



Update on Chemicals Removal at the Refinery on St. Croix

What is happening at the refinery on St. Croix?

Removal of the ammonia began on May 10, 2023 and was completed on May 14. EPA continues to oversee the work to remove the liquid amines and the remaining vapors within the amine containing units. The removal of the rich amine solution began on April 25 and is on-going. Removal of the vapor phase began on May 20. According to the schedule, EPA expects all amines to be removed from the system by the end of June. Removal of Liquefied Petroleum Gas (LPG) began on May 20.

How much ammonia is being removed?

Under EPA oversight, specialized contractors have removed approximately 8400 gallons of liquid industrial grade ammonia that are currently stored within the refinery. The current plan is for the liquid ammonia to be sold to another (off island) company and ammoniated water will be stored on-site until ultimate disposition has been determined.

What are the health risks if chemicals are released?

Exposure to any of the four chemicals, ammonia, hydrogen sulfide, sulfur dioxide and nitrous oxides, could cause irritation to the eyes, nose, throat and lungs, and respiratory system, or more serious harms.

What is industrial grade or anhydrous ammonia?

Ammonia is a colorless gas with a very distinct odor. The odor of ammonia is familiar to many people because it is used in smelling salts, many household cleaners, and window-cleaning products.

Anhydrous or industrial grade ammonia contains very little water and is much stronger than the ammonia used in household products. It was used at the refinery as an additive in a system that produced gasoline.

Is industrial grade ammonia dangerous?

Anhydrous ammonia is a dangerous industrial chemical. Symptoms related to the exposure of ammonia, in both liquid and gaseous states, include eye redness, throat and lung irritation, coughing, and a choking sensation.

What are amines or rich amines?

An amine system uses a solution of specific chemicals, called alkylamines, to remove hydrogen sulfide and carbon dioxide from refinery gas streams. Removing hydrogen sulfide and carbon dioxide from the refinery gases is done to improve safety, prevent corrosion, and to meet environmental regulations. When hydrogen sulfide is present in the amine solution, it is considered a “rich” amine solution.

What is liquefied petroleum gas (LPG)?

Liquefied petroleum gas, or LPG, is a fuel gas which contains a flammable mixture of hydrocarbon gases. LPG is typically stored inside a pressure vessel to keep the gas in a liquid state. LPG generally has no odor unless a chemical is injected into the gas to cause it to smell. Odor-causing chemicals have **not** been added to the LPG stored at the facility, so no odors are associated with this material.

How much amines and LPG are being removed?

Under EPA oversight, specialized contractors have removed approximately 290,000 gallons of rich amine liquid from facility equipment as of May 25. At this time, it is estimated that approximately 30,000 gallons of amine liquid still need to be transferred out of the amine units and into shipping containers. Removal of the liquid LPG from facility equipment is currently underway and will be shipped off island for proper disposal. Amine vapors will be treated, and cleaning solution will be collected in specialized containers for disposal. While transferring the liquid LPG, vapors will be routed to special equipment called a thermal oxidizer, which will burn or destroy the vapors.

Are rich amine solutions and LPG dangerous?

Amines typically have a fishy odor. Symptoms related to amine exposure include eye irritation and visual disturbances such as blurry vision. The amine solution at the facility contains hydrogen sulfide, a colorless gas with a very strong rotten egg odor. Low level exposure to concentrations of hydrogen sulfide can cause irritation to the eyes and respiratory system, dizziness, headaches, irritability, and nausea. Exposure to higher concentrations can result in tremors and convulsions.

LPG is a highly flammable gas that poses a fire hazard when improperly stored. Symptoms of exposure to LPG include headaches, drowsiness, and dizziness. Since LPG is heavier than the air, it will accumulate close to the ground.

Sulfur dioxide and nitrogen dioxide may be produced when using a thermal oxidizer to burn the LPG vapors. Sulfur dioxide is a nonflammable, colorless gas with a strong odor like burning rubber. Symptoms of exposure to sulfur dioxide may include difficulty breathing, changes in the ability to breathe deeply, and burning of the nose and throat. Nitrogen dioxide is nonflammable and colorless to brown-colored gas that has a strong, harsh odor. Low levels of nitrogen dioxide can irritate the eyes, nose, throat, and lungs, possibly causing coughing, shortness of breath, tiredness, and nausea.

