Performed 53 other health and safety training sessions
Reviewed 24 plans for EH&S issues for new construction or renovation projects
Performed 51 shop inspections
Responded to over 30 chemical spills/incidents
Performed over 920 fume hood inspections
Conducted over 1,300 laboratory safety/waste inspections
Coordinated audiometric testing for over 230 employees
Audited 27 class 3b and 4 laser users

**Radiation Safety Program**
Responded to 2 spills
Conducted 88 x-ray and electron microscope inspections
Issued 300 radiation dosimeters per quarter
Completed 344 radiation survey meter calibrations
Trained over 1,000 people on-line for refresher radiation training and x-ray training
Delivered nearly 1,200 packages of radioactive materials
Performed 2,400 radiation laboratory inspections
Implemented increased controls for materials of concern
Submitted 10-year renewal US NRC license of broad scope

**Environmental Programs**
Audited 11 US EPA regulatory programs
Conducted 3 phase one inspections
Removed 6 underground storage tanks
Installed 4 deep wells for Busch groundwater investigation
Conducted 8 facility inspection for SPCC compliance
Conducted annual stormwater awareness event
Reduce 73 tons of carbon dioxide emissions through use of biodiesel
Submitted 21 air permit modifications/applications/renewals
Submitted 24 air compliance reports to regulatory agencies

**Environmental Services Programs**
Audited 13 research stations/farms for RCRA compliance
Audited 38 universal waste storage locations
Installed silvery recovery units in Waksman to reduce generation of hazardous waste by 1,000 pounds per year
Fuel blended 6,124 gallons of solvent waste
Neutralized 847 gallons of aqueous acidic waste (462 gallons neutralized and discharged and 385 gallons neutralized and sent out as non-hazardous waste)
Reclaimed 165 gallons of mineral spirits from MGSA
Processed 1,160 gallons of photographic fixer solution
Reused 1,897 pounds of chemicals through our Chemical Reuse Program
Recycled 3,230 pounds of lead
Recycled 1,400 gallons of oil
Assisted in >45 shipments of hazardous materials
Provided DOT/IATA training for 12 departments and 192 employees
Performed 1,738 hazardous waste pick-ups (99.9% within 5 working days of request)
Managed disposal of 175,414 pounds of hazardous waste
Performed 504 radioactive waste pick-ups (100% within 5 working days of request)
Managed disposal of 851 gallons decayed liquid radioactive waste
Managed disposal of 16,155 pounds of radioactive waste (approved facility)
Decayed and disposed of 5,181 pounds of radioactive waste (overclassified medical waste)

**Biological Safety Program**
Conducted 40 biosafety level 2 laboratory inspections
Conducted semiannual inspections of 12 exempt quantity select agent users
Conduct quarterly audit of select agent laboratory
Coordinated disposal of 87,240 pounds of medical waste

**Asbestos Program**
Completed 210 asbestos abatement projects
Collected 429 asbestos bulk samples
Completed 6 NESHAPS regulated asbestos abatement projects