Princeton Plasma Physics Laboratory

Annual Site Environmental Report

PPPL-5068

For Calendar Year 2013 – Abstract

This report provides the U.S. Department of Energy (DOE) and the public with information on the level of radioactive and non-radioactive pollutants (if any) that are added to the environment as a result of Princeton Plasma Physics Laboratory's (PPPL) operations. The results of the 2013 environmental surveillance and monitoring program for PPPL's are presented and discussed. The report also summarizes environmental initiatives, assessments, and community involvement programs that were undertaken in 2013.

PPPL has engaged in fusion energy research since 1951. The vision of the Laboratory is to create innovations to make fusion power a practical reality – a clean, alternative energy source. 2013 marked the fifteenth year of National Spherical Torus Experiment (NSTX) operations. The NSTX Project–a collaboration among national laboratories, universities, and national and international research institutions– is a major element in the US Fusion Energy Sciences Program. Its design tests the physics principles of spherical torus (ST) plasmas has played an important role in the development of smaller, more economical fusion reactors. In 2013, construction of NSTX's first upgrade continued; the re-design of the center stack magnets and the addition of a second neutral beam will allow for hotter plasmas and greater field strength to maintain the fusion reaction longer.

In 2013, PPPL's radiological environmental monitoring program measured tritium in the air at the NSTX Stack and at on -site sampling stations. Using highly sensitive monitors, PPPL is capable of detecting small changes in the ambient levels of tritium. The operation of an in-stack monitor located on D-site is a requirement of the National Emission Standard for Hazardous Air Pollutants (NESHAPs) regulations. Also included in PPPL's radiological environmental monitoring program, are water monitoring of precipitation, ground, surface, and waste waters. PPPL's radiological monitoring program characterized the background levels of tritium in the environment; the data are presented in this report.

Ground water monitoring continued under the New Jersey Department of Environmental Protection's Site Remediation Program. PPPL monitored for non-radiological contaminants, mainly volatile organic compounds (components of chlorinated degreasing solvents). Monitoring continued to detect low levels of volatile organic compounds in ground water samples. In 2013, PPPL was in compliance with its permit limits for surface and sanitary discharges, excepting one elevated total suspended solids and chlorine-produced oxidant concentration. PPPL was honored with awards for its waste reduction and recycling program, greenhouse gas management, and its "Green Buy" purchasing.

Virginia L. Finley, editor

Prepared for the U.S. Department of Energy
Under Contract DE-AC02-09CH11466