Director’s Comments

This annual report presents a brief summary of pertinent activities and/or initiatives that the Department of Environmental Health and Safety (EH&S) engaged in during the 2006 calendar year. One of the most significant or arguably, the landmark event in the history of the department, was that we celebrated the first anniversary of occupancy in a new facility wholly dedicated to the functions of EH&S. The major components of this facility include; a regulated materials facility (RMF), office space for all EH&S staff and a learning center complete with a learning laboratory. This facility will help us provide improved services to the university community by enhancing our efficiency in managing people, providing much needed space for training, and providing adequate space and engineering controls for the proper management of hazardous materials/wastes generated by the University.

Reflecting on the achievements of 2006 is also an opportunity to look forward at the challenges of 2007 and beyond. In addition to the daily tasks of providing health and safety services to a diverse academic community, pandemic flu planning, nanoscale research safety and support for biorenewable fuel research will be of paramount importance. We will also focus attention on diversity, sustainability and promotion of the culture of safety. Much was accomplished in 2006, yet a great deal of work remains to be done. As a department, we are eager to continue to meet the environmental, health and safety needs of Iowa State University, now and in the future. We invite you to share your comments about this report and value your input.

A. David Inyang – Director
Environmental Health and Safety
Above Ground/Underground Storage Tanks

The current Above Ground Storage Tank (AST) inventory includes 25 tanks; consisting of used oil tanks, emergency generator diesel fuel, gasoline, E85 gasoline, and diesel fuel for motorized equipment. Monthly AST inspections are conducted on associated components and stored fuel. ASTs are placed to allow visual inspection of all sides, and are double-walled and placed on concrete pad with security fence and safety bollards. AST construction, combined with monthly inspections, ensures that a small leak or release will be detected before it becomes significant.

The number of underground storage tanks (USTs) on campus has been reduced to five. Elimination of USTs has significantly reduced the university’s potential liability related to leaks causing contamination of soil and/or ground water. The remaining UST’s are in compliance with technical requirements designed to protect the environment. USTs at the Airport Hangar and Black Engineering were inspected by the Iowa Department of Natural Resources in 2006. No violations were reported.

Asbestos and Lead Abatement Program

One hundred twenty-nine asbestos-related projects were completed in 2006. Most notable were:

- Wallace/Wilson repairs for National Conferences
- Parks Library Bookends Café renovation
- Mackay Hall Health Sciences renovation
- Pammel Grocery demolition
- Coover Hall 1958 Addition demolition
- Atanasoff renovation
- Iowa School for the Deaf High School Pool decommissioning
- Iowa Braille and Sight Saving School Old Main renovation.

In addition to abatement projects, a comprehensive survey of all university buildings on campus to update the locations and condition of asbestos-containing building materials began in 2006. Completion of the survey is anticipated by the end of 2007. In all, EH&S managed asbestos abatement projects totaling $1.13M for Iowa State, the Iowa School for the Deaf and the Iowa Braille and Sight Saving School.

EH&S also managed lead abatement activities as a part of more than 40 demolition/renovation projects, with notable projects including Snedecor Hall, Science I, and Curtiss Hall 0127 auditorium windows and plaster demolition.

Chemical Redistribution Program

The EH&S Chemical Redistribution Program (CRP) was reestablished in 2006, after a hiatus due to the transfer of operations from the Chemical Waste Handling Facility (CWHF) to the RMF and substantial website upgrades. The CRP provides on-campus personnel access to free chemicals diverted from hazardous waste disposal. Upgrades to the program include images of chemicals available, and a user friendly, on-line shopping based web interface.

Construction Plan Review

EH&S reviews construction plans for all buildings and major renovations to ensure that building,
and life safety codes are met. In 2006, EH&S reviewed 93 building plans. Also in 2006, the State of Iowa adopted a new set of building codes, which eliminated the need to apply for construction variances from the State Fire Marshal’s Office.

**Hazardous Materials Shipping**

The upward trend in hazardous materials shipping projects continued unabated in 2006, with a total of 1,193 shipments, up 20% from 2005. The Department of Transportation amended existing regulations to maintain alignment with the International Air Transport Association, including changes affecting the shipment of infectious organisms and exempt animal/human specimens (formerly diagnostic specimens). These changes required prompt supplemental hazardous materials shipping training of personnel across the university to comply with the affected regulations.

**Hazardous Waste Management**

**Chemical/Hazardous Waste**

Hazardous waste volume increased approximately 50% from 2005. Several large projects, including the Stange Road Bridge repainting project, academic laboratory cleanouts, and campus-wide custodial and maintenance area cleanouts related to the main campus EPA inspection, resulted in 104,000 kg of waste, the largest waste volume seen in department history.

Also in 2006, management and off-site shipment of other wastes, such as spent fluorescent lamps, computer monitors and electronics, and medical waste and sharps, were consolidated at the RMF, alleviating storage pressure at other campus locations operated by Central Stores and Surplus. This consolidation places management of these waste materials under the singular control of EH&S.

