ENVIRONMENTAL MANAGEMENT SYSTEM

DECEMBER 2005

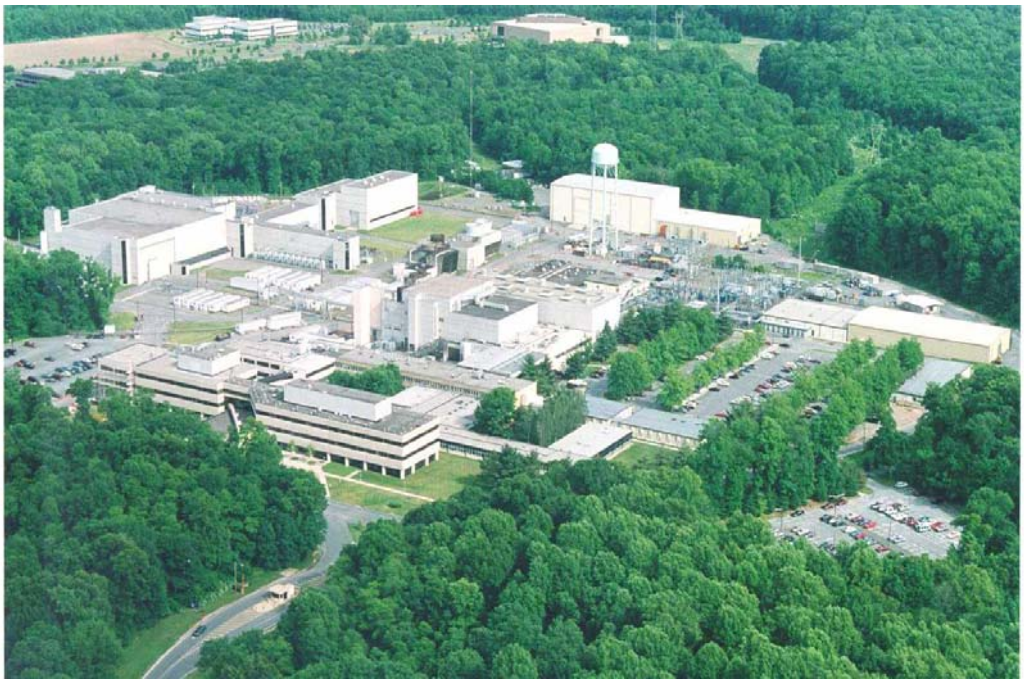

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TABLE OF CONTENTS

LIST OF APPENDICES

1.0 INTRODUCTION

1.1 Mission & History of PPPL

The U.S. Department of Energy's Princeton Plasma Physics Laboratory (PPPL) is a Collaborative National Center for plasma and fusion science. Its primary mission is to develop scientific understanding and key innovations leading to an attractive fusion energy source [PPPL98a]. Related missions include conducting world-class research along the broad frontier of plasma science and providing the highest quality of scientific education and experimentation.

At PPPL, the National Spherical Torus Experiment (NSTX) is a collaborative project among 14 Department of Energy National Laboratories, universities, and institutions. Also located at PPPL are smaller experimental devices, such as the Magnetic Reconnection Experiment (MRX) and the Lithium Tokamak Experiment (LTX), which investigate plasma physics phenomena.

As a part of off-site collaborative projects, PPPL scientists assist fusion programs both in the United States and other countries. Particularly, PPPL collaborate with the Koreans in their K-Star program, the Japanese at their JT-60 facility and with the European Union at the Joint European Torus (JET) facility located in the United Kingdom, to further fusion science.

Magnetic fusion research at Princeton began in 1951 under the code name Project Matterhorn. Lyman Spitzer, Jr., Professor of Astronomy at Princeton University, had for many years been involved in the study of very hot rarefied gases in interstellar space. Inspired by the fascinating but highly exaggerated claims of fusion researchers in Argentine, Professor Spitzer conceived of a plasma being confined in a figure-eight-shaped tube by an externally generated magnetic field. He called this concept the "stellarator," and took this design before the Atomic Energy Commission in Washington. As a result of this meeting and a review of the invention by designated scientists throughout the nation, the stellarator proposal was funded and Princeton University's controlled fusion effort was born. In 1958, magnetic fusion research was declassified allowing all nations to share their results openly.

For the past four decades, PPPL has been a leader in magnetic confinement experiments utilizing the tokamak approach. This work culminated in the world-record performance of the Tokamak Fusion Test Reactor (TFTR), which operated at PPPL from 1982 to 1997. Beginning in 1993, TFTR was the first in the world to use 50/50 mixtures of deuterium-tritium, yielding an unprecedented 10.7 million watts of fusion power.

1.2 Site Description

PPPL is located on Princeton University's James Forrestal Campus (JFC) in Plainsboro Township, Middlesex County. It is adjacent to the municipalities of Princeton, Kingston, West Windsor, and Cranbury, NJ. The Princeton area continues to experience a substantial increase in new businesses locating along the Route 1 corridor near the site. The main campus of Princeton University is approximately three miles west of the site. Undisturbed areas surrounding the site include upland forest, wetlands, open grassy areas, cultivated fields, and a minor stream (Bee

Brook), which flows along its eastern boundary. These areas are designated as open space in the JFC site development plan.

The Laboratory is divided into two areas, designated as "C-Site" and "D-Site." C-Site consists of office, warehouse, shop, and laboratory spaces in addition to support facilities, such as electrical distribution, maintenance and the central steam and chiller plants. D-Site is composed of experimental areas and specialty support facilities such as motor-generator and power conditioning equipment.

1.3 Environmental Protection Policy

PPPL's Environmental Protection Policy (P-002) establishes policy direction for the Laboratory in environmental mattes. It specifies that all employees and subcontractors are expected to conduct activities in an environmentally safe manner that limits the risks to the environment and protects public health. It commits the Laboratory to compliance with all applicable environmental regulations, to strengthen self-assessment programs through continuous improvement and act swiftly to correct deficiencies, to meet DOE's obligations under the National Environmental Policy Act, to minimize the generation of contaminants and wastes, and to pursue pollution prevention opportunities.

1.4 PPPL's Environmental Management System (EMS)

It is PPPL's responsibility to balance mission-related activities with economic issues and the values of its neighbors. In light of this responsibility, PPPL is committed to maintaining mutually beneficial relationships with its neighbors, regulatory agencies, and the U.S. Department of Energy (DOE). PPPL is committed to implementing an Environmental Management System (EMS) as part of its Integrated Safety Management System (ISMS) to meet the requirements of Executive Order 13148 and DOE Order 450.1. An EMS is a systematic methodology for managing and integrating the environmental, safety and health aspects of an organization's operations with special emphasis on compliance assurance, pollution prevention, and continuous improvement.

This document provides an overview of the EMS program at PPPL. It describes the interdependence of the EMS with other management systems and Laboratory requirements, such as the Integrated Safety Management System (ISMS) and quality assurance program. It describes the process for identifying environmental aspects and impacts of Laboratory activities; a process for planning, conducting and reviewing activities at the Laboratory consistent with the "Plan, Do, Check, Act" model embraced by ISM. It provides references and links to applicable environmental, safety and health (ES&H) standards, policies and procedures; and describes PPPL's environmental compliance, pollution prevention and waste minimization programs. Consistent with a commitment to continual improvement, the EMS program will be regularly reviewed to incorporate lessons learned during Laboratory operations and to identify areas for improvement. This Plan will be reviewed annually by members of the Environmental Review Committee (ERC) and updated at least every three years.

2.0 ENVIRONMENTAL ASPECTS AND IMPACTS

The EMS approach to environmental improvement provides a systematic framework for managing and controlling PPPL activities while minimizing negative impacts to the environment. PPPL's EMS has been designed to utilize existing and well-establish work processes to plan, conduct and review activities. The process of identifying activities that can present significant environmental impacts provides a framework for PPPL to prioritize its efforts of managing, controlling, and minimizing these impacts. An environmental aspect is any element of an organizations activities, products or services that can interact with the environment An environmental impact is a change to the environment, whether adverse or beneficial, wholly or partially resulting from an organization's activities, products or services.[1] PPPL has defined significance for the EMS based on the potential impacts of its activities and the regulatory requirements that apply to its operations as well as other criteria discussed in Appendix A.. By setting goals to control, reduce or eliminate significant negative impacts, and encourage positive environmental impacts, PPPL will successfully implement its commitment to regulatory compliance, pollution prevention, and continuous improvement. PPPL utilizes a dual approach to identify the environmental aspects and impacts of its operations – a site-wide baseline survey of activities, aspects and impacts and identification/evaluation of new activities through the NEPA review and work planning processes.

2.1 Site-Wide Aspects and Impacts Survey

As part of its EMS development process, PPPL conducted a comprehensive site-wide survey of Laboratory facilities, the activities taking place there, and the associated environmental aspects and impacts. This survey was conducted by the Materiel & Environmental Services (M&ES) Division with support from other Laboratory organizations, and covered every building and area at PPPL and its support facilities. Surveys were conducted in coordination with the designated Facility Manager for each area of his/her representative. After completion, the surveys were reviewed by the team leader for consistency and the results were entered into the Enviance® environmental management information system. Enviance® is a web-based data management system used by M&ES to identify and track environmental management requirements, tasks, data and information. The use of Envinace® will facilitate regular review and assessment of environmental aspects and impacts at PPPL.

Results of the site-wide EMS survey were compiled in Enviance® and evaluated for significance using a process modeled after processes used by USEPA Region III, the National Park Service, and other DOE facilities. This evaluation process addressed each aspect/impact using the following criteria:

- regulatory compliance,
- frequency of occurrence,
- severity of potential environmental damage,

[1] ISO 14001 (1996) – Environmental Management Systems – Specification and Guidance for Use

- stakeholder concern and awareness, and
- financial considerations.

A numerical score, ranging from 1 to 5, was assigned to each aspect or impact in each category. These priority ranks were summed to determine at total score for each aspect or impact. Those aspects & impacts receiving the highest overall score were considered the most significant. A summary of environmental aspects and impacts identified by facility, as well as a summary of the significance evaluation, are included in Appendix A.

The significant environmental impacts of PPPL's operations are listed below.

SIGNIFICANT ENVIRONMENTAL IMPACTS

Hazardous Waste Generation	Fuel Use (natural gas, fuel oil, vehicle fuel)
Radioactive Waste Generation	LECT Wastewater Discharge
Industrial Wastewater Discharge (NJPDES permit)	Soil Disturbance
Recycling (paper, cardboard, wood, etc.)	Stormwater Runoff
Chemical & Oil Use (potential spills or releases)	Office Supply Use (depletion of resources, waste generation)
Solid Waste Generation	Sanitary Wastewater Discharge
Air Emissions	Water Use (potable and non-potable)
Electricity Use -	Radiation Exposure
Impacts to Floodplain or Wetlands	

Regular review of the EMS program will provide for prioritized impacts that reflect current and planned Laboratory activities, and employee and stakeholder concerns. PPPL's Environmental Review Committee (ERC) will review the identified significant aspects and impacts annually as part of its EMS program review. As discussed in Appendix A, this review will consider NEPA reviews from the previous year to identify recent and planned operational changes. The ERC is resource committee to the Laboratory's ES&H Executive Board which is composed of senior laboratory management. The ERC is made up of representatives from the environmental, safety, administrative, research, engineering, and facilities functions of the Laboratory. The ERC Charter, membership information, project status reports, EMS references and resource links and meeting minutes are available on the EMS website (http://www-local.pppl.gov/erwm/EnvirMgmntSys.html).

2.2 Evaluation of New Activities and Operational Changes

Environmental aspects and impacts are evaluated and identified for new activities and changes to on-going activities through existing and well established work processes. These processes include the NEPA (National Environmental Policy Act) Review System (Procedure ESH-014), the Work Planning process (Procedure ENG-032) and the Job Hazards Analysis procedure (Procedure ESH-004). As potential impacts are identified through these planning and review

processes, environmental, safety and other professionals assist Laboratory organizations to control and minimize the impacts.

2.3 Legal & Other Requirements

As part of its Integrated Safety Management (ISM) program, PPPL regularly reviews its operations for applicable environmental, safety & health (ES&H) regulations, requirements and standards. Listings and links to applicable requirements are maintained on the PPPL Procedures and Publications web page along with the Integrated Safety Management System (ISMS) document. A summary of applicable ES&H requirements, responsible lead organizations, technical experts and training requirements is provided in the ES&H Standards and Cognizant Points of Contact matrix. In addition to this matrix, the webpage contains a listing of applicable DOE Orders, a summary of OSHA Competent Persons, the Integrated ES&H Assessment Schedule, the department's Records Inventory and Schedule, as well as other important ES&H information. A summary of ES&H policies and procedures and their relationship to the EMS program requirements specified in DOE Order 450.1 and a summary of PPPL's environmental program requirements are provided in Appendix B.

3.0 ENVIRONMENTAL MANAGEMENT SYSTEM DESCRIPTION

3.1 EMS Overview

As discussed previously, PPPL's Environmental Management System is structured in order to coordinate with existing work processes and to integrate with the Integrated Safety Management (ISM) approach. An outline of how environmental aspects and impacts are considered in the ISM Core Functions is presented below.

