Shell Chemical LP/Shell Chemical Yabucoa, Inc. Information Sheet

Overview of Companies and Location of Facilities:

Shell Chemical LP (Shell Chemical) with headquarters in Houston Texas, and Shell Chemical Yabucoa, Inc. (Shell Yabucoa) are subsidiary corporations wholly owned by Royal Dutch Shell plc.

Shell Chemical and Shell Yabucoa together own and operate the following three refineries with a total refining capacity of 235,000 barrels per day (bbl/day), or just over 1 percent of total U.S. domestic refining capacity:

- The Saraland refinery, owned by Shell Chemical, is located outside Mobile, Ala. and has a permitted refining capacity of 90,000 bbl/day.
- The St. Rose refinery, also owned by Shell Chemical, is located in St. Rose, La. has a permitted refining capacity of 90,000 bbl/day.
- The Shell Yabucoa refinery is located outside Yabucoa, Puerto Rico and has a permitted refining capacity of 85,000 bbl/day.

Although both companies are wholly-owned subsidiaries of Royal Dutch Shell plc, Shell Chemical and Shell Yabucoa are separate companies and are therefore covered by separate consent decrees.

Violations:

The complaints allege violations of Clean Air Act requirements covering the four main sources of emissions of sulfur dioxide (SO₂), nitrogen oxides (NOₓ), volatile organic emissions (VOCs) and benzene at each of the three Shell Chemical refineries:

- New Source Review/Prevention of Significant Deterioration (NSR/PSD), 40 C.F.R. Part 52
  Fluidized Catalytic Cracking Units (FCCUs)
  Refinery Heaters and Boilers
- New Source Performance Standards (NSPS), 40 C.F.R. Part 60, Subparts A & J
  Flares
  Sulfur Recovery Units
  Fuel Gas Combustion Devices (including heaters & boilers)
- Leak Detection and Repair (LDAR), 40 C.F.R. Part 60, Subpart GGG
- National Emission Standards for Hazardous Air Pollutants (NESHAP) for benzene wastes, 40 C.F.R. Part 61, Subpart FF

For more information on these four “marquee” issue areas covered by the Petroleum Refinery Initiative, please visit EPA’s National Petroleum Refining Initiative Web Site

http://www.epa.gov/compliance/resources/cases/civil/caa/shellchemical-infosht.html
In addition, for the Yabucoa refinery, the complaint also alleges violations of 40 C.F.R Part 60, Subpart Db (emissions from steam generating units), the Hazardous Air Pollutant NESHAP, 40 C.F.R. Part 63 (emissions from storage vessels and other refinery units), and 40 C.F.R. Part 82 (stratospheric ozone protection).

**Injunctive Relief:**

The consent decree requires the following actions for violations of Refinery Initiative marquee issues:

**NSR/PSD for NO\textsubscript{x} emissions:**
- Shell Yabucoa must relinquish all permits for the refining operations at the Yabucoa refinery (the facility shut down operations in June 2009)
- Shell Chemical must install and operate controls on all heaters and boilers with a capacity of 40 MMBtu/hr (pound per million British thermal units of heat input) or greater. Currently, Shell is expecting to install equipment or replace only one heater at the St. Rose facility because all other heaters and boilers already operate with qualifying controls as defined in the consent decree.

**NSR/PSD for SO\textsubscript{2} emissions:**
- Shell Yabucoa must relinquish all permits for the refining operations at the Yabucoa refinery (the facility shut down operations in June 2009); and
- Shell Chemical cannot burn oil with sulfur content greater than 0.05 percent except during periods of natural gas curtailment.

**NSPS Subpart J**
- Shell Chemical must comply with SO\textsubscript{2} standards of Subpart J for all combustion devices burning refinery fuel gas, including flares;
- Shell Chemical must comply with SO\textsubscript{2} standards of Subpart J at all sulfur recovery processes, including the sulfur pit; and
- Shell Chemical must comply with NSPS Subpart A, General Provisions, 40 C.F.R. § 60.11 (d), by conducting root cause analyses for all flaring events exceeding 500 lb/day of SO\textsubscript{2}.

