ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 •
(217) 782-2829

BRUCE RAUNER, GOVERNOR **ALEC MESSINA**, DIRECTOR

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Operable Unit 2
Phosphogypsum Stack

Introduction

This fact sheet provides an update about Operable Unit 2, the Phosphogypsum Stack and upcoming activities associated with its closure.

The Illinois EPA has been working with the DePue Group (CBS and ExxonMobil) on the investigation and remediation of the New Jersey Zinc Superfund Site in DePue, Illinois. As the potentially responsible parties for the Site, the DePue Group conducts investigation and cleanup activities. Illinois EPA is the responsible regulatory agency, and ensures the site is remediated and managed under applicable state and federal laws and regulations. The site is organized into Operable Units (OUs): OU1 is the South Ditch, OU2 is the phosphogypsum stack, OU3 is the former plant site, OU4 is the off-site soils within the Village, and OU5 is Lake DePue and its floodplain. More information about OU2 and all the OUs is available in the Information Repository at the Selby Township Library.

What is the Phosphogypsum Stack?

The phosphogypsum stack is located just north of Route 29 on property owned by ExxonMobil. The area is approximately 250 acres, including a phosphogypsum disposal area (stack) that covers 125 acres, several water management features including the Upper and Lower Swale system, Clearwater Pond, Treatment Wetland, and surrounding undeveloped lands. The phosphogypsum was a byproduct and waste material produced by the fertilizer manufacturing process that operated on the former plant site property from 1967 to 1987.

At the end of manufacturing operations the northern portion of the stack was graded and covered with mushroom compost and vegetated with fescue grass. A smaller southern portion was covered with local clayey soils and revegetated with native prairie species. The swales and Clearwater Pond aid in collecting and managing shallow groundwater and water that seeps from the stack. A portion of this water is currently used to irrigate the fescue grass on the northern portion of the Stack and the remainder is processed through the Treatment Wetland before discharge to the Illinois River through a pipeline that extends from the stack area through the former plant site and to the river, on property owned by the potentially responsible parties.

Despite construction of the initial cover, precipitation can infiltrate the stack. This water carries chemicals from the stack into the underlying groundwater which then flows beyond the stack boundaries. The stack is contributing concentrations of ammonia, fluoride, sulfate, iron, manganese, arsenic, and total dissolved solids to groundwater. This groundwater generally flows from the stack to the south/south east, toward the South Ditch and the wetland area north of Lake DePue or into Lake DePue surface water.

The phosphogysum contains naturally-occurring radionuclides, and some of these have been detected in the groundwater, but below Illinois' groundwater quality standards.
Pursuant to USEPA guidance and federal regulatory requirements, the stack was monitored for radon in May 1990, and again in July 2011 in response to a community request. All results from both monitoring events showed that radon was below the federal regulatory standard.

Any contamination that the stack is contributing to groundwater will be addressed as part of the planned closure activities for OU2 and through any remedial activities taken to address contamination associated with the other OUs.

The Village of DePue's water supply is not affected by contamination from the site. (See Illinois EPA fact sheet #16, available at the Selby Township Library.)

What's happening and why?

Consistent with the Interim Consent Order for the site and Illinois regulations, the stack must undergo closure. Illinois' landfill regulations (found at Title 35 Illinois Administrative Code Part 807) will be followed for the stack closure. The purpose of the closure is to:

- Prevent threats to human health or the environment by minimizing any releases from the stack;
- Minimize the need for further maintenance.

As part of landfill closure, the DePue Group will be installing a new cover on the northern two-thirds of the stack. The stack surface will be re-graded to eliminate low areas caused by settling and to increase drainage efficiency. The cover will consist of an impermeable synthetic membrane and two feet of soil to protect the membrane. The soil will be vegetated. This new cover will prevent water from infiltrating the stack and will decrease the amount of chemicals transported within the groundwater that flows away from the stack. The existing cover on the south portion of the stack will remain intact, but will be modified to accommodate water management system upgrades and maintenance requirements.

The current water management system will be upgraded. The swales will be buried to decrease the amount of non-contaminated surface runoff and stormwater that enters the system. Groundwater seepage from the stack will be collected in the buried swales and pumped to the Clearwater Pond via a new sump. The treatment wetland will continue to operate as it currently does. Treated water will continue to be conveyed and discharged to the Illinois River.

As is common for landfill closures, groundwater will be monitored on a routine basis after closure to ensure the cover and water management system is having the intended effect of reducing the concentrations of contaminants in groundwater flowing from the stack. It is planned that the groundwater will be monitored for 30 years, though most contaminants are anticipated to be below regulatory standards within 8-20 years.

How will the community be affected during closure implementation?

The community will be protected during closure construction activities through implementation of safe work practices, environmental controls, and compliance with environmental regulations that address traffic control, dust emissions, sediment and soil migration, storm water pollution prevention practices and other regulations that address worker safety. Illinois EPA will provide field oversight of critical construction activities to ensure environmental compliance.

How Long Will the Work Take?

The overall duration to complete the construction is approximately 17 calendar months starting in June 2017, which includes a projected 6 month winter shutdown from October 2017 to April 2018. Work will be conducted during 8-hour days, 6 days per work week. Construction is currently planned to be completed by late 2018.

For more information, you may contact:

Charlene Falco
Project Manager
Illinois EPA
217/785-2891
charlene.falco@illinois.gov

Jay A. Timm
Community Relations Coordinator
Illinois EPA
217/557-4972
jay.timm@illinois.gov

You may also contact the DePue Group at 866-445-2343 or depuegroup@gmail.com.