1. **Define the Scope of Work**
   - Project Management Planning Process
   - NEPA Review
2. **Analyze the Activity**
   - NEPA Review (ESH-014)
   - Work Planning Procedure (ENG-032)
   - PPPL's ES&H Standards
   - PPPL's ES&H Directives Manual
3. **Develop and Implement Controls**
   - PPPL's ES&H Directives Manual
   - Job Hazards Analysis Procedure (ESH-004)
   - PPPL Environmental Permits
   - PPPL Environmental Monitoring Plan
   - Subcontractor Work Authorization (ES&H/IS Department)
   - Employee Training (general and job-specific)
4. **Perform the Work Within Controls**
   - PPPL's ES&H Directives Manual
   - Permit Requirements
   - Procedures (lab-wide and specific)
5. **Feedback & Continuous Improvement**
   - Annual EMS Review by ERC
   - PPPL's Internal Audit Program
   - Lessons Learned Program
   - Annual Site Environmental Report
   - PPPL Environmental Monitoring Plan
   - Facility Walkthroughs
   - P2 Reporting to DOE
   - Annual briefing of local environmental resource committee

3.2 Roles & Responsibilities

A key element of the ISM approach used at PPPL is the identification of employee roles, responsibilities, authorities, and accountability. PPPL Policy P-087 identifies the basis for roles and responsibilities with regard to ES&H responsibilities. All employees have the following EMS responsibilities as they pertain to ES&H issues.

- **Comply with Laboratory policies, standards, and procedures, and regulatory requirements.**
  Laboratory employees are expected to understand and comply with Laboratory policies and procedures and regulatory requirements in the course of their work. The NEPA, Work Planning and JHA processes will help to identify potential safety concerns or environmental impacts. The ES&H Directives Manual provides protocols and guidance in many areas. Additional resources and guidance are available from the ES&) and M&ES Divisions.

- **Maintain awareness of the environmental impact of the work and apply pollution prevention and waste minimization techniques.**
  Employees should be aware that, in addition to the better-known environmental impacts like spills, many activities at the Laboratory may indirectly impact the environment. Purchasing recycled products, recycling office papers, batteries, and scrap metal, identifying way to save water and energy, and conserving energy and water are simple ways that employees can help improve the Laboratory environmental performance.

- **Identify potential hazards, environmental concerns and unsafe conditions or practices in work or at the work site, and implement or suggest controls to minimize risk.**
  The NEPA, Work Planning, and JHA processes provide opportunities for employees to plan their work in a way that is both safe and helps protect the environment. Employees should help to identify safety or environmental concerns as work is planned and conducted. If unsure about the safety or environmental impacts of an activity, an employee should contact his/her supervisor or the PPPL safety or environmental staff for guidance.

- **Respond to emergency situations, alarms or occurrences in an appropriate manner.**
  If an unplanned environmental release or similar event occurs, employees should notify their supervisor or ESU as soon as possible. In the event of an alarm or EVES announcement, employees must respond appropriately (notify, evacuate or respond, as appropriate).

The responsibilities of divisions within the ES&H/IS department are communicated to line personnel through the ES&H/IS Department Charter. Personnel within the divisions lead, manage, and coordinate the necessary actions and support to further the laboratory's environmental management and ES&H goals. Personnel within these divisions are responsible for specific goals and program objectives. They are evaluated in their annual performance appraisals to assess individual performance against their assigned goals and responsibilities.

Leadership and overall responsibility for establishing and maintaining the site-wide EMS is the responsibility of the Environment, Safety & Health/Infrastructure Support (ES&H/IS) Department Head, as the senior management representative with overall environmental responsibility. Assistance in fulfilling this role is provided by the various support organizations with expertise in the specific technical areas. The Materiel & Environmental Services (M&ES) Division manages the EMS development, review and update process in coordination with the Environmental Review Committee. M&ES also has responsibilities in the areas of environmental compliance, waste management, pollution prevention and environmental

restoration. The Quality Assurance Division provides independent reviews of environmental programs and functions as part of its comprehensive independent review role. Emergency planning and response are managed by the Site Protection Division. Facility operations, maintenance and construction activities are managed by the Maintenance and Operations Division. The ES&H Division manages the NEPA review process and provides technical expertise safety, industrial hygiene, and radiological protection.

3.3 Environmental Compliance

As stated in the Environmental Protection Policy (P-002), PPPL intends to comply with all applicable environmental requirements – including permits, regulations, and orders. The environmental compliance program is administered by the Materiel & Environmental Services (M&ES) Division. The Environmental Compliance Manager serves as the Laboratory's lead technical expert in this area. This person coordinates and prepares environmental permit applications, manages the monitoring and reporting required by permits, and monitors regulatory developments for potential impacts to Laboratory operations. Additional information is contained in Section 12 of the ES&H Directives Manual. Established procedures outline responsibilities for various Laboratory organizations in specific environmental areas. These procedures are available in the PPPL Procedures Manual.

3.4 Environmental Monitoring & Surveillance

PPPL's Environmental Monitoring Plan outlines the programs for environmental compliance and surveillance monitoring. This plan addresses meteorological, air, surface water, ground water, and radiological monitoring programs. This plan is reviewed annually and revised at least every three years. Maintenance of the Environmental Monitoring Plan is the responsibility of the Environmental Compliance Manager.

3.5 Waste Management

The management of municipal solid waste is the responsibility of the Maintenance & Operations Division. A subcontract waste management company provides collection and disposal services for solid waste, wood waste, construction debris and recyclables. PPPL recycles mixed paper, cardboard and kraft paper and mixed beverage containers. In addition, concrete and steel from construction or demolition projects are recycled. PPPL's Waste Minimization Policy (P-014) establishes the mandate to minimize all categories of waste that must be disposed.

The M&ES Division is responsible for hazardous, medical, radioactive and mixed waste management. Separate facilities are provided for the collection and temporary storage of hazardous and radioactive wastes. Extensive administrative controls have been established for the characterization, storage, packaging, transportation and disposal of hazardous and radioactive wastes. A laboratory-wide procedure (EWM-001) establishes the responsibilities for hazardous waste management. Additional information is contained in Section 7 of PPPL's ES&H Directives Manual. Detailed plans and procedures for waste management activities are available on the Environmental Services Group's Operational Documents Web Page.

3.6 Pollution Prevention

PPPL has an active Pollution Prevention (P2) program that is lead by a full-time Pollution Prevention Coordinator from the M&ES Division. The P2 program emphasizes recycling, energy and water conservation, and environmentally preferred purchasing. Because facility operations have significant potential for environmental impacts, the P2 Coordinator and other environmental staff members, frequently work with M&OD staff to identify P2 projects. PPPL has had great success in maintaining a high recycling rate for municipal solid waste thanks to the sustained efforts of both the P2 Coordinator and the Manager of Custodial Services. Other recent P2 accomplishments are listed below.

- Replacement and re-lamping of many old lighting fixtures to improve energy efficiency.
- Installation of enhanced oil detection equipment in conjunction with hydraulic elevator upgrades.
- The use of bio-based hydraulic oil in the new elevator systems and the vehicle security barrier system at the front gate.
- Direct digital controls for the HVAC system in the Engineering Wing. This system provides better temperature control with less energy use.
- Recycling of computer monitors, electronic data media (tapes, diskettes, etc.) and electronics scrap.
- Recycling of batteries, mercury-containing components and lighting ballasts avoid disposal of hazardous wastes.
- Substitution of biodegradable parts washing solutions for routine degreasing operations at several machine shops.
- Achieving the Fiscal Year 2010 solid waste recycling goal (50%) six years ahead of time in Fiscal Year 2004.

Pollution Prevention data, including recycling and environmentally preferred purchasing data, P2 accomplishments, and other data requested by DOE are reported annually using DOE's on-line data reporting system. Information on PPPL's performance, including past recycling data is available at http://www.eh.doe.gov/p2/index.html.

3.7 Environmentally Preferred Purchasing

PPPL's Environmentally Preferred Purchasing (EPP) program focuses mainly on two areas – renovation/construction projects and office supply purchases. First, renovation and construction projects utilize recycled and other EPP products. Ceiling tiles, wall board and carpeting and other building products installed at PPPL are made from recycled materials. Recent painting projects have utilized low-VOC latex paint to enhance indoor air quality. The P2 Coordinator works closely with the Maintenance & Operations Division to identify suitable EPP building products early in the design phase to allow these products to be incorporated into the project specifications.

The Laboratory-wide office supply contract includes several provisions for EPP products. The default specification for general office printing & copying paper contains recycled materials and meets EPA's recycling guidelines. In addition, other office supply products (e.g. note pads, sticky-notes, writing tablets and filing products include EPP products. PPPL has an extensive printer/copier toner cartridge recycling program. Through the office supply subcontract, all printer/copier toner cartridge orders are automatically re-directed to remanufactured products when available. Used toner/printer cartridges are collected for recycling through this same

program. The automatic re-direction to recycled products has greatly enhanced the Laboratory's EPP performance in recent years.

3.8 Landscape Management

Beneficial landscaping includes landscape designs, installations and practices that enhance native vegetation, reduce the use of chemicals and\/or water, or enhance wildlife habitat. Much of the PPPL site is fully developed and landscaped or surrounded by land designated as open space approved development plan for James Forrestal Campus. This limits the opportunities for extensive beneficial landscaping projects. Recent beneficial landscaping projects have included the installation of a wildflower meadow following demolition of the Radiological Environmental Monitoring Lab and regarding/seeding of the detention basin area with slow-growing field grasses. Both of these projects have reduced the labor, fuel and time required to maintain mowed lawn areas at the Laboratory. Most landscaping projects are conducted in conjunction with other facility projects (e.g. building demolition). To meet the requirements of DOE Order 450.1 and provide a plan for additional beneficial landscaping projects, the ERC established a landscaping working group to identify potential landscaping improvements and opportunities to be implemented in the next few years. Representatives from the environmental, engineering, facilities and construction staff participated in this effort. These projects are documented in a Beneficial Landscape Plan that is available on the EMS/ERC web site.

3.9 Cultural Resource Management

As part of the EMS development process, a Cultural Resources Management Plan (CRMP) has been developed for the site. An archeological study was conducted in conjunction with the construction of D-Site facilities. This study found only very minor archeological evidence and made no recommendations for additional protections. During preparation of the CRMP it was determined that the Delaware & Raritan (D&R) Canal Pump House is located within the D&R Canal Historic District. Changes to the Canal Pump House building exterior may require review by the D&R Canal Commission.

3.10 Emergency Preparedness and Response

PPPL's Site Protection Division (SPD) and its Emergency Services Unit (ESU) are the primary emergency response organization at the Laboratory. An extensive Emergency Plan has been prepared for a variety of situations that may occur including, but not limited to, oil and chemical spills or releases, radiological releases, and operational and wildland fires. The Spill Prevention Control and Countermeasures (SPCC) Plan, required by 40 CFR 112, is a supplement to the site-wide Emergency Plan. The SPCC Plan is maintained by the M&ES Division. Many facility-related and environmental protection alarms are monitored by the ESU communications center which is staffed 24 hours per day. SPD and M&ES Division staffs regularly coordinate on environmental response and cleanup actions. Emergency drills are coordinated to allow both SPD and environmental personnel opportunities to practice responding to spills and other environmental emergencies.

3.11 Communication and Training

Line Management is responsible for ensuring that personnel receive the appropriate ES&H training. Line management determines needs in accordance with the subject area training and qualifications requirements. Training and qualification records are maintained in the PPPL Training Management records. PPPL policy P-028 "Integration of ES&H Requirements into Subcontracted Work" establishes the requirements and responsibilities for ES&H related training for subcontractors.

The key PPPL training and communication programs to make staff, visiting scientists, and contractors aware of the environmental policy and their roles in environmental management include:

- General Awareness Training:
  a) Subcontractor General Employee Training [revised]
  b) General Employee Training (for any person working >40 hours per year) [revised]
  c) EMS Awareness Briefings [to be delivered in early 2006]
  d) Ongoing communication programs (ES&H Newsletter, Hotline articles, posters, etc.)
  e) Hazard Awareness Training
- Examples of ES&H training for select environmental personnel are given below.
  a) OSHA Hazardous Waste Worker (HAZWOPER),
  b) OSHA Hazardous Waste Supervisor,
  d) OSHA Asbestos Supervisor,
  e) Hazardous/Radioactive Material Transportation,
  f) Radiation Safety,
  h) Other job-specific training as determined by the organization.

Additions and changes to the General Employee Training and Subcontractor General Employee Training have been prepared by the M&ES Division for inclusion in the course materials by the Training Office. In addition, the next issue of the employee's ES&H Newsletter will feature EMS principles and practices and how they affect Laboratory operations. On-going EMS communications efforts will include regular management briefings, "Hotline" features, and ES&H posters.

3.12 Site Closure and Long-Term Stewardship

The final component to a comprehensive EMS is the issue of site-closure and long-term stewardship. There are no plans for site closure at PPPL due to the on-going research mission of the Laboratory. PPPL is located on land leased by the Department of Energy from Princeton University. The current land lease expires in 2026 and specifies that, upon termination of the lease, DOE is responsible for ensuring that the site is in full compliance with applicable safety, health and environmental regulations.[2] In the event of a site closure determination by DOE, the Environmental Management System would require revision to address site closure and long-term stewardship issues.

