

**2016 ANNUAL REPORT
RADIATION AND CHEMICAL DISPOSAL SITES
CORNELL UNIVERSITY
LANSING, NEW YORK**

EXECUTIVE SUMMARY

This annual report summarizes the monitoring and other remedial activities undertaken in 2016 at Cornell's former Radiation Disposal Site (RDS) and Chemical Disposal Site (CDS) located north of the Ithaca Tompkins Regional Airport on Snyder Road, Town of Lansing, Tompkins County, New York. Cornell is remediating these sites under Consent Orders with the NYSDEC. Additional information on site activities can be found at the disposal sites website: <http://sp.ehs.cornell.edu/env/rds-cds/Pages/defaulthome.aspx>.

Hydrogeological and Climatological Conditions for 2016:

- Precipitation during 2016 was 5.5 inches below normal, or about 85% of normal precipitation.
- Groundwater elevations and flow directions were similar to those in previous years.

Radiation Disposal Site Monitoring Activities Summary for 2016:

- Monitoring at the RDS in 2016 included water level measurements and groundwater and surface water sampling and analysis.
- Average paradioxane concentrations in groundwater in 2016 were generally below the average concentrations observed prior to installation of RDS remedial measures in 2003 and 2004.

Chemical Disposal Site Monitoring Summary for 2016:

- Monitoring at the CDS in 2016 included water level measurements, surface water sampling, and groundwater sampling.
- The groundwater plume of total volatile organic compounds (VOCs) remained relatively stable in terms of chemicals detected and areal extent over the past year. Trichloroethylene (TCE) was the contaminant detected in highest concentrations and most frequently in monitoring wells and exceeded the NYS Ambient Water Quality Standard (AWQS) of 5 µg/L one or more times in 7 of the monitoring wells sampled in 2016. Other compounds detected in groundwater above AWQS in one or more wells during 2016 included 1,2-Dichloroethane, cis-1,2-Dichloroethene and 1,2-Dichloropropane and Benzene.
- Peak VOC concentrations in the center of the CDS were similar to those seen in recent years but remained lower than the typical values seen during the several years prior to completion of remedial measures. The plume remained similar in terms of location and areal extent. Peak concentrations remained within a long-term downward trend.

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- Surface water samples taken semiannually during 2016 from the drainage ditch southwest of the plume collection system on airport property exhibited low levels of Trichloroethene at concentrations below the NYS AWQS of 5 ppb.

Remedial Measures Monitoring Activities Summary 2016:

- RDS Source Control System monitoring included water level measurements near the barrier wall and cap inspections.
- Water level monitoring indicated that a hydraulic connection remains between the inside and the outside of the RDS barrier wall.
- There was a general decrease in paradiioxane concentrations in groundwater near the disposal area compared to data collected prior to barrier wall installation.
- The RDS Groundwater Recovery System was operational throughout 2016 in response to the paradiioxane concentrations in groundwater south of Snyder Road above 50 µg/L.
- CDS Source Control monitoring included measurements of the water level in well couplets inside and outside the barrier wall, inspection of the cap, and measurements of flow from the Source Control System (SCS) to the Groundwater Treatment Plant.
- The CDS SCS operated as designed. An inward hydraulic gradient was maintained across the barrier wall around the disposal site throughout the year.
- Both the CDS and RDS capping systems continued to be effective at preventing direct contact with the wastes and reducing infiltration of precipitation.
- The CDS PCS, consisting of the shallow trench recovery system and the deeper extraction well system, was effective in maintaining hydraulic control of the groundwater plume on airport property.
- Groundwater Treatment Plant monitoring included flow and pH measurements and monthly sampling of the effluent from the plant and the influent from the RDS groundwater recovery system, the CDS SCS and the CDS PCS.
- During 2016, the Groundwater Treatment Plant processed a total over 5 million gallons of water from the RDS, PCS and SCS.
- The Groundwater Treatment Plant operated effectively during 2016 and met all discharge requirements established by the NYSDEC.
- Over 1500 pounds of hazardous wastes were generated from the treatment of groundwater at the Treatment Plant in 2016.
- The GWTP discharged approximately 0.255 mCi of radiation (2.8% of the permitted annual activity) during 2016.

Future Plans and Recommendations

- Plans for 2017 include continued environmental monitoring and performance monitoring of the remedial measures, in accordance with the integrated site management plan that governs ongoing operation, maintenance, and performance

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monitoring activities related to the CDS and RDS. In addition, operations at extraction well EW-6 will be discontinued as the past 5 years of analytical data at this well indicate only low levels of contaminants below the AWQS remain.