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PROTECTING WATER SOURCES

Upgrading Leachate Treatment Plant to Meet New Water Quality Standards

Protection of all water sources is a priority at Modern Landfill. The landfill's disposal area is designed and constructed to remove liquid generated from within the disposed waste and transfer it to an on-site facility for treatment. **The entire treatment process is highly monitored and strictly regulated.**

Permitting & Monitoring

Treated effluent from Modern Landfill's leachate treatment plant is governed by a National Pollution Discharge Elimination System (NPDES) permit, a program that regulates point source discharges from a vast variety of similar commercial and industrial operations.

At Modern Landfill, the NPDES permit, issued by the Pennsylvania Department of Environmental Protection (DEP) only after careful reviews and analyses, sets forth an array of concentration and loading limitations for important parameters in the discharge. Per NPDES requirements, effluent limitations are set for specific discharges to control pollutants entering surface waters. These limits are based both on technology and on the quality of the receiving stream.

Modern Landfill's treatment plant has been operating under a state permit since 1988, and oversight of its operations is rigorous.

Modern Landfill's treated effluent is monitored regularly, with samples analyzed by an independent laboratory, and results provided to DEP each month. As with any point source with an NPDES permit, when levels of any parameters are detected above permit limits, Modern Landfill undertakes efforts to determine the cause and implement measures to remedy those conditions.

Investing in Upgrades

Modern Landfill's leachate treatment plant has been operating for several decades and has undergone a number of significant upgrades and modifications over the years to improve performance, adjust to changes in leachate characteristics, and comply with increasingly stringent discharge limits under the state-issued NPDES permit.

Even today, the existing leachate treatment plant requires physical upgrades to consistently operate more efficiently and to meet any new discharge standards being imposed by the state. **In September 2021, DEP approved Modern Landfill's water quality management (WQM) permit.** This permit approves the proposed plant upgrades, which will enable the treatment plant to meet discharge limits under its current NPDES permit, which was renewed in 2017, and should address any new or additional limits

that might be imposed as a result of the pending NPDES permit renewal. (The WQM is required before the NPDES permit can be renewed.)

Modern Landfill has been working cooperatively with DEP to identify and engineer the upgrade while developing a mutually acceptable schedule for the permitting, construction, and operation of those improvements. On Aug. 25, 2020, DEP and the landfill signed a Consent Order and Agreement (COA) that enabled the department to approve the permit required for Modern Landfill to construct these upgrades. The COA included payment of penalties for exceedances associated with the new discharge limits, established a schedule for the plant upgrades, and provides for stipulated payments in the event of future exceedances. **In the meantime, Modern Landfill is investing more than \$20 million to implement those plant improvements.** The new plant is scheduled to be operational in mid-2023.

Meeting Changing Standards

Part of the agreement with DEP allows for the installation of a reverse osmosis system, which will enable the facility to meet its latest permit limitations. The upgrades are particularly relevant to the regulation of osmotic pressure and Boron and other elements.

Prior to the current permit, osmotic pressure was subject to a “monitor and report”-only requirement. This approach was intended to give the facility the opportunity to measure the new parameter in the discharge over time and evaluate whether and what modifications to its treatment system would be necessary to meet a potential future discharge limitation.

When the permit was last reissued, DEP imposed specific limits on osmotic pressure that took effect immediately. Plant operations were adjusted promptly in an effort to comply, and while discharge quality has improved, the facility has continued to be challenged to reliably achieve these new limitations. The planned upgrades to the plant are expected to result in consistent compliance with the new osmotic pressure standards.

As for Boron, the existing plant was not specifically designed to treat this metal, and historically, the plant was not required to monitor for Boron. Thus, when DEP first included Boron in the latest NPDES permit renewal (with both loading and concentration discharge limitations), the discharge limits were set at a “monitor and report”-only requirement for the first three years. This approach was intended to give the facility the opportunity to measure the new parameter in the discharge over time and evaluate whether and what modifications to its treatment system will be necessary to meet the future discharge limitations.

The Boron analysis has been completed and is incorporated into the upgrades set forth in the permit modification that DEP received pursuant to the recent agreement with the facility.

For more information: <https://modernlandfillpa.com/>.