2 Lease Agreement between The Trustees of Princeton University (Princeton) and The United States of America acting through the United States Department of Energy (Government), Appendix K, Contract # DE-RLO2-CH10328

4.0 ENVIRONMENTAL OBJECTIVES & TARGETS

In conjunction with its annual review of the EMS program, the Environmental Review Committee evaluates the Laboratory's environmental performance and proposes environmental performance targets for adoption by the ES&H Executive Board. The ERC is resource committee to the Laboratory's ES&H Executive Board which is composed of senior laboratory management. The ERC is made up of representatives from the environmental, safety, administrative, research, engineering, and facilities functions of the Laboratory. The ERC regularly reports to the ES&H Executive Board on the status of environmental projects and performance. A summary of PPPL's environmental performance goals and targets is presented in Appendix C. In developing targets, the ERC considers several factors including, but not limited to:

- Past environmental performance,
- Established DOE or Federal performance goals,
- Recent environmental events (e.g. spills, permits occurrences, etc.),
- Planned changes to Laboratory infrastructure,
- On-going and new research programs, and
- Regulatory developments.

Environmental performance goals can be grouped into several broad categories that integrate with the significant environmental aspects identified above. These categories frequently address several aspects. For example, the pollution prevention goal of identifying opportunities for product substitution can impact both the "chemical usage" aspect by reducing the purchase and use of toxic chemicals and the "waste generation" aspect by reducing the volume of hazardous waste requiring treatment or disposal. In another example, the planting of low maintenance landscaping can reduce the amount of pesticide/herbicide use and reduce the air emissions and petroleum usage resulting from lawn mowing operations. Examples of general environmental performance categories applicable PPPL operations are given below.

- **Pollution Prevention** – continue to increase recycling performance, and identify opportunities of product substitution with less toxic alternatives,
- **Environmentally Preferred Purchasing** – increase purchase of EPP office supplies, identify new EPP opportunities, and increase employee awareness.
- **Energy & Water Reduction** – plan and implement energy efficiency and water conservation projects, purchase energy efficient equipment, and increase employee awareness.
- **Landscape Management** – implement beneficial landscaping projects in conjunction with facility maintenance and improvement projects, and reduce landscaping chemical usage.
- **Continuous Improvement** – identify areas for improved EMS integration into planning and execution, increase employee awareness of EMS principles.

5.0 ASSESSMENT & CORRECTIVE ACTION

5.1 Self-Assessments

Responsibility for regular self-assessments of PPPL's Environmental Management System lies with the Environmental Review Committee(ERC). The ERC committee is a Resource Committee to the ES&H Executive Board. The ERC meets quarterly to review the status of environmental matters at the Laboratory. Additional meetings may be called by the ERC Chairperson at the request of members or in response to significant environmental events. Annually the ERC will review EMS processes and performance against established environmental goals. The annual review will be documented in the meeting minutes or in a separate report, as determined by the Committee Chairperson. The ERC will review progress and may propose changes or additions to performance measures for adoption by the ES&H Executive Board. The ERC may also identify areas for improvement or emphasis in the coming year based on its annual review. Corrective actions resulting from self-assessments may be tracked by the QA Division

5.2 Independent Reviews

The PPPL Institutional Quality Assurance Plan provides a criteria (page 14) for Assessment and Independent Assessment as specified in10 CFR 830.120. These criteria have been implemented into the many formal and informal reviews that occur throughout the laboratory. The audit of the EMS program is scheduled as part of the integrated lab-wide audit program. The EMS audit, along with other regular environmental program audits, is performed in accordance with the annual scheduled developed by the Quality Assurance Division. This schedule is comprehensive of lab activities. Many of these activities/functional areas also include environmental and safety matter that are integrated with EMS. The QA Division web page contains the annual audit schedules, policies, and procedures and a tracking and trending system for deficiencies and performance. Open action items are tracked to closure and open items over a specified time period receive review by senior laboratory management to facilitate closure.

5.3 Document Control

Laboratory Policy P-O32, "Hierarchy of Documents" identifies the relationship of laboratory policies, plans and procedures. Laboratory procedures GEN-001 and GEN 003 identify the requirements, responsibilities, and controls for issuing, revising, and approving documents. PPPL Policy, P-015, "Records Management", provides policy guidance for the management of Laboratory records.

The Environmental Review Committee, with assistance from the M&ES Division, is responsible for maintaining records pertaining to development and implementation of the Environmental Management System. Official copies of the EMS as well as policies, plans and procedures are available on the PPPL internal web site. Uncontrolled convenience copies may be obtained by printing them from the web page. Hardcopy files of materials pertaining to the EMS will be maintained by the M&ES Division as part of the environmental compliance files.

Princeton Plasma Physics Laboratory
Environmental Management System

APPENDIX A

Summary of Environmental Aspects & Impacts

SITE-WIDE SURVEY OF ENVIRONMENTAL ASPECT & IMAPCTS
Princeton Plasma Physics Laboratory

Purpose:
The purpose of this survey was to review all PPPL facilities and activities to determine their environmental aspects and potential impacts. The survey was conducted by environmental professionals from the Materiel & Environmental Services (M&ES) Division with support from the Environment, Safety & Health (ES&H) Division and the Engineering Department. Surveys were coordinated with the responsible Facility Manager or the designated knowledgeable representative of the PPPL organizations in those areas. Surveys were performed at all C- and D-Site buildings, grounds and facilities and the D&R Canal Pumphouse. The survey did not include off-site collaboration sites. PPPL activities at off-site locations should be conducted in accordance with the ES&H policies and procedures applicable to that location

Definitions:
Environmental Aspect: An environmental aspect is "any element of an organizations activities, products or services that can interact with the environment."[1]

Environmental Impact: An environmental impact is "any change to the environment, whether adverse or beneficial, wholly or partly resulting from an organizations activities, products or services."

Survey Process:
Buildings, grounds and other facilities were surveyed by ES&H professionals in coordination with the PPPL organization responsible for those areas. A copy of the survey form is provided as Figure 1. The survey included both operational activities (experimental equipment fabrication, experimental operations, etc.) and infrastructure or support operations (heating/cooling, lighting, landscaping, etc.).

Upon completion of the walkthrough survey, the results were entered into PPPL's Enviance® environmental information management system. Enviance® is a web-based data management system used by M&ES to identify and track environmental management requirements, tasks, data and information. A sub-section of the system tree was created to track environmental aspects and impacts of PPPL's operations. Data field reflecting the survey information were created in this area of the system. The use of Envinace® will facilitate regular review and assessment of environmental aspects and impacts and other EMS-related activities.

After the survey results were entered into Enviance®, the M&ES survey team leader reviewed the results for consistency and accuracy. Discrepancies were identified and resolved with the person conducting the survey and cognizant PPPL organization.

[1] ISO 14001 (1996) - Environmental Management Systems – Specification with Guidance for Use.

Figure 1 – Environmental Aspects & Impacts Survey Form

Princeton Plasma Physics Laboratory – Environmental Management System (EMS)
Activity Form for Environmental Aspects, Impacts Survey
Activity:_____

General Information

Building Name:_____

Facility Manager(s): _____

EMS Representative:_____Date:_____

1. General description of facility function:

_____
_____
_____
_____
_____

2. **What is type of work is conducted here (ACTIVITY)? –** Circle applicable - Admin.& Eng.& Mgmt ./ Experimental Research / Electrical Systems / Heating Systems / Cooling Systems / Computer Systems / Waste Mgmt / Medical / Woodworking / Machining / Mechanical Assembly / Electronics Assembly / Vacuum Assembly / Welding & Brazing / Library & Records Mgmt. / Receiving & Shipping & Storage / Fleet Vehicles / Security & Fire Protection / Laboratory –Analytical .

Describe:

_____
_____
_____
_____
_____
_____
_____
_____
_____

3. What materials are used or consumed? (ENVIRONMENTAL ASPECTS) Circle applicable impacts

Energy/Utility Consumption: Describe each

□ **Heating** – Central Plant / Local –NG / Local – Electric / Heat Pump NG / Heat Pump –Electric / Propane.

Describe:

_____
_____
_____

□ **Cooling –** Central Plant / Local Unit / Heat Pump – Electric / Other .

Describe:

_____
_____
_____

□ **Lighting** – Fluorescent / Metal Halide / HP Sodium / Incandescent / Compact Fluorescent / Other

Describe:

_____
_____

☐ **Other Utility Uses** – Additional Electricity / Potable Water / Non-Potable Water / Sanitary Sewer / Other
Describe:

_____
_____
_____

☐ **Chemical Use -** Acids./ Caustics / Cleaners – Biodegradable / Cleaners – non biodegradable / Diesel Fuel / Gasoline / Propane / Metals / Oil & Lubes / Paints / Solvents / Water Treatment.
Describe:

_____
_____
_____

☐ **Machinery or Equipment** – Vehicles / Vehicular Equipment / Stationary Equipment / Other.
Describe:

_____
_____
_____

☐ **Office Supplies** – Paper Use / Toner Use / Printer Ink – Inkjet / Other
Describe:

_____
_____
_____

☐ **Personal Protective Equipment** – Reusable / Disposable
Describe:

_____
_____
_____

☐ **Other Environmental Impacts**
Describe:

_____
_____
_____

4. **What are the Environmental Impacts?** Circle Applicable – Air Emissions / Electricity Use / Floodplains or Wetlands Impact / Fuel Use / Heat Generation / Office Supply Use / Recycling / Soil Disturbance / Spills or Releases (potential)./ Stormwater Runoff / Haz waste / Medical Waste / Rad Waste / Solid Waste / Wastewater-Industrial / Wastewater-LEC / Wastewater-sanitary / Water-potable / Water-non-potable / Chemical Use / Excessive Noise / Radiation Exposure
Describe:

_____
_____
_____
_____
_____
_____

Significance Evaluation:
After review and correction the survey results from each building or facility were consolidated into a single table to provide a summary of site-wide aspects and impacts and to aid in significance evaluation and prioritization. Table 1 presents a summary of the environmental aspects and impacts identified at each building or facility at PPPL. The environmental aspects and impacts identified in the survey were evaluated for significance using a numerical scoring system adapted from systems developed by the U.S Environmental Protection Agency's Region III office, the National Park Service and other DOE facilities. Significance evaluation considered the following factors.

- Regulatory compliance,
- Frequency of occurrence,
- Severity of potential environmental damage,
- Stakeholder concern and awareness, and
- Financial considerations.

Factor scores were assigned using the following narrative criteria.

Regulatory Compliance

5 – Aspect/impact is regulated at PPPL by permit or similar federal/state regulation, Presidential Executive Order, or DOE Order
3 – Aspect/impact is governed by DOE guidance document, PPPL internal requirement, building code, industry consensus standard or best management practice.
1 – Aspect/impact not regulated at PPPL

Frequency of Occurrence

5 – High frequency or on-going activity, once or more per month
3 – Moderate frequency or occasional activity, approximately once per year
1 – Low frequency or rare activity, once every two to three years.

Severity of Impact

5 – Potential for severe or long-term environmental impact both on-site and off-site affecting air, water, land, biota or human health. Impact may be very difficult to remediate.
3 – Potential for moderate or short-term environmental impact affecting air, water, land, biota or human health. Impact can be remediated with current technologies.
1 – Minimal or no impact to air, water, land, biota or human health.

Stakeholder Concern

5 – Stakeholders (DOE, other Federal agency, State or Local government, Princeton University, PPPL employees, or the general public) are greatly concerned about this issue.
3 – Stakeholders are somewhat or mildly concerned about this issue.
1 – Stakeholders are neutral or disinterested about this issue.

Financial Considerations

5 – Corrective actions are inexpensive and/or are likely to save money in the near term (≤ 2 years) with a future payback.

3 – Corrective actions have moderate costs, are likely to save money in the moderate term (3- 5 years) with a future payback, and/or may be implemented within existing budgets or funding programs are available.

1 – Corrective actions are prohibitively expensive, are unlikely to save money in a period of < 10 years with a future payback, and/or would likely require significant additional budget authority to implement.

The list of identified environmental aspects and impacts were distributed to members of the environmental staff, Environmental Review Committee for ranking using the above criteria. Results were then tallied and an average score was assigned to each aspect/impact to determine its significance. Table 2 presents a summary of the significant environmental aspects and impacts identified during the site-wide survey process.

Annual Review and Update:

As part of its annual review of the EMS program, the Environmental Review Committee, with assistance from the M&ES Division, will review the list of aspects and impacts for new or revised aspects/impacts. The purpose of this review is to evaluate the on-going effectiveness of aspect/impact identification processes. As part of this review, the following information will be considered.

- NEPA Review Forms,
- annual site environmental reports,
- established DOE or Federal performance goals,
- recent environmental events (e.g. spills, permits occurrences, etc.),
- planned changes to Laboratory infrastructure,
- on-going and new research programs, and
- regulatory developments.
- Management Safety Walkthrough results,
- pollution prevention progress reports,
- waste generation and recycling data,
- energy usage data, and
- other environmental and facility information, as available.

