

Issue: Shanghai Benzene Study

Focal Point: Patsy Clegg

Date Rev: 27/06/05

Note: Any Comments in Italics are confidential

Update/Changes since Q4 brief:

- In January 2005 the Houston Chronicle published a five-part series, based on a six-month investigation, on air quality (including benzene emissions) in the Houston Ship Channel / East End area, where Shell's Deer Park facility is located.
- In April 2005 the same newspaper (and reporter) published an article claiming that the Shanghai Benzene study is biased because of funding from multi-national oil companies, including Shell. The newspaper claimed that results of the study had already been determined, and oil company sponsors would ensure that the results 'contradicted cancer claims'.

Key messages

- Shell is contributing to a study in Shanghai that aims to better understand the health risks from exposure to benzene. Our support for this study is as part of the company's ongoing commitment to health, safety and product stewardship.
- The study is wholly independent of Shell. It is run by Fudan University in Shanghai, the University of Colorado Health Services Centre and Applied Health Sciences, an independent research firm in San Francisco. The research is being overseen by a scientific and ethics review panel composed of 16 world-renowned independent experts in the field.
- The results of the study will be peer-reviewed and published by the researchers in scientific journals, currently scheduled for 2007.

Note: Any Comments in Italics are confidential

Supporting statements:

- The study, which began in 2001, was designed by independent epidemiological and toxicological investigators. The research protocols and the research itself are being overseen by scientific and ethics review panels composed of 16 world-renowned, independent experts in the field. The research protocols also have been approved by

independent review boards at Fudan University, the University of Colorado and Applied Health Sciences.

- The independent investigators conducting the study have full control over all interpretations and conclusions that may be drawn from the data when the study is completed, which is currently scheduled for 2007. Upon completion, the findings of the study will be peer-reviewed and published by the researchers in scientific journals.
- A consortium of petroleum and chemical companies funds this independent study. The Consortium is administered by the American Petroleum Institute (API) and consists of BP, ChevronTexaco, ConocoPhillips, ExxonMobil and Shell Chemical Company. Shell has committed \$5.7m to the \$26m study.
- Shell is providing funding to this study because we are committed to better understanding the relationship between benzene exposure and health so we can protect the health of our workers, contractors, customers and those who may come into contact with benzene.
- A state-of-the-art clinical and molecular laboratory has been built on the Fudan Medical University campus to support the research project.
- The project includes three studies:
 - case control study on acute myelogenous leukemia (AML) and non-Hodgkin's lymphoma (NHL);
 - study on aplastic anemia (AA), myelodysplastic syndrome (MDS), acute myelogenous leukemia (AML), and benzene poisoning disease progression; and
 - molecular epidemiology study of diseases of benzene exposed workers. The study will analyze benzene's effects on the blood and bone marrow, and its ability to cause cancer in workers.

Issue sensitivity and responses:

- Shell is the world's second largest benzene producer and is manufactured on behalf of Shell Chemicals at ten sites globally: Sarnia, Canada; Godorf, Germany; Heide, Germany; Wesseling, Germany; Yokkaichi, Japan; Yamaguchi, Japan; Kawasaki, Japan; SASREF, Saudi Arabia; Jurong Island (Merbau) PCS, Singapore; and Deer Park, the United States.
- Benzene is a very important basic chemical, being converted into many of the intermediates and polymers that are needed to produce a wide range of the goods we all use everyday. Familiar products that may be made from chemicals derived from benzene include clothing, packaging, paints, adhesives, unbreakable windows, plywood, computer casings, compact discs and many more.
- *The benzene business faces challenges regarding:*
 - *Concern by local communities and NGOs about product health issues (which is high as benzene is classified as a human carcinogen)*

- *Potential regulatory reviews of exposure levels. Regulators are particularly concerned about the impact of air pollution on health at present, and are keen to reduce exposure to chemicals such as benzene.*
- *There is a correlation between high levels of benzene exposure and acute myeloid leukaemia. The precise link between exposure and disease is not understood yet. There is disagreement about what level and what length of time a person has to be exposed to contract cancer. Scientific studies have recently been published that allege exposure to benzene below accepted regulatory levels can cause adverse health effects:*
 - *In December 2004, a paper published in Science reported that benzene had toxic effects on blood cells at 1 part per million, the level workers in the United States are allowed to be exposed to over an eight-hour work day.*
 - *In August 2004, a study by the French National Institute of Health and Medical Research (published in Occupational and Environmental Medicine) reported that children living close to a petrol station were four times more likely to develop leukaemia.*
 - *In 1997, research conducted by the National Cancer Institute in Shanghai reported that workers exposed to average levels of benzene were four times more likely to develop non-Hodgkin's lymphoma than the general population.*
- *In April 2005, Shell became aware of information that was published in a draft manuscript arising from the Shanghai Benzene Study, which stated that investigators identified a form of MDS associated with exposure to high levels of benzene. As per section 8 (e) of the Toxic Substances Control Act (TSCA), Shell communicated this information to the EPA and stated that the company would review its current hazard communication practices with regards to Benzene. Under the direction of the product stewardship team, steps to be taken include:*
 - *Revising the benzene material substances data sheet (MSDS), which describes the hazards of the product and provides information on labelling and how it can be safely handled, used, and stored*
 - *Communicating this revised information to relevant customers.*
- *An additional related effort currently underway within Shell is to determine a global standard or occupational exposure limit (OEL) for benzene across the entire company. The OEL for benzene globally ranges from 0.5 – 10 part per million (ppm), with 1 ppm being used across most of the world. After an internal decision has been made, external affairs will have an important role in how to communicate the newly adopted global OEL to key stakeholders.*