For more information and answers to frequently asked health questions, visit the Agency for Toxic Substances and Disease Registry's [Toxic Substance Portal](https://www.atsdr.cdc.gov/toxfaqs/tfacts126.pdf): <https://www.atsdr.cdc.gov/toxfaqs/tfacts126.pdf>

EPA Community Contacts: Zeno Bain and Philip Parker at StCroix@epa.gov

EPA Toll-free Hotline: (866) 462-4789

EPA St. Croix Refinery Website: www.epa.gov/vi/refinery-st-croix-us-virgin-islands

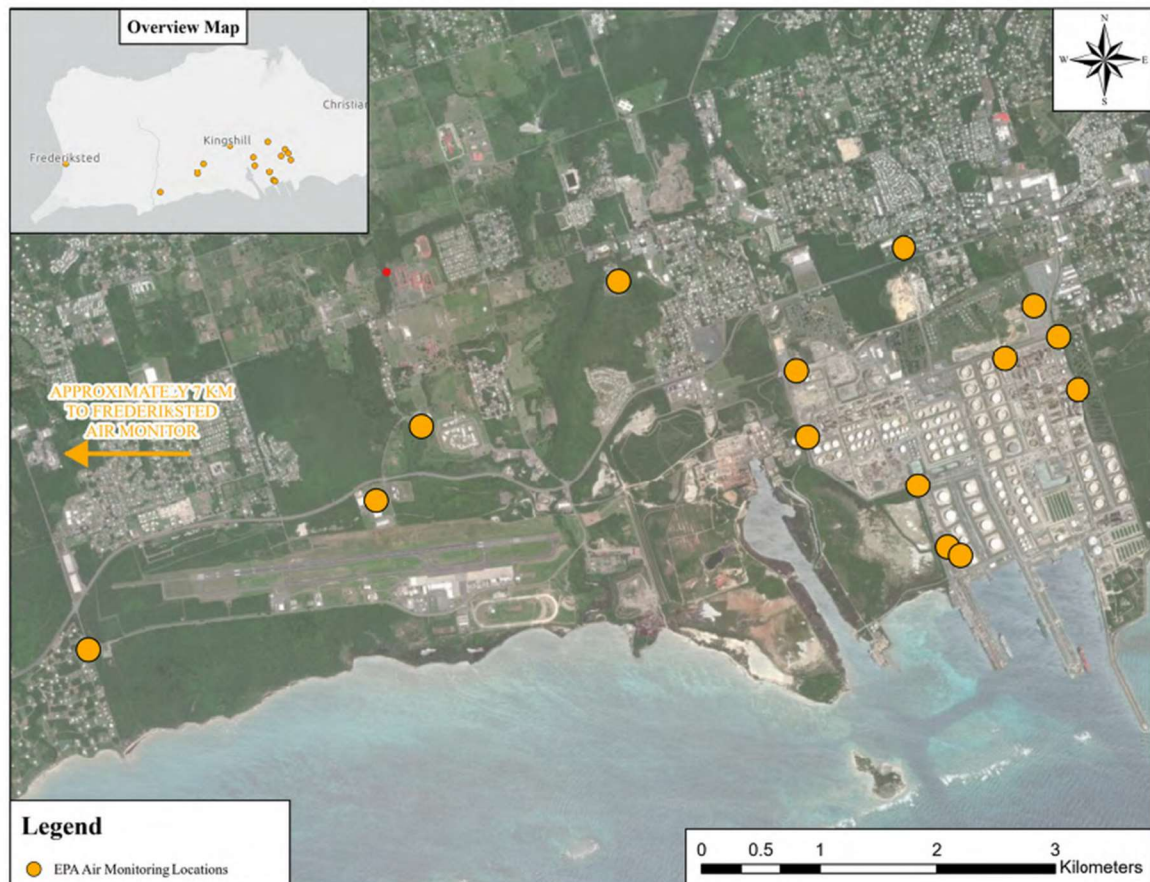
EPA Community Air Monitoring Website: <https://phrt-epa.hub.arcgis.com/>

VITEMA Website: www.vitema.vi.gov

How will the public be protected ?

In addition to EPA personnel overseeing the chemicals removal work, EPA will monitor the air around-the-clock. The locations of the air monitors are shown below. EPA is displaying the real-time air monitoring results on [EPA's refinery on St Croix website: https://phrt-epa.hub.arcgis.com/](https://phrt-epa.hub.arcgis.com/). EPA will continue to coordinate closely with the government of the U.S. Virgin Islands emergency management and environmental agencies. The Virgin Islands Territorial Emergency Management Agency (VITEMA) is the coordinating agency of the U.S. Virgin Islands for emergency readiness and response.

Map of EPA Air Monitoring Locations



Staying Up To Date

To stay up to date during the chemicals removal work, residents can:

1. Monitor real-time air quality conditions available on EPA's public website for the PHRT facility at <https://phrt-epa.hub.arcgis.com/>.
2. Sign up for alerts from VITEMA's Alert VI System at <https://member.everbridge.net/892807736729008/new>.
3. Follow updates from local officials, including information provided at the weekly Governor's updates.
4. Monitor cell phone for notification broadcasts from local agencies, such as VITEMA.