Aspects and impacts may be re-ranked based on new data as part of this review. Results of the review will be incorporated into the annual identification of environmental performance goals and will be documented in the EMS and ERC records.

Table 1

Summary of Environmental Aspects & Impacts by Facility

Princeton Plasma Physics Laboratory

Building or Facility	Activities	Environmental Aspects								Environmental Impacts
		Heating	Cooling	Lighting	Other Utility Uses	Machinery or Equipment	Office Supplies	Personal Protective Equipment	Other Environmental Aspects	
C-01 LSB - 1, 2, & 3 Floors East Wing	Adminstrative, Engineering & Management; Computer Systems; Library & Records Mgmt.	Central Plant Steam; Local - Electric	Central Plant - chilled water; Heat Pump - Electric	Fluorescent; Compact Fluorescent	Electricity - other than lighting & HVAC; Water - Potable; Sanitary Sewer	Stationary Machinery	Paper Use; Toner Use; Printer Ink - Inkjet			Electricity Use; Office Supply Use; Recycling; Waste - Solid (trash); Wastewater - Sanitary; Water Use - Potable
C-01 LSB – Basement	Adminstrative, Engineering & Management; Electrical Systems; Heating Systems; Cooling Systems; Computer Systems	Central Plant Steam	Central Plant - chilled water	Fluorescent	Electricity - other than lighting & HVAC; Water - Potable		Paper Use; Toner Use		Fuel consumption. Extensive heat. Extensive computer use, generating heat and requiring additional air conditioning.	Electricity Use; Recycling; Waste - Solid (trash); Wastewater - Sanitary; Water Use - Potable
C-01 LSB – Penthouse	Electrical Systems; Heating Systems; Cooling Systems; Waste Management (Haz, Rad, Mixed)	Central Plant Steam; Local - Electric	Central Plant - chilled water	Fluorescent	Electricity - other than lighting & HVAC			Re-usable PPE		Electricity Use; Fuel Use; Heat generation; Spills or Relseases (potential); Waste - Solid (trash)
C-02 LSB – 1, 2, & 3 Floors	Adminstrative, Engineering & Management; Computer Systems; Library & Records Mgmt.	Central Plant Steam	Central Plant - chilled water	Fluorescent	Water - Potable; Water - Non-potable; Sanitary Sewer	Stationary Machinery	Paper Use; Toner Use; Printer Ink - Inkjet	Disposable PPE	Packing materials (example: Styrofoam peanuts), corrugated boxes, copy paper, are retrieved by the Custodians and placed in recycling bins. Corrugated boxes, and Styrofoam, which are usually from the manufacturer of computers and components, are all recycled.	Electricity Use; Recycling; Waste - Solid (trash); Wastewater - Sanitary; Water Use - Non-potable; Water Use - Potable
C-12 Cafeteria	Electrical Systems; Heating Systems; Cooling Systems; Receiving, Shipping & Storage	Central Plant Steam; Local - Electric	Central Plant - chilled water	Fluorescent	Electricity - other than lighting & HVAC; Water - Potable; Sanitary Sewer	Stationary Machinery	Paper Use; Printer Ink - Inkjet	Disposable PPE; Re-usable PPE		Air Emissions; Electricity Use; Heat generation; Recycling; Spills or Relseases (potential); Waste - Solid (trash); Wastewater - Sanitary; Water Use - Potable
C-13 & C-23 - Admin Wing, Library, & Theory	Adminstrative, Engineering & Management; Computer Systems; Security & Fire Protection	Central Plant Steam; Local - Electric	Central Plant - chilled water; Local Unit AC	Fluorescent	Electricity - other than lighting & HVAC; Water - Potable; Sanitary Sewer		Paper Use; Toner Use; Printer Ink - Inkjet		All three areas consume fuel, generate heat and add to the generation of air emissions. Solid waste (dirty air filters) from the periodic maintenance of the HVAC units. In the Admin Wing - Heat loss through the un-insulated ceiling, and wall that runs the length of the corridor as well through the windows in each office. Air conditioners units are maintained on a regular basis with the cleaning of the air filters.	Electricity Use; Recycling; Waste - Solid (trash); Wastewater - Sanitary; Water Use - Potable
C-20 Engineering Wing 1st & 2nd Floor	Adminstrative, Engineering & Management; Electrical Systems; Library & Records Mgmt.	Central Plant Steam	Other (Electric Heat Pump)	Fluorescent	Electricity - other than lighting & HVAC; Water - Potable; Water - Non-potable; Sanitary Sewer	Stationary Machinery	Paper Use; Toner Use			Electricity Use; Heat generation; Recycling; Waste - Solid (trash); Wastewater - Sanitary; Water Use - Potable

C-22 Lab-Wing 1st & 2nd Floor	Adminstrative, Engineering & Management; Experimental Research; Electrical Systems; Heating Systems; Cooling Systems; Computer Systems; Waste Management (Haz, Rad, Mixed); Machining; Mechanical Assembly & Testing; Electronics Assembly & Testing; Welding & Brazing; Security & Fire Protection			Fluorescent	Electricity - other than lighting & HVAC; Water - Potable; Water - Non-potable; Sanitary Sewer		Paper Use; Toner Use; Printer Ink - Inkjet	Disposable PPE; Re-usable PPE	Waste oil which is picked up by M&ES. Lithium is used in one of the experiments. There is still asbestos that has to be removed from this building, piping & flooring.	Electricity Use; Fuel Use; Spills or Relseases (potential)
C-32 Shop Building	Electrical Systems; Heating Systems; Cooling Systems; Computer Systems; Mechanical Assembly & Testing; Electronics Assembly & Testing; Vacuum Assembly & Testing	Central Plant Steam	Central Plant - chilled water	Fluorescent	Electricity - other than lighting & HVAC; Water - Potable; Water - Non-potable; Sanitary Sewer	Stationary Machinery	Paper Use; Toner Use	Re-usable PPE		Air Emissions; Fuel Use; Heat generation; Waste - Solid (trash); Wastewater - Sanitary
C-40 RF Building	Experimental Research; Electrical Systems; Heating Systems; Cooling Systems; Mechanical Assembly & Testing; Electronics Assembly & Testing; Vacuum Assembly & Testing	Central Plant Steam	Central Plant - chilled water; Local Unit AC	Fluorescent	Electricity - other than lighting & HVAC; Water - Potable; Water - Non-potable	Stationary Machinery	Paper Use; Toner Use	Disposable PPE; Re-usable PPE		Air Emissions; Electricity Use; Heat generation; Recycling; Spills or Relseases (potential); Waste - Hazardous; Waste - Radioactive; Waste - Solid (trash); Wastewater - Sanitary; Water Use - Non-potable; Water Use - Potable
C-41-CS Building	Experimental Research; Electrical Systems; Heating Systems; Cooling Systems; Computer Systems; Machining; Mechanical Assembly & Testing; Electronics Assembly & Testing; Welding & Brazing	Central Plant Steam	Central Plant - chilled water	Fluorescent; Metal Halide	Electricity - other than lighting & HVAC; Water - Non-potable	Vehicular Equipment; Stationary Machinery		Re-usable PPE		Air Emissions; Electricity Use; Fuel Use; Heat generation; Recycling; Spills or Relseases (potential); Waste - Hazardous; Waste - Solid (trash); Water Use - Non-potable
C-42- COB Building	Adminstrative, Engineering & Management; Experimental Research; Electrical Systems; Heating Systems; Cooling Systems; Computer Systems; Waste Management (Haz, Rad, Mixed); Machining; Electronics Assembly & Testing; Welding & Brazing; Security & Fire Protection	Central Plant Steam	Central Plant - chilled water; Local Unit AC	Fluorescent; Incandescent; Compact Fluorescent	Electricity - other than lighting & HVAC; Water - Potable; Water - Non-potable; Sanitary Sewer		Paper Use; Toner Use	Disposable PPE; Re-usable PPE		Air Emissions; Fuel Use; Heat generation; Recycling; Waste - Hazardous; Wastewater - Sanitary; Water Use - Potable
C-50 ESAT System Test Building	Experimental Research; Electrical Systems; Heating Systems; Cooling Systems; Waste Management (Haz, Rad, Mixed); Machining; Mechanical Assembly & Testing; Electronics Assembly & Testing; Vacuum Assembly & Testing; Welding & Brazing	Central Plant Steam; Other (describe)	Central Plant - chilled water; Other (describe)	Fluorescent; HP Sodium	Electricity - other than lighting & HVAC; Water - Potable; Water - Non-potable; Sanitary Sewer	Stationary Machinery; Other (describe)		Re-usable PPE		Electricity Use; Heat generation; Recycling; Waste - Hazardous; Waste - Solid (trash); Wastewater - Sanitary; Water Use - Non-potable; Water Use - Potable

C-51 MG Building	Electrical Systems; Electronics Assembly & Testing; Receiving, Shipping & Storage	Central Plant Steam	Other (describe)	Fluorescent; HP Sodium	Electricity - other than lighting & HVAC; Water - Potable; Water - Non-potable; Sanitary Sewer	Vehicular Equipment; Stationary Machinery	Paper Use; Toner Use; Printer Ink - Inkjet	Disposable PPE; Re-usable PPE		Electricity Use; Fuel Use; Heat generation; Spills or Relseases (potential); Waste - Hazardous; Waste - Solid (trash); Wastewater - Sanitary; Water Use - Non-potable; Water Use - Potable
C-52 Former OH Rectifier Building	Electrical Systems; Heating Systems; Cooling Systems; Receiving, Shipping & Storage	Local - Electric; Other (describe)	Local Unit AC	Fluorescent	Water - Non-potable	Stationary Machinery				Electricity Use; Heat generation; Recycling; Waste - Solid (trash); Water Use - Non-potable
C-55 MOD VI	Adminstrative, Engineering & Management	Local - NG	Local Unit AC	Fluorescent	Electricity - other than lighting & HVAC; Water - Potable; Water - Non-potable; Sanitary Sewer	Vehicular Equipment	Paper Use; Toner Use; Printer Ink - Inkjet	Disposable PPE; Re-usable PPE		Electricity Use; Fuel Use; Recycling; Waste - Solid (trash); Wastewater - Sanitary; Water Use - Non-potable; Water Use - Potable
C-60 C-cooling tower pump house	Electrical Systems; Heating Systems; Cooling Systems	Local - Electric		Fluorescent; HP Sodium	Electricity - other than lighting & HVAC; Water - Potable; Water - Non-potable	Stationary Machinery		Re-usable PPE		Electricity Use; Heat generation; Waste - Hazardous; Wastewater - Sanitary; Water Use - Non-potable; Water Use - Potable
C-63 Maintenance Building	Adminstrative, Engineering & Management; Electrical Systems; Heating Systems; Cooling Systems; Woodworking; Machining; Mechanical Assembly & Testing; Electronics Assembly & Testing; Welding & Brazing	Central Plant Steam; Local - Electric; Heat Pump - Electric	Central Plant - chilled water; Local Unit AC	Fluorescent; Compact Fluorescent	Electricity - other than lighting & HVAC; Water - Potable; Water - Non-potable; Sanitary Sewer	Vehicles; Vehicular Equipment; Stationary Machinery; Other (describe)	Paper Use; Toner Use; Printer Ink - Inkjet	Disposable PPE; Re-usable PPE		Air Emissions; Electricity Use; Fuel Use; Heat generation; Recycling; Spills or Relseases (potential); Waste - Hazardous; Waste - Solid (trash); Wastewater - Sanitary; Water Use - Non-potable; Water Use - Potable
C-64 & C-65 Receiving #1&#3 Warehouse Buildings	Electrical Systems; Heating Systems; Cooling Systems; Computer Systems; Waste Management (Haz, Rad, Mixed); Receiving, Shipping & Storage; Fleet Vehicles & Equipment; Security & Fire Protection	Central Plant Steam; Local - Electric; Propane	Central Plant - chilled water; Local Unit AC	Fluorescent; Compact Fluorescent	Electricity - other than lighting & HVAC; Water - Potable; Water - Non-potable; Sanitary Sewer	Vehicles; Vehicular Equipment	Paper Use; Toner Use	Disposable PPE; Re-usable PPE		Air Emissions; Electricity Use; Fuel Use; Heat generation; Recycling; Spills or Relseases (potential); Waste - Solid (trash); Wastewater - Sanitary; Water Use - Non-potable; Water Use - Potable
C-67 Site Protection Building	Adminstrative, Engineering & Management; Heating Systems; Cooling Systems; Computer Systems; Medical Services; Fleet Vehicles & Equipment; Security & Fire Protection	Heat Pump - NG; Heat Pump - Electric	Local Unit AC	Fluorescent	Electricity - other than lighting & HVAC; Water - Potable; Water - Non-potable; Sanitary Sewer	Vehicles; Vehicular Equipment; Other (describe)	Paper Use; Toner Use	Disposable PPE; Re-usable PPE		Air Emissions; Electricity Use; Fuel Use; Heat generation; Recycling; Spills or Relseases (potential); Waste - Medical; Waste - Solid (trash); Wastewater - Sanitary; Water Use - Non-potable; Water Use - Potable
C-90 RESA Building	Electrical Systems; Heating Systems; Cooling Systems; Waste Management (Haz, Rad, Mixed); Machining; Mechanical Assembly & Testing; Vacuum Assembly & Testing; Welding & Brazing; Receiving, Shipping & Storage	Central Plant Steam	Local Unit AC	Fluorescent; HP Sodium	Electricity - other than lighting & HVAC; Water - Potable; Water - Non-potable; Sanitary Sewer	Vehicles; Stationary Machinery; Other (describe)		Disposable PPE; Re-usable PPE		Air Emissions; Electricity Use; Fuel Use; Recycling; Spills or Relseases (potential); Waste - Hazardous; Waste - Solid (trash); Wastewater - Sanitary; Water Use - Non-potable; Water Use - Potable