**NSPS Subpart GGG**
- Shell Chemical and Shell Chemical Yabucoa accepts NSPS Subpart GGG applicability at all of its refineries’ existing facilities so that no facilities are grandfathered, and thereby not subject to NSPS Subpart GGG;
- Both companies must conduct an initial audit of its entire refineries’ equipment components to determine compliance with the Leak Detection and Repair (LDAR) requirements in NSPS Subpart GGG;
- Both companies must conduct follow-up third party audits every four years to determine compliance with the LDAR requirements;
- Both companies must prepare a refinery wide LDAR program and perform enhanced training on the LDAR requirements;
- Both companies must use lower internal leak definitions than required by regulation when monitoring as required by NSPS Subpart GGG; and
- Both companies have accepted other enhancements to the LDAR requirements involving chronically leaking valves, additional requirements to place equipment on a Delay of Repair list and limits on the number of components on the Delay of Repair lists.

**Pollutant Reductions:**

This settlement will reduce NO\textsubscript{x} emissions by 813 tons per year (tpy) and SO\textsubscript{2} emissions by 645 tpy, once all emissions controls and emissions-reduction practices have been installed and implemented. The settlement will also result in additional reductions of VOCs, benzene and other pollutants.

**Health Effects and Environmental Benefits:**

Nitrogen oxides and sulfur dioxide all have adverse effects on human health and the environment, as discussed below.

**Nitrogen Oxides** – Nitrogen oxides can cause ground-level ozone, acid rain, particulate matter, global warming, water quality deterioration, and visual impairment. Nitrogen oxides play a major role, with volatile organic chemicals, in the atmospheric reactions that produce ozone. Children, people with lung diseases such as asthma, and people who work or exercise outside are susceptible to adverse effects such as damage to lung tissue and reduction in lung function.
Sulfur Dioxide - High concentrations of SO₂ affect breathing and may aggravate existing respiratory and cardiovascular disease. Sensitive populations include asthmatics, individuals with bronchitis or emphysema, children and the elderly. Sulfur dioxide is also a primary contributor to acid deposition, or acid rain.

Volatile Organic Compounds - VOCs, along with NOₓ, play a major role in the atmospheric reactions that produce ozone, which is the primary constituent of smog. People with lung disease, children, older adults, and people who are active can be affected when ozone levels are unhealthy. Ground-level ozone exposure is linked to a variety of short-term health problems, including lung irritation and difficulty breathing, as well as long-term problems, such as permanent lung damage from repeated exposure, aggravated asthma, reduced lung capacity, and increased susceptibility to respiratory illnesses such as pneumonia and bronchitis.

Benzene - Acute (short-term) inhalation exposure of humans to benzene may cause drowsiness, dizziness, headaches, as well as eye, skin, and respiratory tract irritation, and, at high levels, unconsciousness. Chronic (long-term) inhalation exposure has caused various disorders in the blood, including reduced numbers of red blood cells and anemia in occupational settings. Reproductive effects have been reported for women exposed by inhalation to high levels, and adverse effects on the developing fetus have been observed in animal tests. Increased incidences of leukemia have been observed in humans occupationally exposed to benzene. EPA has classified benzene as a Group A human carcinogen.

Civil Penalty:

Shell Chemical and Shell Yabucoa together will pay a $3.5 million civil penalty, as follows:

$2.5 million paid to the U.S. Treasury
$622,000 to Alabama
$184,630 to Louisiana

Supplemental Environmental Projects (SEPs)

Shell Chemical will perform three state-only SEPs in Louisiana as follows:

Donate $100,000 to Louisiana Department of Environmental Quality to support the production of educational campaigns that promote awareness of illegal dumping, stormwater construction activities, ozone nonattainment and/or other environmental activities;
Donate $83,370 the St. Charles Parish Emergency Operations Center for the purchase and installation of two additional AM radios emergency transmitters and emergency signs for the Montz area; and
Donate $10,000 to the Audubon Nature Institute of New Orleans to support its Teacher Workshops on Environmental Education programs.

State Partners:

The states of Alabama and Louisiana participated in the settlement negotiations and are parties to the settlements.

Comment Period

The proposed settlements are lodged as follows:

Shell Chemical LP in the U.S. District Court for the Southern District of Texas
Shell Chemical Yabucoa, Inc. in the U.S. District Court for the district of Puerto Rico

Both consent decrees will be subject to a 30-day public comment period and final court approval. Information on submitting comments is available at the Department of Justice website.