

EPA set up monitors to measure sulfur dioxide (SO₂) and hydrogen sulfide (H₂S) emissions from the facility. These monitors operated from May 14 to July 13 to measure SO₂ and H₂S after a series of incidents at the refinery that endangered the health and welfare of nearby communities. The following descriptions highlight exceedances of H₂S that occurred and were posted to EPA's website.

Data from EPA's monitoring from May 15-July 13, 2021

Monitoring Station 1 measured Tier 1 and Tier 2 exceedances for hydrogen sulfide (H₂S) on an intermittent basis from May 15 to July 3. EPA had also observed some sewer manholes near Station 1, and these manholes are approximately 200-300 feet from Station 1. Strong sewer gas and H₂S odors have been observed near the manholes. The manholes and Station 1 are located on private property with restricted access.

EPA believes that the H₂S Tier 1 and Tier 2 exceedances recorded by EPA's monitors from the time when the refinery operations stopped on or about May 26 until EPA suspended monitoring in July, are likely attributable in whole or in large part to emissions from sewers. However, there is overwhelming evidence that the major impacts on public health and property that are discussed in EPA's [May 14 emergency order were caused by incidents at the refinery.](#)

On Saturday, May 15, EPA got a reading on one of our monitors that showed a level that exceeded a threshold value set for hydrogen sulfide (H₂S), which EPA refers to as a Tier 1 Action Level. The Tier 1 Action Level for H₂S is 0.01ppm, and the highest level monitored by EPA on May 15 was 0.012ppm. The level corresponds to a level at which greater than 50% of the population may be expected to experience odors. This 0.012ppm level was measured at the monitor station west of the facility and occurred Saturday, May 15th between 10:45pm to 11:30pm. EPA immediately notified the Virgin Islands government and ATSDR.

- [EPA Graph of Exceedance at Station 1- May 15](#)

On Tuesday, May 18 and into May 19, EPA got ten-minute average readings on one of our monitors that showed a level that exceeded a threshold value set for hydrogen sulfide (H₂S), which EPA refers to as a Tier 2 Action Level. All of the action levels established are based on ten-minute average concentrations. The Tier 2 Action Level for H₂S is 0.1 ppm, and the highest level monitored by EPA was 0.8 ppm measured in the early hours of May 19. This 0.8ppm level was measured at Monitor Station 1, west of the facility. The elevated levels monitored by EPA started on May 18 around 10pm and the highest level was recorded at 1:49 am on May 19. EPA immediately notified the Virgin Islands government and ATSDR.

- [EPA Graph of Exceedance at Station 1- May 18 and 19](#)

On Wednesday, May 19, EPA got ten-minute average readings on one of our monitors that showed a level that exceeded threshold values set for hydrogen sulfide (H₂S), which EPA refers to as Tier 1 and Tier 2 Action Levels. All of the action levels established are based on ten-minute average concentrations. The Tier 1 Action Level for H₂S is .01ppm. The Tier 2 Action Level for H₂S is 0.1 ppm, and the highest level monitored by EPA was 0.57 ppm measured in the early hours of May 20. This was 0.57 ppm level was measured at Monitor Station 1, west of the facility. The elevated levels monitored by EPA started on May 19 around 9pm and the highest level was recorded around 6am on May 20. EPA immediately notified the Virgin Islands government and ATSDR.

- [EPA Graph of Exceedance at Station 1- May 19-20](#)

On Thursday, May 20, EPA got ten-minute average readings on one of our monitors that showed a level that exceeded a threshold value set for hydrogen sulfide (H₂S), which EPA refers to as a Tier 1 Action Level. All of the action levels established are based on ten-minute average concentrations. The Tier 1 Action Level for H₂S is 0.01 ppm, and the highest level monitored by EPA was approximately 0.012 ppm measured in the early hours of May 20. This approximately 0.012 ppm level was measured at Monitor Station 2, northwest of the facility. The elevated levels monitored by EPA started on May 20 around 5am. EPA immediately notified the Virgin Islands government and ATSDR.