**Radioactive Waste**

EH&S shipped the last of the university’s special nuclear material to Nuclear Regulatory Commission (NRC) licensed repositories. Special nuclear material (SNM) is defined by Title I of the Atomic Energy Act of 1954 as plutonium, uranium-233, or uranium enriched in the isotopes uranium-233 or uranium-235. The materials shipped were the last of the inventory from the former Iowa State University Nuclear Engineering Program. For the first time in 50 years, there are no special nuclear materials on campus.

**Pathological Waste Incineration**

Animal remains disposal at the Veterinary Medicine Incinerator declined in 2006, down from approximately 131 tons of waste in 2005 to about 90 tons in 2006. The reduction is due in part to diversion of non-university clientele to commercial vendors. This allowed EH&S to focus on university customers, and relieved some of the strain on the incinerator, which continues to show
signs of aging through increased maintenance and the need for major refractory replacement. In addition to Iowa State and University of Iowa academic and research clients, EH&S continues to provide contraband destruction for federal, state and local law enforcement agencies.

**Regulatory Activities**

Two notable regulatory events occurred in 2006: the ongoing closure of the CWHF, and the first main campus EPA inspection since September 2000. The CWHF closure has encumbered $44,006.61 since beginning in October 2005. The main campus EPA inspection identified hazardous waste violations related to paint waste and spent lamp management, and triggered a campus wide cleanout of potentially hazardous wastes.

**Institutional Animal Care and Use Committee (IACUC)**

Approximately 450 IACUC protocols were reviewed by EH&S staff during 2006. Committee members review the protocols to ensure they follow regulations pertaining to animal care and usage. EH&S members of the committee have an additional responsibility to ensure that researchers follow safe practices while carrying out experiments involving animals.

**Institutional Biosafety Committee (IBC)**

EH&S plays a significant role in evaluation of research projects that involve work with recombinant DNA, biological toxins, or any materials infectious or hazardous to humans, plants or animals. This is accomplished by assessment of applicable regulations, and evaluation of appropriate biosafety levels for existing, as well as new projects. The university’s Biosafety Officer, an EH&S staff member, serves on the IBC. Additional members of the biosafety section continue to review projects for regulatory permit requirements and other biosafety issues as part of the review process.

In 2006, there were 297 protocols listed as active, 92 of which were new.

**Iowa Department of Homeland Security and Emergency Response**

EH&S employees participated in four drills and two FEMA evaluated exercises in support of emergency operations for nuclear power plants within or bordering Iowa. EH&S also provided annual emergency radiological field team training for field team members from across the state.

**Laboratory Equipment**

Laboratory equipment that may be contaminated with dangerous materials pose a safety risk for anyone handling this equipment. All laboratory equipment transferred to Iowa State University Surplus must be decontaminated by the releasing department and approved for transfer by EH&S. In 2006, 52 items were reviewed by EH&S for release to surplus.

**Laboratory Safety**

During 2006, 327 campus laboratories were inspected to assist users in improving safety and regulatory compliance in their laboratories. This number represents 18% of the nearly 1,800 laboratories performing chemical, biological and radioactive materials research at Iowa State. After inspections, Principal Investigators were provided survey reports and then worked with EH&S to remedy identified deficiencies. Year-end summary reports of the surveyed laboratories were sent to department chairs/heads for departments in which laboratories were surveyed.
Occupational Medicine

EH&S and Occupational Medicine work together to minimize personnel health risks from working with hazardous materials, primarily through monitoring and prevention. This program includes medical surveillance, hazard assessment, training, and record keeping.

In 2006, there were 1,446 individuals from 51 different departments that actively participated in the Occupational Medicine Program. Programs for Bloodborne Pathogens and Exposure Control, Hearing Conservation, Respiratory Protection, and Animal Caretakers make up 97% of program participants. Four departments comprise about 60% of all Occupational Medicine Program participants. They include FP&M with 377 participants; College of Veterinary Medicine with 283 participants; Recreational Services with 190 participants; and Residence with 108 participants.

Pandemic Flu Emergency Response Planning

Pandemic flu plans are being developed all across the nation -- by states, counties, cities and at universities. Pandemic flu plans are essential in preparing for a large scale influenza pandemic, caused by the Avian (H5N1) influenza virus or other highly pathogenic flu strain. EH&S has been charged with the task of developing a preparedness plan for pandemic influenza at Iowa State University.

A task force has been organized with 55 members from the university and Story County. The task force was divided into five work groups that meet monthly to develop, plan, and organize the university’s Pandemic Flu Plan.

Radiation Safety

EH&S, working in cooperation with FP&M, Veterinary Radiology staff and G. E. Health Care, finalized plans for the Veterinary Radiology Modular Magnetic Resonance Imaging facility. The project required EH&S staff to complete a multifaceted safety review, including shielding calculations for x-ray producing devices to be used in the new facility. The shielding calculations have been submitted for the approval of the Iowa Department of Public Health Bureau of Radiological Health.