C-91 CAS Building	Electrical Systems; Heating Systems; Cooling Systems; Waste Management (Haz, Rad, Mixed); Woodworking; Machining; Mechanical Assembly & Testing; Electronics Assembly & Testing; Vacuum Assembly & Testing; Welding & Brazing; Receiving, Shipping & Storage	Central Plant Steam	Central Plant - chilled water	Fluorescent; HP Sodium	Electricity - other than lighting & HVAC; Water - Potable; Water - Non-potable; Sanitary Sewer	Vehicular Equipment; Stationary Machinery	Paper Use; Toner Use	Re-usable PPE		Air Emissions; Fuel Use; Heat generation; Recycling; Waste - Hazardous; Wastewater - Sanitary; Water Use - Potable
C-93 Hazardous Materials Storage Facility	Electrical Systems; Heating Systems; Cooling Systems; Waste Management (Haz, Rad, Mixed); Receiving, Shipping & Storage	Local - Electric		HP Sodium	Water - Potable; Water - Non-potable	Vehicles; Stationary Machinery; Other (describe)		Disposable PPE; Re-usable PPE		Air Emissions; Electricity Use; Fuel Use; Recycling; Soil Disturbance; Spills or Relseases (potential); Stormwater Runoff; Waste - Hazardous; Waste - Medical; Waste - Solid (trash); Water Use - Non-potable; Water Use - Potable
C-Site Detention Basin	Electrical Systems				Electricity - other than lighting & HVAC; Water - Potable; Water - Non-potable	Stationary Machinery		Re-usable PPE		Electricity Use; Floodplain or Wetlands Impact; Spills or Relseases (potential); Stormwater Runoff
C-site Gas Cylinder Shed	Electrical Systems; Receiving, Shipping & Storage				Electricity - other than lighting & HVAC	Stationary Machinery		Re-usable PPE	Gravel on south and east side of building approximately 150 square feet.	Electricity Use; Fuel Use; Spills or Relseases (potential)
C-Site Grounds	Fleet Vehicles & Equipment; Security & Fire Protection	Central Plant Steam	Central Plant - chilled water	Fluorescent; Metal Halide; HP Sodium	Electricity - other than lighting & HVAC; Water - Potable; Water - Non-potable; Sanitary Sewer	Vehicles; Vehicular Equipment; Stationary Machinery		Re-usable PPE	Dumpsters are available for recycling metals, paper, glass, wood, stainless steel, and cardboard.	Air Emissions; Electricity Use; Floodplain or Wetlands Impact; Fuel Use; Soil Disturbance; Spills or Relseases (potential); Stormwater Runoff; Water Use - Potable
C-Site Switchyard	Electrical Systems; Waste Management (Haz, Rad, Mixed)				Electricity - other than lighting & HVAC	Stationary Machinery		Re-usable PPE	Oily rags and used are a result of performing maintenance on the transformers. These items are tagged, removed from the area, picked up by the Haz Mat Team, and ultimately sent off site for proper disposal.	Electricity Use; Fuel Use; Spills or Relseases (potential)
Canal Pump House & Elevated Water Tower	Electrical Systems; Heating Systems; Cooling Systems; Waste Management (Haz, Rad, Mixed); Security & Fire Protection	Local - Electric		Fluorescent	Electricity - other than lighting & HVAC	Stationary Machinery		Re-usable PPE	A 10 inch pipeline exits the Canal Pump House and is totally underground to the Elevated Water Tower at C-Site. It crosses under Route 1 just North of Scudders Mill Road goes through A & B sites, crosses under Campus Drive and feed the Elevated Water Tower at the base of the tower through a TEE in the pipe so that the Canal water is also filling the distribution system PPPL.	Air Emissions; Electricity Use; Floodplain or Wetlands Impact; Fuel Use; Soil Disturbance; Spills or Relseases (potential); Water Use - Non-potable

D-42 Experimental Mockup	Experimental Research; Electrical Systems; Heating Systems; Cooling Systems; Waste Management (Haz, Rad, Mixed); Machining; Mechanical Assembly & Testing; Receiving, Shipping & Storage	Central Plant Steam	Local Unit AC	Fluorescent; HP Sodium	Water - Potable; Water - Non-potable; Sanitary Sewer	Vehicles; Other (describe)	Paper Use; Toner Use; Printer Ink - Inkjet	Disposable PPE; Re-usable PPE		Air Emissions; Electricity Use; Fuel Use; Heat generation; Office Supply Use; Recycling; Waste - Hazardous; Waste - Radioactive; Waste - Solid (trash); Wastewater - Sanitary; Water Use - Non-potable; Water Use - Potable
D-43 TFTR Test Cell and Basement	Experimental Research; Electrical Systems; Waste Management (Haz, Rad, Mixed); Machining; Mechanical Assembly & Testing; Electronics Assembly & Testing; Vacuum Assembly & Testing; Laboratory - analytical	Central Plant Steam; Other (describe)	Central Plant - chilled water	Fluorescent; Metal Halide	Electricity - other than lighting & HVAC; Water - Potable; Water - Non-potable; Sanitary Sewer	Vehicles; Other (describe)	Paper Use	Disposable PPE; Re-usable PPE		Air Emissions; Electricity Use; Heat generation; Recycling; Spills or Relseases (potential); Waste - Hazardous; Waste - Radioactive; Waste - Solid (trash); Wastewater - LEC; Water Use - Non-potable; Water Use - Potable
D-44 Mechanical Equipment Room	Experimental Research; Electrical Systems; Heating Systems; Cooling Systems; Mechanical Assembly & Testing; Electronics Assembly & Testing	Central Plant Steam	Central Plant - chilled water	Fluorescent	Electricity - other than lighting & HVAC; Water - Potable; Water - Non-potable; Other	Stationary Machinery		Re-usable PPE		Electricity Use; Heat generation; Spills or Relseases (potential); Waste - Hazardous; Waste - Radioactive; Waste - Solid (trash); Wastewater - LEC; Water Use - Non-potable; Water Use - Potable
D-44 NSTX Test Cell and Gallery	Experimental Research; Electrical Systems; Heating Systems; Cooling Systems; Computer Systems; Waste Management (Haz, Rad, Mixed); Mechanical Assembly & Testing; Electronics Assembly & Testing; Vacuum Assembly & Testing	Central Plant Steam	Central Plant - chilled water	Fluorescent; HP Sodium; Compact Fluorescent	Electricity - other than lighting & HVAC; Water - Potable; Water - Non-potable	Stationary Machinery	Paper Use; Toner Use	Disposable PPE; Re-usable PPE		Air Emissions; Electricity Use; Fuel Use; Heat generation; Recycling; Waste - Hazardous; Waste - Radioactive; Waste - Solid (trash)
D-45 Radioactive Waste Storage Facility	Electrical Systems; Heating Systems; Cooling Systems; Waste Management (Haz, Rad, Mixed); Receiving, Shipping & Storage	Local - Electric	Local Unit AC	Fluorescent; Metal Halide	Electricity - other than lighting & HVAC; Water - Non-potable	Vehicular Equipment; Stationary Machinery	Paper Use; Toner Use	Disposable PPE; Re-usable PPE		Electricity Use; Fuel Use; Heat generation; Recycling; Spills or Relseases (potential); Waste - Hazardous; Waste - Radioactive; Waste - Solid (trash); Water Use - Non-potable
D-52 FCPC 1st & 2nd Floor East	Electrical Systems	Central Plant Steam	Central Plant - chilled water; Local Unit AC	Fluorescent; HP Sodium	Electricity - other than lighting & HVAC; Water - Potable; Water - Non-potable	Stationary Machinery		Disposable PPE; Re-usable PPE		Waste - Solid (trash); Water Use - Non-potable; Water Use - Potable
D-52 FCPC 1st & 2nd Floor West	Experimental Research; Electrical Systems; Heating Systems; Cooling Systems; Computer Systems; Vacuum Assembly & Testing	Central Plant Steam	Central Plant - chilled water	Fluorescent	Electricity - other than lighting & HVAC; Water - Potable; Water - Non-potable; Sanitary Sewer	Other (describe)	Paper Use; Toner Use	Disposable PPE; Re-usable PPE		Electricity Use; Heat generation; Office Supply Use; Recycling; Waste Hazardous; Waste - Solid (trash); Wastewater - Sanitary; Water Use - Non-potable; Water Use - Potable
D-53 NBPC Basement – Pump Room	Electrical Systems; Heating Systems; Cooling Systems; Waste Management (Haz, Rad, Mixed); Mechanical Assembly & Testing; Welding & Brazing	Central Plant Steam	Central Plant - chilled water	Fluorescent; Other (describe)	Electricity - other than lighting & HVAC; Water - Potable; Water - Non-potable; Sanitary Sewer	Stationary Machinery	Paper Use; Printer Ink - Inkjet	Disposable PPE; Re-usable PPE		Air Emissions; Electricity Use; Heat generation; Recycling; Spills or Relseases (potential); Waste - Solid (trash); Wastewater - LEC; Wastewater - Sanitary; Water Use - Non-potable; Water Use - Potable

D-53 NBPC Building 100', mezzanine, & 138'	Experimental Research; Electrical Systems; Machining; Mechanical Assembly & Testing; Electronics Assembly & Testing; Vacuum Assembly & Testing; Welding & Brazing	Local - Electric; Heat Pump - NG		Fluorescent; Metal Halide	Electricity - other than lighting & HVAC; Water - Potable; Water - Non-potable; Sanitary Sewer	Stationary Machinery; Other (describe)	Paper Use; Toner Use; Printer Ink - Inkjet	Disposable PPE; Re-usable PPE		Electricity Use; Recycling; Waste - Hazardous; Waste - Solid (trash); Wastewater - Sanitary; Water Use - Non-potable; Water Use - Potable
D-70 Cooling Tower	Electrical Systems; Cooling Systems	Central Plant Steam		Fluorescent	Electricity - other than lighting & HVAC			Re-usable PPE		Electricity Use; Spills or Relseases (potential); Wastewater - Sanitary
D-72 MG building	Experimental Research; Electrical Systems		Other (describe)	Fluorescent; Metal Halide	Electricity - other than lighting & HVAC; Water - Potable; Water - Non-potable; Sanitary Sewer	Other (describe)	Paper Use; Toner Use	Disposable PPE; Re-usable PPE		Electricity Use; Fuel Use; Office Supply Use; Recycling; Spills or Relseases (potential); Waste - Hazardous; Waste - Solid (trash); Wastewater - Sanitary; Water Use - Non-potable; Water Use - Potable
D-Site Grounds	Experimental Research; Electrical Systems; Heating Systems; Cooling Systems; Waste Management (Haz, Rad, Mixed); Receiving, Shipping & Storage; Fleet Vehicles & Equipment; Security & Fire Protection			Metal Halide; HP Sodium	Electricity - other than lighting & HVAC; Water - Non-potable	Vehicles; Vehicular Equipment; Stationary Machinery; Other (describe)				Air Emissions; Electricity Use; Floodplain or Wetlands Impact; Fuel Use; Heat generation; Recycling; Soil Disturbance; Spills or Relseases (potential); Stormwater Runoff; Waste - Hazardous; Waste - Medical; Waste - Solid (trash); Wastewater - LEC; Wastewater - Sanitary; Water Use - Non-potable
D-Site Rectifiers, Transformers, Fenced Areas.	Electrical Systems				Electricity - other than lighting & HVAC	Vehicular Equipment		Re-usable PPE		Air Emissions; Electricity Use; Fuel Use; Spills or Relseases (potential); Waste - Hazardous; Waste - Solid (trash)