- [EPA Graph of Exceedance at Station 2- May 20](#)

On Thursday, May 20, 2021, EPA discovered an uncovered sewer manhole located approximately 100 yards north Monitor Station 1. Strong H₂S -like odors were emanating from this uncovered manhole. EPA used a Jerome Model J605 monitor and detected H₂S at 3.75 ppm, and further confirmed the detection using a MultiRae monitor at the top of the manhole, measuring H₂S at 1.1 ppm. Readings on these instruments at or above 1.0 ppm are considered elevated and merit further investigation. A sampling tube for a Single Point Monitor was lowered into the manhole and detected a reading of greater than 10 ppm, the upper detection limit for the device. EPA immediately notified the Virgin Islands government and will assist the local authorities as they determine how to address this matter.

On Thursday, May 20, EPA got another ten-minute average reading on one of our monitors that showed a level that exceeded a threshold value set for hydrogen sulfide (H₂S), which EPA refers to as a Tier 1 Action Level. All of the action levels established are based on ten-minute average concentrations. The Tier 1 Action

Level for H₂S is 0.01 ppm, and the highest level monitored by EPA was approximately 0.02 ppm measured at approximately 8:45pm on May 20. This approximately 0.02ppm level was measured at Monitor Station 1, west of the facility. The elevated levels monitored by EPA started on May 20 a little after 8:30pm. EPA immediately notified the Virgin Islands government and ATSDR.

- [EPA Graph of Exceedance at Station 1- May 20](#)

On Thursday, May 27, EPA got ten-minute average readings on one of our monitors that showed a level that exceeded threshold values set for hydrogen sulfide (H₂S), which EPA refers to as Tier 1 and Tier 2 Action Levels. All of the action levels established are based on ten-minute average concentrations. The Tier 2 Action Level for H₂S is 0.1 ppm, and the highest level monitored by EPA was 0.2 ppm measured in the early hours of May 27. This 0.2 ppm level was measured at Monitor Station 1, west of the facility. The elevated levels monitored by EPA started on May 27 around 1:00 am and the highest level was recorded at 2:38 am on May 27. EPA notified the Virgin Islands government and ATSDR.

- [EPA Graph of Exceedance at Station 1- May 27](#)

On Friday, May 28, EPA got ten-minute average readings on one of our monitors that showed a level that exceeded a threshold value set for hydrogen sulfide (H₂S), which EPA refers to as a Tier 1 Action Level. All of the action levels established are based on ten-minute average concentrations. The Tier 1 Action Level for H₂S is 0.01 ppm, and the highest level monitored by EPA was 0.012 ppm measured in the early hours of May 28. This 0.012 ppm level was measured at Monitor Station 1, west of the facility. The elevated levels monitored by EPA started on May 28 around 3:40 am and reduced below the Tier 1 level soon thereafter. EPA notified the Virgin Islands government and ATSDR.

- [EPA Graph of Exceedance at Station 1- May 28](#)

On Friday, May 28 until May 29, EPA got ten-minute average readings on one of our monitors that showed a level that exceeded a threshold value set for hydrogen sulfide (H₂S), which EPA refers to as a Tier 2 Action Level. All of the action levels established are based on ten-minute average concentrations. The Tier 2 Action Level for H₂S is 0.1 ppm, and the highest level monitored by EPA was 0.16 ppm measured in the early hours of May 29. This 0.16 ppm level was measured at Monitor Station 1, west of the facility. The elevated levels monitored by EPA started on May 29 around midnight and reduced below the Tier 2 level around 2:00 am on May 29. EPA notified the Virgin Islands government and ATSDR.

- [EPA Graph of Exceedance at Station 1- May 28-29](#)

On Saturday, May 29, EPA got ten-minute average readings on one of our monitors that showed a level that exceeded a threshold value set for hydrogen sulfide (H₂S), which EPA refers to as a Tier 1 Action Level. All of the action levels established are based on ten-minute average concentrations. The Tier 1 Action Level for H₂S is 0.01 ppm, and the highest level monitored by EPA was 0.016 ppm measured in the early hours of May 29. This 0.016 ppm level was measured at Monitor Station 2, north west of the facility. The elevated levels monitored by EPA started on May 29 around 1:00 am and reduced below the Tier 1 level around 2:00 am on May 29. EPA notified the Virgin Islands government and ATSDR.

