

CCS DRB Meeting Safety Moment

March 28, 2005

BP Texas City refinery fire investigated

HOUSTON, Mar. 23 –

- Officials are investigating the cause of a fire and explosion Mar. 23 at BP PLC's Texas City refinery.
- The blast, which killed 15 workers and injured more than 100, was contained within the plant's 24,300 b/cd isomerization unit and was extinguished within 3 hours, said BP Site Director Don Parus. An adjacent Dow Chemical Co. plant also sustained minor damage.
- "Other units [of the 30-unit refinery] are in running position," said BP officials. The plant refines 3% of the total US petroleum products supply and 30% of BP's North American products output.
- BP's Texas City refinery covers 1,200 acres. Built in 1934, it can process up to 460,000 barrels of crude oil a day, according BP's Dean. The refinery's 30 units produce gasoline, diesel and other petroleum products.

Report from BP's Web Site

- **ISOMERIZATION PROCESS FACT SHEET**
- **General**– Isomerization is a process that increases the octane number of light gasoline components, n-pentane and n-hexane, which is found in abundance in straight run gasoline.
- **Texas City Isomerization Unit** – Relative to the 1,200-acre size of the Texas City Refinery, the Isomerization unit is relatively small — occupying an area about 160,000 feet square — about the size of a city block. Its capacity is about 40,000 barrels per day, but is generally run at about half that output.
- The Refinery's total gasoline output is about 200,000-250,000 barrels per day, about 3% of the nation's requirements. The facility's process units convert about 460,000 barrels of crude oil and other feedstocks into products that include gasoline, jet fuels, diesel fuels and chemical feedstocks.
- **Process** – The Isomerization unit charges several light naphtha streams containing predominantly C5 and C6 hydrocarbons from around the refinery. The purpose of the unit is to convert these low octane feeds to higher octane components for blending to unleaded regular gasoline. The feed octane is between 67-70 and the product is about 83-85.
- **Turnarounds** – Some process equipment in isomerization units receives maintenance every one or two years, but the isomerization catalyst is changed out every 10 years. The recent turnaround at Texas City was initiated in late February to change the isomerization catalyst. About 20 workers were required for this two-week job, which included maintenance workers, operators and catalyst contractors.



OLIVER DYKE : CHRONICLE

WHAT HAPPENED?

The explosion occurred near the end of the typical gasoline refining process:



1 Crude oil storage

2 Crude oil heater

3 Distillation tower

4 Cracking unit

5 Isomerization unit
Carbon-based molecules are converted into different shapes in this part of the refinery. In the unit that caught fire Wednesday, these compounds were used to boost octane in gasoline.

6 Final product

Sources: Texas & Louisiana Gulf Coast Industrial Handbook; BP; Texas Tech University; University of Houston

ALBERTO CUADRA, JAY CARR : CHRONICLE

Firefighters pour water on a smoldering unit following the explosion that rocked the BP refinery Wednesday.



Flames erupt from the BP plant in Texas City after an explosion Wednesday afternoon.



Investigators sift through the rubble of the BP plant Thursday in Texas City, where an explosion rocked the facility, killing 15 people and injuring more than 100.



Josh Biscamp, 16, and his sister Jessica look out of a shattered window at their home across from the BP-Amoco plant in Texas City. The explosions reportedly broke glass in buildings for miles around



Flags fly at half staff outside the BP oil refinery in Texas City the morning after a fatal explosion and fire at the plant.



Tenets of Operational Excellence

Always -

1. Operate within design or environmental limits.
2. Operate in a safe and controlled condition.
3. Ensure safety devices are in place and functioning.
4. Follow safe work practices and procedures.
5. Meet or exceed customer's requirements.
6. Maintain integrity of dedicated systems.
7. Comply with all applicable rules and regulations.
8. Address abnormal conditions.
9. Follow written procedures for high risk or unusual situations.
10. Involve the right people in decisions that affect procedures and equipment.

Simplified OE Principles:

1. Do it safely or not at all!
2. There is always time to do it right!