

WATER STEWARDSHIP

Shell is redeveloping an existing brownfield site, including several parcels of land used by different industries for nearly a century. Many of those industries were permitted when environmental requirements were less rigorous. Operating in accordance with Pennsylvania Land Recycling and Environmental Remediation Standards Act regulations – typically referred to as the Land Recycling Program or Act 2 – Shell is working to improve and manage the environmental legacy of past land use, including protecting water quality. Our dual goal is to create a safe place to work while also eliminating the pathways by which past contamination could move offsite.

Measures include:

- Covering site with an average of 7 feet of fill;
- Prohibiting excavation in certain areas;
- Installing impermeable barriers (concrete and liners) between contaminated soil and groundwater;
- Installing culverts and other barriers to prevent past contamination from leaching into streams crossing the site;
- Collecting, treating and testing storm water (rain or snow) that could contact potentially contaminated soil before releasing it to the river;
- Implementing an advanced water quality testing and treatment programs, including a state-of-the-art biological treatment system and multiple testing points at various stages of the process;
- Installing 16 groundwater monitoring wells to confirm Act 2 protection measures are working as designed to contain past contamination; and
- Helping fund Center Township Water Authority's construction of a new water intake and treatment facility at a site CTWA selected to prevent any possible impacts to the local water supply.

PRODUCT RESPONSIBILITY

The facility will produce polyethylene pellets, which if unexpectedly spilled, can make their way into local waterways. To minimize this possibility, Shell plans to implement applicable guidelines from the Operation Clean Sweep (OCS) program to help reduce the accidental loss of pellets from the processing facility into the environment.

For more information, go to <http://www.opcleansweep.org/>

RIVER ACCESS

For safety purposes, Shell may temporarily restrict public river access near the site during certain construction activities, such as dock building and when barges are delivering large equipment. Since the project is located along a regulated waterway, Shell will cooperate with the U.S. Coast Guard (USCG) as required under federal regulations (Title 33CFR). The USCG will determine if safe zone boundaries – which would limit public access – are necessary.

The facility's cooling process will generate condensate (primarily a cloud of water), much of which will be vented to the atmosphere. As it rises and cools, it falls back to earth as rain, ice or snow. The cooling process is also permitted to emit small amounts of particulate matter and volatile organic carbon.



MINIMIZING AND MITIGATING IMPACTS

The project will minimize impacts to water resources in the following ways:

- **Water intake structures** – upgrade and use existing water intake structures, minimizing additional disturbance to the river; operate and conduct monitoring and reporting to meet U.S. Clean Water Act Section 316(b) regulation; voluntarily install new screens to capture and then properly dispose of trash they collect
- **Recycling condensate** – recycle condensed steam from process equipment and reuse in the facility boilers
- **Effluent treatment** – build an onsite treatment unit to treat water before it is discharged to the river, ensuring compliance with applicable regulatory water quality standards
- **Groundwater monitoring** – install 16 groundwater monitoring wells and conduct regular water-quality testing
- **Erosion and sediment control** – improve shoreline and erosion protection along the Ohio River adjacent to the facility
- **Wetlands and streams** – create, enhance and preserve in-kind habitats in the same watershed to offset impacts to wetlands and streams from the project
- **Retention ponds** – build retention ponds onsite to manage storm water; test and treat water as appropriate before returning it to the river
- **Spill management** – implement procedures to prevent and, if necessary, quickly respond to spills before they reach water
- **Plastic pellet management** – implement plastic pellet management procedures (according to OCS guidelines) to reduce the accidental loss of pellets from the facility into the environment.

Let us hear from you!

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SHELL PENNSYLVANIA CHEMICALS

Potter Township, Beaver County
WATER QUALITY



SHELL PENNSYLVANIA CHEMICALS WATER QUALITY

PROTECTING THE ENVIRONMENT

Shell* is committed to keeping people safe, protecting the environment and being a good neighbor. With respect to water, this means designing, building and operating our petrochemical complex to:

- Protect water quality;
- Use water efficiently; and
- Conduct regular monitoring and mitigate potential impacts.

The facility will meet all applicable federal and state water quality standards established to protect public health and the environment.

PROJECT WATER USE

Once in operation, the facility is permitted to withdraw up to 20 million gallons per day of water from the Ohio River for process cooling and other needs. This will be significantly less than the level previously withdrawn at the site, which had historic highs of more than 75 million gallons per day when the power plant was in operation. The project will use the existing water intake structures which have been upgraded to meet cooling water intake regulations under the U.S. Clean Water Act Section 316(b). Regulations require Shell to conduct regular monitoring and reporting during both construction and operation, providing a means of identifying and addressing any potential issues.

Approximately 80 percent of the water used by the project will evaporate as steam into the atmosphere after it is used to cool facility processes. Water that condenses from the cooling equipment will be collected and recycled for reuse in the facility boilers. The project will manage wastewater discharges by building an onsite facility to treat the water and remove impurities. The water then will be tested to ensure it meets water quality standards and returned to the river.

We will purchase potable (drinking) water from the Center Township Water Authority and sanitary waste water will be treated by Center Township Sanitary Authority (CTSA). Shell extended the CTWA water line to the edge of the property line with BASF so that other Potter Township customers will have the ability to connect and purchase CTWA water under their own agreement with them. The Shell facility will need more sewage treatment capacity during the construction phase than during operations. Similarly, Shell has designed the CTSA sewage pumping station with a capped inlet pipe so that Potter Township and other entities will have the option to connect and use this excess post-construction capacity if they enter into an agreement with CTSA for sewage treatment.