- [EPA Graph of Exceedance at Station 2- May 29](#)

On Sunday, May 30, EPA got ten-minute average readings on one of our monitors that showed a level that exceeded threshold values set for hydrogen sulfide (H₂S), which EPA refers to as Tier 1 and Tier 2 Action Levels. All of the action levels established are based on ten-minute average concentrations. The Tier 2 Action Level for H₂S is 0.1 ppm, and the highest level monitored by EPA was 0.26 ppm measured at 9:52 pm. This 0.26 ppm level was measured at Monitor Station 1, west of the facility. The elevated levels monitored by EPA started on May 30 around 9:00 pm and reduced below the Tier 1 level around 1:30 am on May 31. EPA notified the Virgin Islands government and ATSDR.

- [EPA Graph of Exceedance at Station 1- May 30](#)

On Wednesday, June 2, EPA got ten-minute average readings on one of our monitors that showed a level that exceeded a threshold value set for hydrogen sulfide (H₂S), which EPA refers to as a Tier 1 Action Level. All of the action levels established are based on ten-minute average concentrations. The Tier 1 Action Level for H₂S is 0.01 ppm, and the highest level monitored by EPA was 0.011 ppm measured in the early hours of June 2. This 0.011 ppm level was measured at Monitor Station 1, west of the facility. The elevated levels monitored by EPA started on June 2 around 12:30 am and reduced below the Tier 1 level soon thereafter. EPA notified the Virgin Islands government and ATSDR.

- [EPA Graph of Exceedance at Station 1- June 2](#)

On Thursday, June 10, EPA got ten-minute average readings on one of our monitors that showed a level that exceeded a threshold value set for hydrogen sulfide (H₂S), which EPA refers to as a Tier 1 Action Level. All of the action levels established are

based on ten-minute average concentrations. The Tier 1 Action Level for H₂S is 0.01 ppm, and the highest level monitored by EPA was 0.013 ppm measured at 6:16 am on June 10. This 0.013 ppm level was measured at Monitor Station 1, west of the facility. The elevated levels monitored by EPA started on June 10 around 6:10 am and reduced below the Tier 1 level soon thereafter. EPA notified the Virgin Islands government and ATSDR.

- [EPA Graph of Exceedance at Station 1- June 10](#)

On Friday, June 11 EPA got ten-minute average readings on one of our monitors that showed levels that exceeded threshold values set for hydrogen sulfide (H₂S), which EPA refers to as Tier 1 and Tier 2 Action Levels. All of the action levels established are based on ten-minute average concentrations. The Tier 1 Action Level for H₂S is 0.01 ppm, and the Tier 2 Action Level for H₂S is 0.1 ppm. The highest Tier 2 level monitored by EPA was 0.25 ppm measured at 3:41 am and later in the early morning hours a second exceedance occurred with the highest Tier 1 level of 0.04 ppm at 5:24 am. These 0.25 ppm and 0.04 ppm levels were measured at Monitor Station 1, west of the facility. The elevated levels monitored by EPA started on June 11 around 3:35 am and reduced below the Tier 1 level around 5:30 am. EPA notified the Virgin Islands government and ATSDR.

- [EPA Graph of Exceedance at Station 1- June 11](#)

On Saturday, June 12, EPA got ten-minute average readings on one of our monitors that showed a level that exceeded threshold values set for hydrogen sulfide (H₂S), which EPA refers to as Tier 1 and Tier 2 Action Levels. All of the action levels established are based on ten-minute average concentrations. The Tier 2 Action Level for H₂S is 0.1 ppm, and the highest level monitored by EPA was 0.38 ppm measured at 1:33 am. This 0.38 ppm level was measured at Monitor Station 1, west of the facility. The elevated levels monitored by EPA started around June 12 at 12:40 am and reduced below the Tier 1 level around 6:40 am. EPA notified the Virgin Islands government and ATSDR.

- [EPA Graph of Exceedance at Station 1- June 12](#)

On Sunday, June 13, EPA got ten-minute average readings on one of our monitors that showed a level that exceeded a threshold value set for hydrogen sulfide (H₂S), which EPA refers to as a Tier 1 Action Level. All of the action levels established are based on ten-minute average concentrations. The Tier 1 Action Level for H₂S is 0.01 ppm, and the highest level monitored by EPA was 0.03 ppm measured at 6:27 am on June 13. This 0.03 ppm level was measured at Monitor Station 1, west of the facility. The elevated levels monitored by EPA started on June 13 around 4:20 am

and reduced below the Tier 1 level around 6:45 am. EPA notified the Virgin Islands government and ATSDR.