Summary of Environmental Impacts - C-Site

Princeton Plasma Physics Laboratory

Building or Facility Name	Identified Environmental Impacts
C-01 LSB – Basement	Electricity Use; Recycling; Waste - Solid (trash); Wastewater - Sanitary; Water Use - Potable
C-01 LSB – Penthouse	Electricity Use; Fuel Use; Heat generation; Spills or Relseases (potential); Waste - Solid (trash)
C-02 LSB – 1, 2, & 3 Floors West Wing	Electricity Use; Recycling; Waste - Solid (trash); Wastewater - Sanitary; Water Use - Non-potable; Water Use - Potable
C-12 Cafeteria	Air Emissions; Electricity Use; Heat generation; Recycling; Spills or Relseases (potential); Waste - Solid (trash); Wastewater - Sanitary;
C-13 & C-23 - Admin Wing, Library, & Theory	Electricity Use; Recycling; Waste - Solid (trash); Wastewater - Sanitary; Water Use - Potable
C-20 Engineering Wing 1st & 2nd Floor	Electricity Use; Heat generation; Recycling; Waste - Solid (trash); Wastewater - Sanitary; Water Use - Potable
C-22 Lab-Wing 1st & 2nd Floor	Electricity Use; Fuel Use; Spills or Relseases (potential)
C-32 Shop Building	Air Emissions; Fuel Use; Heat generation; Waste - Solid (trash); Wastewater - Sanitary
C-40 RF Building	Air Emissions; Electricity Use; Heat generation; Recycling; Spills or Relseases (potential); Waste - Hazardous; Waste - Radioactive; Waste - Solid (trash); Wastewater - Sanitary; Water Use - Non-potable; Water Use - Potable
C-41-CS Building	Air Emissions; Electricity Use; Fuel Use; Heat generation; Recycling; Spills or Relseases (potential); Waste - Hazardous; Waste - Solid (trash); Water Use - Non-potable
C-42- COB Building	Air Emissions; Fuel Use; Heat generation; Recycling; Waste - Hazardous; Wastewater - Sanitary; Water Use - Potable
C-50 ESAT System Test Building	Electricity Use; Heat generation; Recycling; Waste - Hazardous; Waste - Solid (trash); Wastewater - Sanitary; Water Use - Non-potable; Water Use - Potable
C-51 MG Building	Electricity Use; Fuel Use; Heat generation; Spills or Relseases (potential); Waste - Hazardous; Waste - Solid (trash); Wastewater - Sanitary; Water Use - Non-potable; Water Use - Potable
C-52 Former OH Rectifier Building	Electricity Use; Heat generation; Recycling; Waste - Solid (trash); Water Use - Non-potable

C-55 MOD VI	Electricity Use; Fuel Use; Recycling; Waste - Solid (trash); Wastewater - Sanitary; Water Use - Non-potable; Water Use - Potable
C-60 C-Cooling Tower Pump House	Electricity Use; Heat generation; Waste - Hazardous; Wastewater - Sanitary; Water Use - Non-potable; Water Use - Potable
C-63 Maintenance Building	Air Emissions; Electricity Use; Fuel Use; Heat generation; Recycling; Spills or Relseases (potential); Waste - Hazardous; Waste - Solid
C-64 & C-65 Receiving #1&#3 Warehouse	Air Emissions; Electricity Use; Fuel Use; Heat generation; Recycling; Spills or Relseases (potential); Waste - Solid (trash); Wastewater - Sanitary; Water Use - Non-potable; Water Use - Potable
C-67 Site Protection Building	Air Emissions; Electricity Use; Fuel Use; Heat generation; Recycling; Spills or Relseases (potential); Waste - Medical; Waste - Solid (trash); Wastewater - Sanitary; Water Use - Non-potable; Water Use - Potable
C-90 RESA Building	Air Emissions; Electricity Use; Fuel Use; Recycling; Spills or Relseases (potential); Waste - Hazardous; Waste - Solid (trash); Wastewater - Sanitary; Water Use - Non-potable; Water Use - Potable
C-91 CAS Building	Air Emissions; Fuel Use; Heat generation; Recycling; Waste - Hazardous; Wastewater - Sanitary; Water Use - Potable
C-93 Hazardous Materials Storage Facility	Air Emissions; Electricity Use; Fuel Use; Recycling; Soil Disturbance; Spills or Relseases (potential); Stormwater Runoff; Waste - Hazardous; Waste - Medical; Waste - Solid (trash); Water Use - Non-potable; Water Use - Potable
Canal Pump House & Elevated Water Tower	Air Emissions; Electricity Use; Floodplain or Wetlands Impact; Fuel Use; Soil Disturbance; Spills or Relseases (potential); Water Use - Non-potable
C-Site Detention Basin	Electricity Use; Floodplain or Wetlands Impact; Spills or Relseases (potential); Stormwater Runoff
C-site Gas Cylinder Shed	Electricity Use; Fuel Use; Spills or Relseases (potential)
C-Site Grounds	Air Emissions; Electricity Use; Floodplain or Wetlands Impact; Fuel Use; Soil Disturbance; Spills or Relseases (potential); Stormwater Runoff; Water Use - Potable
C-Site Switchyard	Electricity Use; Fuel Use; Spills or Releases (potential)

Summary of Environmental Impacts - D-Site

Princeton Plasma Physics Laboratory

Building or Facility Name	Identified Environmental Impacts
D-42 Experimental Mockup	Air Emissions; Electricity Use; Fuel Use; Heat generation; Office Supply Use; Recycling; Waste - Hazardous; Waste - Radioactive; Waste - Solid (trash); Wastewater - Sanitary; Water Use - Non-potable; Water Use - Potable
D-43 TFTR Test Cell and Basement	Air Emissions; Electricity Use; Heat generation; Recycling; Spills or Relseases (potential); Waste - Hazardous; Waste - Radioactive; Waste - Solid (trash); Wastewater - LEC; Water Use - Non-potable; Water Use - Potable
D-44 Mechanical Equipment Room	Electricity Use; Heat generation; Spills or Relseases (potential); Waste - Hazardous; Waste - Radioactive; Waste - Solid (trash); Wastewater - LEC; Water Use - Non-potable; Water Use - Potable
D-44 NSTX Test Cell and Gallery	Air Emissions; Electricity Use; Fuel Use; Heat generation; Recycling; Waste - Hazardous; Waste - Radioactive; Waste - Solid (trash)
D-45 Radioactive Waste Storage Facility	Electricity Use; Fuel Use; Heat generation; Recycling; Spills or Relseases (potential); Waste - Hazardous; Waste - Radioactive; Waste - Solid (trash); Water Use - Non-potable
D-52 FCPC 1st & 2nd Floor East	Waste - Solid (trash); Water Use - Non-potable; Water Use - Potable
D-52 FCPC 1st & 2nd Floor West	Electricity Use; Heat generation; Office Supply Use; Recycling; Waste - Hazardous; Waste - Solid (trash); Wastewater - Sanitary; Water Use - Non-potable; Water Use - Potable
D-53 NBPC Basement – Pump Room	Air Emissions; Electricity Use; Heat generation; Recycling; Spills or Relseases (potential); Waste - Solid (trash); Wastewater - LEC; Wastewater - Sanitary; Water Use - Non-potable; Water Use - Potable
D-53 NBPC Building 100', mezzanine, & 138'	Electricity Use; Recycling; Waste - Hazardous; Waste - Solid (trash); Wastewater - Sanitary; Water Use - Non-potable; Water Use - Potable
D-70 Cooling Tower	Electricity Use; Spills or Relseases (potential); Wastewater - Sanitary
D-72 MG building	Electricity Use; Fuel Use; Office Supply Use; Recycling; Spills or Relseases (potential); Waste - Hazardous; Waste - Solid (trash); Wastewater - Sanitary; Water Use - Non-potable; Water Use - Potable
D-Site Grounds	Air Emissions; Electricity Use; Floodplain or Wetlands Impact; Fuel Use; Heat generation; Recycling; Soil Disturbance; Spills or Relseases (potential); Stormwater Runoff; Waste - Hazardous; Waste - Medical; Waste - Solid (trash); Wastewater - LEC; Wastewater - Sanitary; Water Use - Non-potable
D-Site Rectifiers, Transformers, Fenced Areas.	Air Emissions; Electricity Use; Fuel Use; Spills or Relseases (potential); Waste - Hazardous; Waste - Solid (trash)

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Princeton Plasma Physics Laboratory
Environmental Management System

APPENDIX B

Summary of Legal and Other Requirements

PPPL Environmental Requirements - Permits

Program Area Media	Federal Regulatory Citation/Executive Order	State Regulatory Citation/Other	Requirement/Permit*	Data Reported
Air	40 CFR 50-88, Chapter 1, Subchapter 2, Air Programs	NJAC 7:27- – Air Pollution Control – Subchapter 8 Permits and Certificates	4 Boiler stacks;* 2 Storage tank vents*; 3 Dust collectors;* 2 Diesel generators*	Fuel use reported in ASER; Generator hours recorded in logbook
Laboratory Certification	40 CFR 136, Analysis Procedures	NJAC 7:18 - Regulations Governing Laboratory Certification and Environmental Measurements	Princeton Environmental, Analytical, and Radiological Laboratory (PEARL) *– tritium, COD, and analyze immed. parameters	Annual application; semi-annual performance testing; results reported in ASER
Land Use - Wetlands	33 CFR 320-323, 330,& 352 Corps of Engineers Regs. For Protection of Waters of the US and Nationwide Permit Program	NJAC 7:7A – Freshwater Wetlands Protection Act Rules	Delineated wetlands (LOI); 26-kV tower maintenance, well installation*s	Status reported in quarterly updates; Also, reported in ASER
Soil	Standards for Soil Erosion and Sediment Control Act Chapter 251		Projects which create soil disturbance greater than 5,000 sq. feet – Soil Erosion & Sediment Control Plan certification*	Quarterly status reported in updates
Waste – Sanitary		Stony Brook Regional Sewerage Authority Industrial (22-96-Discharge License NC S)	LEC tank sampled for: Tritium & Gross beta pH, temperature, Chemical oxygen demand (COD) Quantity released*	Quarterly Discharge Report – volume released fro LEC tanks Also, reported in ASER
Water - Ground		NJAC 7:14A – The New Jersey Pollutant Discharge Elimination System (NJPDES)	Integrity inspection of detention basin liner once every 3 years*.	Last inspection/test in 2003
		NJAC 7:19 – Water Supply Allocation Rules	Two former production wells (Wells 4 & 5) quantities pumped not to exceed 100,000 GPD	Inactive - no annual report to NJDEP
		NJAC 7:26E – Technical Requirements for Site Remediation	Investigation –annually ground water monitoring, 12 wells, 2 sumps, and one surface water location	Remedial Investigation reports to NJDEP; Also , reported in ASER
Water – Potable	40 CFR 141.16 –National Primary Drinking Water Regulations	NJAC 7:10 – Safe Drinking Water Act	Quarterly inspection of back-flow preventors; annual internal inspection*	Annual report to NJDEP & water purveyor
Water – Storm		NJAC 7:13 – Flood Hazard Area Control	Basin inspection & maintenance	Records
		NJAC 7:8 – Storm Water Management NJAC 7:14A 1.1 to 7:14A 18.2	Construction 1 acre or greater – storm water permit	
Water - Surface	40 CFR 122 NPDES System 40 CFR 131 Water Quality Standards	NJAC 7:14A – The New Jersey Pollutant Discharge Elimination System (NJPDES)	Monthly surface water samples at two locations – DSN 001 and 003; annual chronic toxicity test @ DSN 001*	Monthly discharge monitoring reports to NJDEP; annual chronic toxicity test report to NJDEP; Also, reported in ASER

PPPL Environmental Requirements – Executive (EO) & DOE Orders

Category EO 13148	Federal Regulatory Citation/Executive Order	State Regulatory Citation/Other	Requirement	Data Reported
Pollution Prevention P² - Goal 1	42 USC 13101 to 13109 – Pollution Prevention Act o f 1990		Hazardous Waste generated reduced by 90% of 1993 baseline. Low-level Waste generated reduced by 80% of 1993 baseline.	Annual progress in ASER.
Goal 2	40 CFR 370 Hazardous Chemical Reporting		Toxic R Inventory Chemical releases 90% reduction of 1993 baseline	Annual progress in ASER.
Goal 3	42 USC 13101 to 13109 Pollution Prevention Act of 1990		Sanitary Waste generated reduced 75% of 1993 baseline.	Annual progress in ASER.
Goal 4			Sanitary Waste recycled 45% versus disposed	Annual progress in ASER.
Goal 5			Waste reduced from Cleanup Stabilization activities	Annual progress in ASER.
Goal 6			Purchases of EPA-designated items with recycled content 100% recycled costs vs. non—recycled costs.	Annual progress in ASER.
Goal 10	40 CFR 82 – Protection of Stratospheric Ozone Subparts A, D, F, G & H		Training & certification; Chillers, HVAC, fire suppression systems, cylinders	Ozone Depleting Substances (ODS) Inventory
Energy Efficiency E² Goal 7			Unit Energy Consumption (40% of 1985 baseline for building)	Annual progress in ASER.
Goal 8			Request for bid packages for energy supply with clean energy provisions (% of requests with provisions vs. those without) Purchase of electricity from less greenhouse gas-intensive sources (% of electricity from less greenhouse gas sources to total consumption)	Annual progress in ASER.
Goal 9	40 CFR 82 – Protection of Stratospheric Ozone Subparts A, D, F, G & H		Replacement of chillers (% of total 150 ton or larger pre-1984 units with Class I refrigerants replaces)	Completed
Goal 11	40 CFR 50-88, Chapter 1, Subchapter 2, Air Programs	NJAC 7:27- – Air Pollution Control – Subchapter 8 Permits and Certificates	Greenhouse gas emission from energy use (25% reduction of greenhouse gas emission reduced relative to 1990 baseline)	Annual progress in ASER. 4 Boiler stacks Annual emissions CO_2
Transportation Goal 12			Petroleum consumption by fleet vehicles (80% of petroleum fuel use in relation to FY00 baseline)	Annual progress in ASER
Goal 13			New alternative fuel light truck purchase (% of new truck purchase with alternative fuel capability)	Annual progress in ASER
Goal 14			Usage rate of alternative fuel vehicle (% use vs. total availability)	Annual progress in ASER