Shell will test water as appropriate to confirm it meets water-quality standards.



STORM WATER MANAGEMENT

During site preparation, Shell installed retention ponds to collect storm water (water from rain or snow that becomes surface runoff). We will test and treat water collected in these ponds as needed to meet regulatory and safety standards before releasing it to the river. Shell will take measures to limit runoff to the river and onsite streams during storms to prevent flooding.

The facility will install a permanent storm water management system for operations. Water that falls on auxiliary parts of the site, such as the parking garage and administrative buildings, will be segregated from storm water that falls on the manufacturing areas; storm water from non-process areas is managed under the regulatory requirements for commercial facilities, such as those followed by the local mall.

Shell also has implemented management procedures to prevent spills and if necessary, quickly respond to spills before they reach water. We have installed groundwater wells to monitor and record groundwater quality throughout project construction and operation to ensure measures instituted under the Pennsylvania Land Recycling program to protect against past contamination remain effective.

“WE DESIGN, BUILD AND OPERATE OUR FACILITY TO PROTECT WATER QUALITY AND USE WATER EFFICIENTLY. WE WILL CONDUCT REGULAR MONITORING AND MITIGATE POTENTIAL IMPACTS.”

MANAGING PAST CONTAMINATION

The petrochemical facility site includes several land parcels previously identified by the Pennsylvania Department of Environmental Protection as needing remediation. Taxpayers would have been required to pay for any clean-up as no “responsible parties” were still in existence. When Shell purchased the land, we agreed to address those issues.

Following assessment of the site, we isolated nine areas using liners or concrete, including the parcels known as the brick landfill and mall lot. We built a culvert around the segment of Poorhouse Run through the landfill, wrapping the culvert in a polyethylene liner to prevent groundwater from seeping into the culvert. We then added an average of 60 feet of fill dirt on top and covered the entire area with a liner to prevent water from infiltrating the area and carrying away contaminants. Shell established these nine sections as “no dig” areas and will put deed restrictions in place to prevent any future non-industrial use of the site, among other protection measures.

REGULATORY CONTROLS

Project water use, treatment, discharge and storm water management are regulated under the Environmental Protection Agency’s (EPA’s) National Pollutant Discharge Elimination System (NPDES) permit program. NPDES was created in 1972 by the U.S. Clean Water Act to help address water pollution by regulating sources that discharge pollutants into U.S. waters.

Project permits are available at <http://www.dep.pa.gov/About/Regional/SouthwestRegion/Community%20Information/Pages/Shell.aspx>

*References to the facility, plant and project contained herein relate specifically to Shell Chemical Appalachia LLC.

EVALUATING ONSITE WETLANDS AND STREAMS

In accordance with regulation under Section 404 of the U.S. Clean Water Act, the project is required to evaluate water resources and demonstrate how it will meet laws and regulations designed to protect water resources. For example, wetlands and watercourses were evaluated in the site area, which is located in Poorhouse Run and Rag Run watersheds of the Ohio River Basin. Teams of trained and qualified specialists identified wetlands and streams throughout the entire site development area, assessing size, location, type and function of these resources, and Shell worked to avoid impacts to these resources where possible.

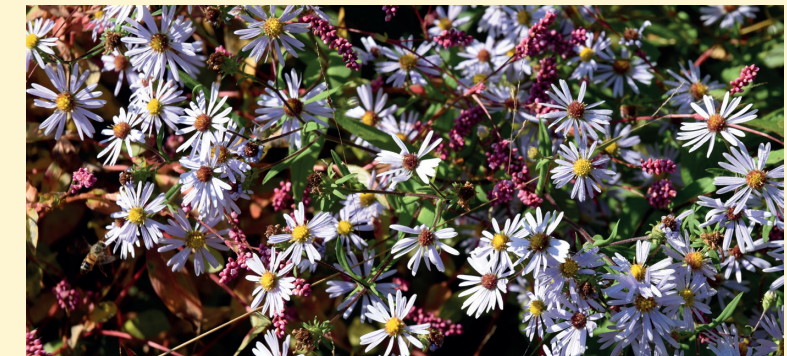
WETLANDS AND STREAMS

To provide enough flat land for the facility, the project has impacted approximately five acres of wetlands as well as a number of streams on site. Shell has installed culverts for the Rag and Poorhouse Runs in order to build over them and prevent prior soil contamination from leaching into the streams.

To offset wetland and stream impacts in accordance with regulatory requirements, Shell is restoring and enhancing an approximately 58-acre tract of the South Fork of Cross Creek by:

- Removing invasive species and restoring native species on-site;
- Improving and increasing wildlife and fish habitat;
- Improving water quality by restoring degraded streams, reducing bank erosion and improving aquatic habitat; and
- Reestablishing floodplain wetlands.

The wetland restoration site is located about 30 miles southeast of the proposed facility in the same watershed (specifically, the same 8-digit hydrologic unit code – Upper Ohio 05030101). While no local wetlands mitigation projects of sufficient size were available within the permitting timeline, Shell has been working with local groups to support future opportunities for water enhancements closer to the project site as part of its social investment plan.



Shell is restoring and enhancing an approximately 58-acre tract of the South Fork of Cross Creek. Initial work is now complete and we will continue to monitor the area for 10 years.