Decommissioning

EH&S continues to move forward on the decommissioning of the former CWHF and is waiting for the EPA to approve the closure on the facility prior to performing the final radiological survey. A comprehensive historical site assessment, including the review of survey and decontamination records, has been completed and the drains of the facility have been cleaned and monitored. The decommissioning process ensures no residual radioactive contamination exists in the facility. A final report will be written documenting the final radiological status of the facility.

Project Approvals

Each new research project involving the use of radioactive materials or radiation-producing devices, as well as any major change to an ongoing project, must be reviewed and approved by
vices, as well as any major change to an ongoing project, must be reviewed and approved by EH&S and the Radiation Safety Committee. In 2006, EH&S reviewed and approved eleven new principal investigators and made 250 changes to ongoing projects. Currently, Iowa State University has 117 active Principal Investigators approved to use radioactive materials.

Radioactive Laboratory Audits and Surveys
EH&S conducts periodic audits and safety surveys of all Iowa State University laboratories using or storing radioactive materials. The audits review safety-related procedures and practices, while the surveys monitor radiation levels and check for possible contamination. At the end of 2006, there were 220 radionuclide laboratories in use at Iowa State University. EH&S performed a total of 718 surveys and 301 audits in 2006.

Radioactive Material Procurement
All purchases or acquisitions of radioactive material must be approved and processed through EH&S. Each shipment of radioactive material is then delivered to EH&S, where it is inspected for damage or possible contamination, before release to the laboratory. In 2006, EH&S processed 734 orders for radioactive materials.

Safety Signage
In 2006, EH&S purchased software to allow production of commonly used safety signs. This was a dual effort to reduce costs associated with safety signage and allow EH&S to create custom signs with a significantly shorter turn around time.

Two hundred twelve requests for pre-existing signs were filled in 2006, with an additional 83 requests for custom signage. Approximately 1,770 signs were distributed in 2006. By printing the signs in-house, EH&S is able to produce signage for just under $1 each, resulting in savings of nearly $9,000 compared to purchasing signs from a commercial vendor.

Select Agent Program
The Select Agent Program involves the possession, use and transfer of government restricted biological agents that potentially could be used in bioterrorism. This program continued to be managed through EH&S in 2006. EH&S conducted inspections of Select Agent laboratories and provided training for personnel working with these agents. A Biosafety Specialist served as the Responsible Official; the Biosafety Officer, Director and Associate Director of EH&S and the Director of the Office of Research Assurances (ORA) all served as Alternate Responsible Officials. All required reporting and recordkeeping was performed in compliance with regulatory requirements and in full cooperation with the ORA.

Stormwater Construction Permits and MS4 Phase II
Weekly – and post-rain event – inspections of stormwater-permitted construction sites increased in 2006, with nine sites active throughout much of the year. Discontinuation notices were submitted for the Towers and Dairy Teaching Farm demolition sites, and stormwater awareness training was implemented for university staff.

The Iowa Department of Natural Resources conducted a two-tiered enforcement inspection in the spring of 2006. The inspection included a detailed overview of the university’s Municipal Separate Storm Sewer System (MS4) and all active stormwater permitted construction sites of one acre or
Training

The EH&S Learning Center experienced a significant increase in participants during 2006 for both online and classroom training. The number of clients trained in 250 classroom sessions increased by 30%, from 2,245 to 3,216. Online training participants also increased by 20%, from 3,352 to 4,219.

With more courses being developed for online delivery, increased use of the online Learning Center is expected to continue in 2007.

2006 New Online Courses
- Autoclave Safety
- Biohazardous Materials: An Introduction
- Bloodborne Pathogens Exposure Control
- Chemical Hygiene Plan and Personal Protective Equipment
- Fire Safety and Extinguisher Training
- Iowa State University Surplus Recovery
- Radiation Safety for Ancillary Personnel

2006 New Classroom Courses and Revisions
- Sharps Safety Begins with You
- USDOT Hazmat Awareness and Suspicious Package Recognition
- Spill Control and Stormwater Pollution Prevention
- Lead Awareness

The Remote Access Program provided fee-based accessibility to EH&S online safety training for companies affiliated with Iowa State University, such as Research Park companies, the U.S. Department of Agriculture, Agricultural Research Services, National Soil Tilth, and the Biomass Energy Conversion Center (BECON). Special training classes were also scheduled to help departments and companies fulfill their safety training needs.

X-ray and Sealed Sources Device Audits

EH&S performed 43 inventory inspections of x-ray devices and completed 63 sealed source device leak tests in 2006. EH&S gained reciprocity approvals from the states of Illinois and Minnesota and the NRC for research conducted outside of Iowa using moisture/density gauges owned and operated by Iowa State University researchers.