Program Area Executive & DOE Orders	Federal Regulatory Citation/Executive Order	State Regulatory Citation/Other	Requirement	Data Reported
Cultural Resource Mgt. Plan	DOE Order 450.1 – Contractor Required Documents (CRD)		CRMP draft - Archive records, artifacts from pre-historic and historic eras.	Part of EMS program; to be posted on EMS-ERC website. Reported in ASER
Landscape Mgt.	DOE Order 450.1		Establish project for native plants, grasses, etc.	Part of EMS program; to be posted on EMS-ERC website. Reported in ASER
Land Use - Floodplains	EO 11988 "Floodplain Management"	NJAC 7:13 Flood Hazard Area Control	Delineation of the 500-year and 100-year flood plain	Completed 85 ft. above msl (500-yr) and 80 ft above msl (100-yr.) Reported in ASER
Land Use-Wetlands	EO 11990 "Protection of Wetlands"	NJAC 7:7A Freshwater Wetlands Protection Act Rules	Letter of Interpretation (LOI)	Reported in ASER
Meteorology	DOE Order 430.1A – "Life Cycle Asset Management"		Rain gauge	Precipitation reported in ASER
SARA	EO 12856 "Federal Compliance with Right-to-Know and Pollution Prevention Requirements	NJAC 7:1G Worker and Community Right-to-Know Regulations	14 listed chemicals	Annual chemical inventory submitted to NJDEP. Reported in ASER
Radiological Protection	DOE Order 5400.5 "Radiation Protection of the Public and the Environment"		Tritium air monitoring – on-site & off-site locations	Dose calculations reported in ASER

PPPL Environmental Requirements – Other Categories

Program Area Media	Federal Regulatory Citation/Executive Order	State Regulatory Citation/Other	Requirement	Data Reported
Air – Clean Air Act (CAA -NESHAPs)	40 CFR 61Subpart H – National Emission Standards for Emissions of Radionuclides Other Than Radon from DOE Facilities	NJAC 7-28 Bureau of Radiation Protection	Monitor D site stack for tritium; on-site, off-site and baseline tritium air monitoring.	Reported in the annual Site Environmental Report (ASER) Dose calculations site boundary and nearest business
	40 CFR 82 – Protection of Stratospheric Ozone Subparts A, D, F, G & H	NJAC 7:27-8, Air Pollution Control, Appendix 1	Training & certification; Chillers, HVAC, fire suppression systems, cylinders	Ozone Depleting Substances (ODS) Inventory and training records (HR)
Asbestos	29 CFR 1910.1001, 1910.1200 – OSHA General Industry Standard 40 CFR 61, Subpart M, National Emission Standard for Asbestos Subpart F, Appendix. A	NJAC 7:26-2A, Sanitary Landfill Operation and Maintenance Requirements	Identify locations prior to removal (roofing, tiles, walls, pipes, insulation, etc.)	Reporting to EPA prior to removal; Track generated quantities
Atomic Energy Act (AEA) of 1954	42 USC Sections 2001-2259		Control, inventory, & account for all radioactive material	"Nuclear Material Control & Accountability"
Biota	Endangered Species Act of 1973 16 USC 1531-1543		Inventory all known endangered species and location	Reported in ASER
	Migratory Bird Treaty Act 16USC 703-711		Bird-banding, handling birds,	Reported in ASER .
CERCLA	40 CFR 302 to 305, 307, & 310		Report inactive hazardous waste sites	Completed inventory in 1993 – no changes since that time Reported in ASER
Chemical Accident Prevention	40 CFR 68, Chemical Accident Prevention Provision		Regulated chemicals at or above thresholds (lg. quantities of toxic or flammable chemicals	1/26/05 review of reg & applicability - no chemicals found above threshold quant.
Federal Facility Compliance Act (FFCA)	42 USC 6901 *et seq.*		"Treatment" of "mixed" waste	"Site Treatment Plan"
FIFRA	40 CFR 170 & 171, Subpart F – Pesticide Programs	NJAC 7:30 Pesticide Control Code	Use only certified & licensed subcontractors for herbicide & pesticide applications	Track quantities used annually; report in ASER.
EPCRA	40 CFR 370 – Hazardous Chemical Reporting: Community Right-to-Know	NJAC 7:1G Worker & Community Right to Know	SARA Title III listed substances above threshold amounts	Section 312 annual report to EPA in March; Also reported in ASER
Historic Places	16 USC 470 National Historic Preservation Act of 1966	NJAC 7:4 The New Jersey Register of Historic Places Rule	Delaware & Raritan Canal Historic District (incl. 100 yards from center line of Canal)	PPPL's pump house on the Canal – must maintain in good repair w/no exterior changes

PPPL Environmental Requirements – Other Categories

Program Area Media	Federal Regulatory Citation/Executive Order	State Regulatory Citation/Other	Requirement	Data Reported
Meteorology	DOE Order 430.1A - Life Cycle Asset Management		Rain gauge	Precipitation reported in ASER
National Environmental Policy Act (NEPA)	10 CFR 1021 (Department of Energy) 40 CFR 6 Implementing Regs of Council on Environmental Quality (CEQ on NEPA)		Review of all activities that may impact the environment – categorical excursions (CXs), environmental assessments (EAs), or environmental impact statement (EISs).	Report number in ASER.
Safe Drinking Water Act (SDWA)	40 CFR 141.16 –National Primary Drinking Water Regulations		Best Management Practices - Tritium analyzed in ground, surface, & rain water	20,000 pCi/L or 4 mrem/year annual dose. Reported in ASER
Soil		NJAC 7:1E – Discharge of Petroleum and Other Hazardous Substances	Reporting discharge of petroleum or hazardous substances on soil/ unpaved areas/ water	30-Day confirmation report to NJDEP; Also reported in ASER
Spill Prevention, Control,& Counter-measure(SPCC)	40 CFR 110 – Discharge of Oil 40 CFR 112 – Oil Pollution Prevention	NJAC 7:1E – Discharge of Petroleum and Other Hazardous Substances	PPPL designated minor facility – no DPCC or DCR required; SPCC Plan required	SPCC Plan required; Inspections, records, procedures
Toxic Substance Control Act (TSCA)	40 CFR 761- Polychlorinated Biphenyls (PCBs)		Label, inspect, records of polychlorinated biphenyls (PCBs) in capacitors	Inventory; Disposal records; Also reported in ASER
Water Ground		NJAC 7:19 – Water Supply Allocation Rules	Two former production wells (Wells 4 & 5) quantities pumped not to exceed 100,000 GPD	Annual report to NJDEP- currently inactive – no report required.
Water – Storm		NJAC 7:13 – Flood Hazard Area Control	Basin inspection & maintenance	Record and reports

PPPL Environmental Requirements - Waste

Media	Federal Regulatory Citation/Executive Order	State Regulatory Citation/Other	Requirement	Data Reported
Asbestos	29 CFR 1910.134 – OSHA Standards for Permissible Exposure to Airborne Concentrations of Asbestos Fibers and Respiratory Protection. 29 CFR 1910.1001, 1910.1200 – OSHA General Industry Standard. 29 CFR 1926.58 – OSHA Asbestos Construction Standard. 40 CFR 61, Subpart M - National Emission Standard for Asbestos Subpart F, Appendix A. 40 CFR 763 Subpart E - Asbestos Containing Materials in Schools. 40 CFR 763 SUBPART G - Asbestos Abatement Projects 49 CFR 173 Subpart J - Transportation Requirements	N.J.A.C. 5:23-8 - Asbestos Hazard Abatement Subcode. NJAC 7:26-2.12 Generator Requirements for Disposal of Asbestos Containing Materials. NJAC 7:26-3.3 Transportation Requirements – General. NJAC 7:26-3.5 Transportation Requirements – Specific. NJAC 8:60 Asbestos Licenses and Permits. NJAC 12:120 Asbestos Licenses and Permits.	Identify locations prior to removal (roofing, tiles, walls, pipes, insulation, etc.)	Reporting to EPA prior to removal; Track generated quantities
Toxic Substance Control Act (TSCA)	40 CFR 761- Polychlorinated Biphenyls (PCBs)		Label, inspect, records of polychlorinated biphenyls (PCBs) in capacitors	Inventory; Disposal records; Also reported in ASER
Waste – Hazardous RCRA	40 CFR 260 –279 – Resource Conservation and Recovery Act	NJAC 7:26-G – Hazardous Waste Regulations	On-site 90 –day temporary storage; EPA ID # NJ1960011152 Manifest records	Biennial report to NJDEP
Waste – Hazardous RCRA	40 CFR 273 – Standards for Universal Waste Management. 40 CFR 279 – Standards for the Management of Used oil.	NJAC 7:26 A7 – Standards for the Management of Class D Universal Waste.	Recycled hazardous waste and used oil (not land-filled or incinerated)	Batteries, fixture ballasts & fluorescent bulbs, oil, waste water, electronic & computer monitors
Waste – Medical		NJAC 7:26-3A Regulated Medical Waste	Disposal of medical wastes generated from dispensary	Annual report to NJDEP
Waste - Radiological	DOE Order 435.1 Radioactive Waste Management (RWM) 1.1 RWM Manual Implementation Guide	NJAC 7:28 Bureau of Radiation Protection	Disposal of low-level radioactive waste at Nevada Test Site or Hanford (WA)	Reported in the ASER

	Ch. IV "Low-Level Waste Requirements"			
Waste –Sanitary		NJAC 7:28 – Bureau of Radiation Protection	Liquid effluent collection (LEC) tanks sampled for: Tritium & Gross beta	Tritium concentrations not to exceed 1 Curie per year
	DOE Order 5400.5 – Radiation Protection of the Public and the Environment		LEC tank – Tritium Gross beta	2 million picoCuries/Liter per discharge limit
		Stony Brook Regional Sewerage Authority (NJAC 7:14A NJPDES – Pollutant Discharge Elimination System regs)	LEC tank sampled for: Tritium & Gross beta pH, temperature, Chemical oxygen demand (COD) Quantity released (gals.)	Permitted discharge – quarterly report of volume released Also, reported in ASER
Waste - Solid	42 USC 13101 to 13109 – Pollution Prevention Act o f 1990	NJAC 7:26 – Solid Waste	Registered Solid waste hauler; recycling separation of recyclables	Recycle report for paper, cardboard, glass/aluminum, plastics, scrap metals, construction waste (wood/concrete), office waste, *etc*.; Also reported in ASER

DOE Order O 450.1, Environmental Protection Program (Attachment 2)
Contract Requirements Document - General Requirement # 1

DOE Order 450.1 Contractor Requirements Document	PPPL Document/Action/Comments	Lead Person/Rev. #	Milestones/Dates
1. General Requirements:			
(a.) Systematic planning, integrated execution & evaluation of programs.	Environmental Management System	ERC & M&ES Division	
(1) public health and environmental protection			
(2) pollution prevention (P2), and			
(3) compliance with applicable environmental protection requirements			
	Presentations to ESH EB	ERC - R. Sheneman/V. Finley	3/27/02 10/7/04 4/14/05 12/19/05
b. Policies, procedures, training - identifies activities with significant environmental impacts.	List PPPL Charters, Policies, Lab-wide and Department/Division Procedures	V. Finley	2/13/2003 12/12/2005
PPPL Policies:			
TCR-P-002, R1-001	Environmental Protection	Rev. 1	12/9/2005
TCR-P-003, R0-002	Environment, Safety, & Health Policy	Rev. 0	3/31/1993
TCR-P-014, R1-002	Waste Minimization	Rev. 1	3/29/2002
P-036	Asbestos Management	Rev. 1	6/30/2004
TCR-P-044, R1-001	ES&H & Infrastructure Support Dept. External Audits & Appraisals	Rev. 1	8/4/1998
P-062	Reduction of Ozone Depleting Sustance Emissions	Rev. 2	12/6/2005
TCR-P-080, R1-001	Variances to ES&H Regulations	Rev. 1	4/22/1998
TCR-P-082, R0-001	Environmentally Preferred Purchasing	Rev. 0	12/15/1997
P-086	Calibration of Measuring and Test Equipment	Rev. 2	6/30/2005
PPPL Organization/Mission Statements			
O-001, TCR-O-001, R1-001	Laboratory Mission	Rev. 1	4/22/1998
O-003, TCR-O-003, R3-001	ES&H & Infrastructure Support Dept. Charter	Rev. 3	11/16/2001
O-023, TCR-O-023, R3-001	Environmental Review Committee Charter	Rev. 4	12/9/2005
PPPL Procedures			
GEN-006	Occurrence Reporting and Processing of Operations Information	Rev. 5	12/18/2003
GEN-007	Review & Implementation of Lawas, Regulations, Standards, & DOE Directives	Rev. 2	7/26/1999
GEN-011	ES&H Deficiency Reporting	Rev. 2	11/30/1999

DOE Order O 450.1, Environmental Protection Program (Attachment 2)
Contract Requirements Document - General Requirement # 1

