



BAY AREA  
AIR QUALITY  
MANAGEMENT  
DISTRICT

## Compliance and Enforcement Division

### INCIDENT REPORT

#### **Valero Benicia Refinery (Site #B2626)**

3400 E 2<sup>nd</sup> Street

**Benicia, California**

**May 5, 2017**

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#### Incident

On May 5, 2017, at approximately 6:45 am, the Valero Benicia Refinery experienced a power failure that resulted in processing units shutting down and in the release of process gasses to the emergency flares. There were also additional air emissions from the Fluid Coker and Fluid Catalytic Cracking Unit stacks. The cause of the power failure is currently unknown and under investigation. At about 10:30 am, electrical power was restored to the refinery and, subsequently, the refinery personnel started stabilizing the process units.

Air District staff were notified by Valero representatives at about 7:20 am and agency resources were mobilized for response. Air District staff arrived on-scene at about 7:35 am and began assessing the situation and coordinating resources. Air District staff mobilized the Air Monitoring Van, which can monitor emissions of Hydrogen Sulfide (H<sub>2</sub>S) and Sulfur Dioxide (SO<sub>2</sub>), as well as use sample canisters for air toxics. Staff from the U.S. Environmental Protection Agency Region 9 and the California Air Resources Board were also contacted for assistance to perform air monitoring.

The Benicia Police Department issued a shelter-in-place for some residences and an evacuation order in the downwind Industrial Park closest to the refinery. The California Highway Patrol closed highway I-680 off-ramps to Bay Shore and Lake Herman roads. Two Benicia elementary schools were sheltered-in-place; Robert Semple Elementary School at Hillcrest and 3<sup>rd</sup> St, and the Matthew Turner Elementary School on Rose Drive.

The smoke plumes were traveling in the morning to the south-east, towards the Benicia Industrial area. Air District staff received and responded to about twelve complaints so far.

The Air District will continue to have staff at the refinery and in the community, and assessing downwind impacts in the communities. Ambient air samples from the downwind communities will be analyzed for any elevated levels of air pollution.

The Air District is continuing the investigation.

#### General Information

The Valero Benicia Refinery processes domestic crude from the San Joaquin Valley in California and the Alaska North Slope, along with foreign sour crudes. The refinery processes crude oil by separating it into a range of hydrocarbon components or fractions. Petroleum fractions include heavy oils and residual materials used to make asphalt or petroleum coke, mid-range materials such as diesel (heating oil), jet fuel and gasoline, and lighter products, such as butane, propane and fuel gases. As a final step

in processing, many units provide treatment to conform to regulatory specifications, such as reduced sulfur levels. Many of these processes operate at elevated temperatures and pressures, and a critical element of safe design is having the capability of releasing excess pressure, via relieving devices to the flare gas header, to manage excess materials in a controlled manner. The Valero Benicia Refinery processes approximately 165,000 barrels per day (BPD) of crude oil.

One unique feature of the Valero Benicia Refinery is that it was designed with the processing units highly integrated with each other. This approach maximizes energy efficiency and minimizes the storage of intermediate products; however, it also results in the refinery functioning essentially as one integrated unit. When one of the major, central processing units is taken out of service, the entire refinery generally is also taken out of service at the same time.

Flares are first and foremost safety devices that must be available always for use in various situations to prevent accidents, hazards, or release of refinery gas directly to the atmosphere.