- [EPA Graph of Exceedance at Station 1- June 13](#)

On Thursday, June 17, through Friday, June 18, EPA got ten-minute average readings on one of our monitors that showed a level that exceeded threshold values set for hydrogen sulfide (H₂S), which EPA refers to as a Tier 1 Action Level. All of the action levels established are based on ten-minute average concentrations. The Tier 1 Action Level for H₂S is 0.01 ppm, and the highest level monitored by EPA was 0.015 ppm measured at 2:50 pm on Thursday, June 17. This 0.015 ppm level was measured at Monitor Station 5, north of the facility. The elevated levels monitored by EPA started around June 17 at around 2:45 pm and reduced below the Tier 1 level around 1:10 am on June 18. EPA notified the Virgin Islands government and ATSDR.

- [EPA Graph of Exceedance at Station 5 – June 17 and June 18 \(pdf\)](#)

On Wednesday, June 23, EPA got ten-minute average readings on one of our monitors that showed a level that exceeded a threshold value set for hydrogen sulfide (H₂S), which EPA refers to as a Tier 1 Action Level. All of the action levels established are based on ten-minute average concentrations. The Tier 1 Action Level for H₂S is 0.01 ppm, and the highest level monitored by EPA was 0.019 ppm measured in the early hours of June 23. This 0.019 ppm level was measured at Monitor Station 1, west of the facility. The elevated levels monitored by EPA started on June 23 around 5:56 am and reduced below the Tier 1 level soon thereafter. EPA notified the Virgin Islands government and ATSDR.

- [EPA Graph of Exceedance at Station 1 – June 23 \(pdf\)](#)

On Thursday, June 24 EPA got ten-minute average readings on one of our monitors that showed levels that exceeded threshold values set for hydrogen sulfide (H₂S), which EPA refers to as Tier 1 and Tier 2 Action Levels. All of the action levels established are based on ten-minute average concentrations. The Tier 1 Action Level for H₂S is 0.01 ppm, and the Tier 2 Action Level for H₂S is 0.1 ppm. The highest Tier 2 level monitored by EPA was 0.21 ppm measured around 3:00 am. In addition, in the early morning hours several Tier 1 exceedances occurred with the highest Tier 1 level of 0.07 ppm at around 5:00 am. These 0.21 ppm and 0.07 ppm levels were measured at Monitor Station 1, west of the facility. The elevated levels monitored by EPA started on June 24 around 1:00 am and reduced below the Tier 1 level around 5:20 am. EPA notified the Virgin Islands government and ATSDR.

- [EPA Graph of Exceedance at Station 1 – June 24 \(pdf\)](#)

On Friday, June 25 EPA got ten-minute average readings on one of our monitors that showed levels that exceeded a threshold value set for hydrogen sulfide (H₂S), which EPA refers to as the Tier 1 Action Level. All of the action levels established are based on ten-minute average concentrations. The Tier 1 Action Level for H₂S is 0.01 ppm. Several Tier 1 exceedances occurred with the highest Tier 1 level of 0.05 ppm at 4:58 am. This 0.05 ppm level was measured at Monitor Station 1, west of the facility. The elevated levels monitored by EPA started on June 25 around 2:11 am and reduced below the Tier 1 level around 6:45 am. EPA notified the Virgin Islands government and ATSDR.

- [EPA Graph of Exceedance at Station 1 – June 25 \(pdf\)](#)

On Saturday, June 26 EPA got ten-minute average readings on five of our monitors that showed levels that exceeded a threshold value set for hydrogen sulfide (H₂S), which EPA refers to as the Tier 1 Action Level. All of the action levels established are based on ten-minute average concentrations. The Tier 1 Action Level for H₂S is 0.01 ppm. Several Tier 1 exceedances occurred with the highest Tier 1 level of 0.016 ppm at 2:55 am. This 0.016 ppm level was measured at Monitor Station 5. All five Monitoring Stations are north and west of the facility. EPA notified the Virgin Islands government and ATSDR.