DOE Order 450.1 Attachment 2 Requirements	PPPL Document/Action/Comments	Lead Person/Group	Milestones/Dates
ESH-013	Non-Emergency Environmental Release-Notification & Reporting	Rev. 2	8/22/2003
ESH-014, TCR-ESH-014, R4-001	NEPA Review System	Rev. 4	12/9/2005
ESH-015	Hazard Assessment by Emergency Response Zone	Rev. 0	7/12/1999
EWM-001	Hazardous Waste Management	Rev. 3	12/6/2005
EWM-004	Satellite Accumulation Areas	Rev. 1	5/10/2002
EWM-005	Asbestos Management	Rev. 1	10/8/2003
QA-002	PPPL Audit Program	Rev. 6	10/1/2003
QA-004	PPPL Site Inspection	Rev. 1	3/3/1999
QA-017	PPPL Tracking & Trending System	Rev. 4	5/7/2004
QA-019	Root Cause Analysis	Rev. 1	4/9/1999
PPPL Plans:			
	Environmental Monitoring Plan	Rev. 3	April-03
	Environmental Protection Implementation Plan	Rev. 6	Oct-98
	Stormwater Pollution Prevention Plan	Rev. 1	2/5/1999
	FY01 Plan to Attain Goals of EO 13148, "Greening the Government Through Leadership in Environmental Management		3/21/2001
	Beneficial Landscaping Plan	Rev. 0	6/21/2005
	Cultural Resource Management Plan	Draft	8/1/2005
	PPPL Ten-Year Site Plan		May-05
EQP-004	Institutional Quality Assurance Plan	Rev. 6	
	Procurement Card Program Policies & Procedures Manual	Rev. 5	July-05
ESHD Manual:			
Section 7.0	Waste Management	Rev.2	12/15/2003
Section 12.0	Envrionmental Management	Rev. 3	12/15/2003
c. Include measureable environmental goals, objectives, and targets that are reviewed annually and updated when appropriate.	PPPL Contract Performance Metrics; PPPL Internal Performance Metrics		
	List current performance metrics.	R. Sheneman - ERC	12/12/2005
	Propose internal performance metrics.		12/19/2005

DOE Order O 450.1 - Contractor Requirements Document (CRD) -Requirement # 2

DOE Order 450.1 Attachment 2 Requirements	Applicable PPPL Documents	Responsible Organization	Milestones/ Dates
2. Integration of an EMS into ISMs:			
a. Consider the following for inclusion as applicable:			
(1) Conformity of DOE-proposed actions with State Implementation Plans to attain/maintain national ambient air quality standards.	PPPL Procedure EWM - 007 "Air Environmental Permitting and Monitoring Program Requirements" and EMP-Air Plan	Materiel & Environmental Services (M & ES) Division	
(2) Implementation of a watershed approach for surface water protection.	NJPDES Surface Water Permit and EMP - Water Plan	M & ES Division	
(3) Implementation of a site-wide approach to ground water protection.	NJPDES GW Permit & Site Remediation Program and EMP - Ground water Plan	M & ES Division	
(4) Protection of other natural resources including biota.	Cultural Resource Management Plan	M & ES Division	
(5) Protection of site resources from wildland and operational fires.	Emergency Preparedness Plan	Site Protection Division	
(6) Protection of cultural resources.	Cultural Management Plan	M & ES Division	
b. Promote long-term stewardship of a site's natural & cultural resources throughout its operational, closure, & post-closure life cycle.	Environmental Management System	ERC & M&ES Division	
c. Reduce or eliminate generation of waste through source reduction, re-use, segregation, recycling, procuring recycled-content materials, & environmentally preferable products and services:	P-013 "Waste Minimization" and P-082 "Environmentally Preferred Purchasing"	ES&H/IS Department Procurement Division	
(1) Release of pollutants to the environment.	PPPL Procedure ESH-013 "Non-Emergency Release - Notification and Reporting" and Spill Prevention Countermeasure and Control (SPCC) Plan	M & ES Division	
(2) Use of Class I ozone depleting substances (ODS)	Policy - P-062, "Reduction of Ozone-Depleting Substance Emissions" and Procedure EWM-007	M & ES Division Faciltiies Maintenance & Operations Division	
2. d. Ensure early identification of and appropriate response to potential adverse environmental impacts associated with DOE operations, including where appropriate, pre-operational characterization & assessment, effluent & surveillance monitoring.	National Environmental Policy Act (NEPA)	J. Levine	

DOE Order O 450.1 - Contractor Requirements Document (CRD) - Requirements # 3 - #6

DOE Order 450.1 Attachment 2 Requirements	PPPL Documents/Actions/Comments	Lead Person	Milestones/Dates
3. Update approved ISMs descriptions as necessary to include EMS requirements of this CRD report to DOE operations/filed/site office managers within 12 months after insertion of this CRD into the contract on the status of implementation of appropriate management systems element of this CRD.			
4. Assist the Department in meeting its requirement & its efforts to obtain as appropriate, local community advice relevant to aspects of EO 13101, "Greening the Government through Waste Prevention, Recycling and Federal Acquisition;" EO 13123, "energy Efficiency Standby Power Devices;" EO 13148, "Greening the Governent Through the Leadership in Environmental Management;" and EO 13149, "Greening the Government Through Federal Fleet and Transportation Efficiency."	As requested.	As needed	
5. Assist the Department in meeting its requirement under EO 13148 by ensuring where appropriate, implementation of centralized procurement and distribution programs (e.g. pharmacy) for purchasing, tracking, distributing, and managing materials with toxic or hazardous content at facilities under their purview.	As needed.	Procurement, Materiel Control Divisions	
6. Incorporate, where appropriate, environmentally and economically beneficial landscape practices into all new landscaping programs, policies, & practices for facilities.	Beneficial Landscaping Plan	Landscaping Subcommittee of ERC	

DOE Order O 450.1 - Contractor Requirements Document (CRD) - Requirements #7 - #10

DOE Order 450.1 Attachment 2 Requirements	Applicable PPPL Documents	Responsible Organization	Milestones/ Dates
7. Monitor progress toward meeting the P2 requirement of paragraph 2 c. above and make such information available annually to the DOE operations/field/site office.	Annual reports on DOE P2 website - Waste Generation by Site, Accomplishment & Recycling Data: http://www.eh.doe.gov/P2/wastemin/reports.asp	M&ES Division	
8. Consider P2 in the specification and acquisition of supplies to cost effectively maximize procurement of environmentally preferable products. As appropriate, all acquisitions must be coordinated with the DOE operations/field/site offices "Green Acquisition Advocate."	PPPL Procurement Policies and Procedures Manual (needs to specify Pollution Prevention /environmentally preferred products/Green Acquisitions)	Procurement Division w/ M&ES Division support	
9. Conduct operational assessments, such as a Pollution Prevention Opportunity Assessments of site operations to identify opportunities for source reduction, material segregation, recycle/reuse, or other P2 projects. Based on the results of these assessments, implement cost-effective P2 projects using life-cycle assessment concepts and practices in determining return-on-investment.	PPPL Pollution Prevention Opportunity Assessment Form	M&ES Division	
10. Conduct environmental monitoring, as appropriate, to support the site's ISMSs, to detect and characterize releases from DOE activities; assess impacts; estimate the dispersal patterns in the environment; characterize the pathways of exposure and doses to individuals, and to the population; and to evaluate the potential impacts to the biota in the vicinity of the DOE activity.	Environmental Monitoringt Plan (EMP), Environment, Safety & Health Procedures, Site Environmental Report (SER)	ES&H Division M& ES Division	

DOE Order O 450.1 - Contractor Requirements Document (CRD) - Requirements #11- #13

DOE Order 450.1 Contractor Requirement Document	Applicable PPPL Documents	Responsible Organization	Milestones/ Dates
11. Ensure the analytical work supporting environmental monitoring in implemented using:			
a. A consistent system for collecting, assessing, and documenting environmental data of known & documented quality;	ES&H Dept. Policies, Plans, & Procedures M E&S Procedures	ES&H Division M & ES Division	
b. Validated and consistent approach for sampling and analysis of radionuclide samples to ensure laboratory data meets program-specific needs and requirments within the framework of a performance-based approach for analytical laboratory work; and	Environment, Safety & Health Procedures QA Plan	ES&H Division (Health Physics Branch)	
c. An integrated sampling approach to avoid duplicate data collection.	ES&H and M & ES Division Procedures	ES&H Division M & ES Division	
12. Develop and implement a program and procedures to maximize the use of safe alternatives to ODS whereby-	PPPL Procedure EWM-007 "Air Environmental Permitting & Monitoring Progam Requirements"	ES& H and Infrastructure Support Department	
a. The procurement of Class I ODS for all nonexcepted uses is discontinued by December 31, 2010 [EO 13148], and	Same as above	Procurement Division	
b. Disposal of ODS removed or reclaimed from equipment (including disposal as part of a contract, trade, or donation) is coordinated within DOE and with DoD, and for situations, in which the recovered ODS is a critical requirement for DoD missions, the facility transfer the ODS to DoD.	Same as above and M&ES Procedure EM-OP-045, "Environmental Air Program Requirements"	ES& H and Infrastructure Support Department	
13. Assist the Department with its requirement under EO 13148 by meeting reporting and planning requirements under the Emergency Planning and Community Right-to-Know Act (EPCRA or Title III of Superfund Amendments and Reauthorization Act of 1986), 42 U.S.C. 11001, and the Pollution Prevention Act of 1990,42 U.S.C. 13101.	SARA Title III Annual Report	ES&H Division (Industrial Hygiene Branch)	

Princeton Plasma Physics Laboratory
Environmental Management System

APPENDIX C

Summary of Environmental Goals & Targets

PPPL's EO 13148 Goals and Targets for Pollution Prevention and Energy Efficiency in FY 2006

Pollution Prevention	Units	Criteria	Baseline	2006 Target	FY 2006 Goal	Comments
Goal 1	metric tons(MT)	Hazardous Waste Generated (90% reduction of 1993 baseline)	29	2.9	*90%*	Goal TBD
	cubic meters (m3)	Mixed Waste Generated (80% reduction of 1993 baseline)	2	0.4	*80%*	Goal TBD
	cubic meters (m3)	Low Level Waste Generated (80% reduction of 1993 baseline)	22	4.4	*80%*	Goal TBD
	cubic meters (m3)	TRU/Mixed TRU Waste Generated (80% reduction of 1993 baseline)	0	0	*80%*	Goal TBD
Goal 2	Pounds	TRI Chemical Releases (90% reduction of 1993 baseline)	0	0	*90%*	Goal TBD
Goal 3	metric tons (MT)	Sanitary Waste Generated (75% reduction of 1993 baseline)	1,410	352.5	**80%**	**New FY 2010 Goal**
Goal 4	Percent (%)	Sanitary Waste Recycled (45% recycle versus disposal)	N/A		**50%**	**New FY 2010 Goal**
Goal 5	Metric tons (MT)	Waste Reduced from Cleanup -Stabilization (C/S) Activities (% of total waste from C/S activities)	N/A			Goal TBD
Goal 6	Percent (%)	Purchases of EPA-designated items with Recycled Content (100% by recycled costs versus non-recycled)	N/A		*100%*	Goal TBD
Goal 10		Class I Ozone Depleting Substances Uses	N/A			**Eliminate use of Class I ozone-depleting substances by 2010 to the extent economically practicable (FY05 Class I <5 tons-Halons)**

Note: FY 2006 in *italics* are carried over from FY 2005 goals.

PPPL's EO 13148 Goals and Targets for Pollution Prevention and Energy Efficiency in FY 2006

Energy Efficiency		Criteria	Baseline	FY 2006 Target	FY 2006 Goal	Comments
Goal 7	BTUs/Ft^3	Unit Energy Consumption (2% reduction of FY 2003 baseline for building)	175,300	171,794	**2% reduction FY 2003**	**Beginning in FY2006 additional 2% reduction based on FY 2003 to max. 20% reduction in FY 2015.**
Goal 8	Percent (%)	Request for bid packages for energy supply with clean energy provisions (% of requests with provisions versus those without)	N/A		100%	Goal TBD
	Percent (%)	Purchase of electricity from less greenhouse gas-intensive sources (% of electricity from less greenhouse gas sources to total consumption)	N/A			**FY2007-2009 at least 3% green power purchases; FY 2010-2012 5%; FY 2013+ 7.5%**
Goal 9	Percent (%)	Replacement of chillers (% of total 150 ton or larger pre-1984 units with class I refrigerants replaced)	Five (5) units			Project completed in 2002
Goal 11	US tons	Greenhouse gas emission from energy use (25% reduction of greenhouse gas emission reduced relative to 1990 baseline)	3,806	2,664	**30%**	**New FY 2010 Goal**
Transportation		**Criteria**	**Baseline**	**2006 Target**	**FY 2006**	
Goal 12	gallons	Petroleum consumption by fleet vehicles (80% of petroleum fuel used in relation to FY00 baseline)	8,076	6,461	*20%*	Goal TBD
Goal 13	Percent (%)	New alternative fuel light truck purchase (%of new truck purchase with alternative fuel capability)	N/A		*75%*	100% reqested from GSA.
Goal 14	Percent (%)	Usage rate of alternative fuel vehicles (% use versus total availability)	N/A		**90%**	100% requested from GSA

Note: FY 2006 in *italics* are carried over from FY 2005 goals.