- [EPA Graph of Exceedance at Station 1 – June 26 \(pdf\)](#)
- [EPA Graph of Exceedance at Station 2 – June 26 \(pdf\)](#)
- [EPA Graph of Exceedance at Station 3 – June 26 \(pdf\)](#)
- [EPA Graph of Exceedance at Station 4 – June 26 \(pdf\)](#)
- [EPA Graph of Exceedance at Station 5 – June 26 \(pdf\)](#)

From approximately 6:46 PM on Saturday, June 26 through 8:02 AM on Sunday, June 27, EPA got ten-minute average readings on five of our monitors that showed levels that exceeded a threshold value set for hydrogen sulfide (H₂S), which EPA refers to as the Tier 1 Action Level. All of the action levels established are based on ten-minute average concentrations. The Tier 1 Action Level for H₂S is 0.01 ppm. Several Tier 1 exceedances occurred with the highest Tier 1 level of 0.026 ppm at 5:08:00 AM on June 27. This 0.026 ppm level was measured at Monitor Station 3. All five Monitoring Stations are north and west of the facility. EPA notified the Virgin Islands government and ATSDR.

- [EPA Graph of Exceedance at Station 1 – June 26 and June 27 \(pdf\)](#)
- [EPA Graph of Exceedance at Station 2 – June 26 and June 27 \(pdf\)](#)

- [EPA Graph of Exceedance at Station 3 – June 26 and June 27 \(pdf\)](#)
- [EPA Graph of Exceedance at Station 4 – June 26 and June 27 \(pdf\)](#)
- [EPA Graph of Exceedance at Station 5 – June 26 and June 27 \(pdf\)](#)

From approximately 3:49 AM on Monday, June 28 through 8:28 AM on Monday, June 28, EPA got ten-minute average readings on three of our monitors that showed levels that exceeded a threshold value set for hydrogen sulfide (H₂S), which EPA refers to as the Tier 1 Action Level. All of the action levels established are based on ten-minute average concentrations. The Tier 1 Action Level for H₂S is 0.01 ppm. Several Tier 1 exceedances occurred with the highest Tier 1 level of 0.02 ppm at 5:13 AM on June 28. This 0.02 ppm level was measured at Monitor Station 1. All three Monitoring Stations are north and west of the facility. EPA notified the Virgin Islands government and ATSDR.

- [EPA Graph of Exceedance at Station 1 – June 28 \(pdf\)](#)
- [EPA Graph of Exceedance at Station 3 – June 28 \(pdf\)](#)
- [EPA Graph of Exceedance at Station 5 – June 28 \(a\) \(pdf\)](#)
- [EPA Graph of Exceedance at Station 5 – June 28 \(b\) \(pdf\)](#)

From approximately 1:00 AM on Tuesday, June 29 through 7:00 AM on Tuesday, June 29, EPA got ten-minute average readings on three of our monitors that showed levels that exceeded a threshold value set for hydrogen sulfide (H₂S), which EPA refers to as the Tier 1 Action Level. All of the action levels established are based on ten-minute average concentrations. The Tier 1 Action Level for H₂S is 0.01 ppm. There were several Tier 1 exceedances at Stations 1, 2 and 3, and the highest Tier 1 level of 0.02 ppm at 4:12 AM on June 29 occurred at Monitor Station 3. Monitoring Station 1 is west of the facility and Monitoring Stations 2 and 3 are northwest of the facility. EPA notified the Virgin Islands government and ATSDR.

- [EPA Graph of Exceedance at Station 1 – June 29 \(pdf\)](#)
- [EPA Graph of Exceedance at Station 2 – June 29 \(pdf\)](#)
- [EPA Graph of Exceedance at Station 3 – June 29 \(pdf\)](#)

On Saturday July 3, EPA got ten-minute average readings on one of our monitors that showed a level that exceeded a threshold value set for hydrogen sulfide (H₂S), which EPA refers to as a Tier 1 Action Level. All of the action levels established are based on ten-minute average concentrations. The Tier 1 Action Level for H₂S is 0.01 ppm, and the highest level monitored by EPA was 0.013 ppm measured around 4:30 am on July 3. This 0.013 ppm level was measured at Monitor Station 1, west of the facility. The elevated levels monitored by EPA started on July 3 around 3:00 am and

reduced below the Tier 1 level around 5:00 am. EPA notified the Virgin Islands government and ATSDR.

- [EPA Graph of Exceedance at Station 1 – July 3 \(pdf\)](#)