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Sent: Monday, December 11, 2006 5:14 PM

To: BenzConsort-OC@listserve.api.org; BenzConsort-TC@listserve.api.org; BHRC Communications Committee

Cc: Robin Tillery

Subject: Shanghai Health Study - Meeting on December 13 and 14

Greetings,

Attached are the proposed agenda and background documents for the BHRC meetings on Wednesday and Thursday of this week. These documents will also be available on the SHS website.

For those of you calling in, the conference call information is listed below.

Conference call:

Toll Free Dial-In Number: (866) 443-0059

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Enter this code at the prompt: 202 682 8344#

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Call Participant Functions

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<<Agenda for BHRC meeting Dec 13 2006.doc>> <<BHRC Program Expenses 2Q06 rpt - DRAFT.xls>> <<BHRC Program Expenses 3Q06 rpt - DRAFT.xls>> <<BHRC meeting - new budget proposal - Dec 13 06.xls>> <<Contract summary 12-7-06.doc>> <<Communications Strategy - study completion DRAFT2.doc>> <<Irons SHS Proposal11_09_06.doc>>

DRAFT – NOT YET LEGALLY APPROVED

Response Materials for Shanghai Health Study September 2009

Guidance On Use Of This Briefing Pack

This document should be used to respond to external and internal enquiries relating to the Shanghai Health Study, which will present its research findings at a benzene symposium in Munich, Germany.

This pack should not be circulated internally other than to those specifically involved in responding to staff or media queries. **It should not be circulated externally.**

Contents

1. Background (internal use only)
2. Benzene and Shell
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Communications Strategy

- All communications about the study will be routed to the API (contact details below) to be shared with consortium CX. **External communication by API or Shell will be reactive only.**
- Basic information including approved Q and As is in the API communication plan. This document does not repeat the information in that plan. If necessary, Shell media responders can use information in the API communications plan but ideally should refer generic questions about the study directly to the API.
- These materials include responses to be used by Shell externally only if asked about its role in the study.
- Guidelines on responding to media enquiries are set out in the communications plan produced by API which should be read alongside this document.
- **Any requests for technical information and/or research details should be routed through the API.** The API will refer these requests, as appropriate, to Principal Investigators who are the appropriate contacts for briefings on the research program, status, or other subjects regarding protocol implementation.

API Media Relations Contact Information

API Media Relation's line during normal business hours is **1.202.682.8114**. On weekday evenings, weekends and holidays, please call **1.202.682.8038** for the media relations duty officer. You can also contact API Media Relations via e-mail at mediacenter@api.org.

Further contact: Shell

If you require more background information or explanation on any issue in the pack please contact Patsy Clegg or Shan Tsai. If you require information relating to external use or enquiries please contact Rob Colmer (London) or Alexandra Smith (Houston).

1. Background (internal use only)

The major effects of benzene are chronic (long-term) impacts on the body's blood forming tissue. Long-term exposures at levels exceeding the current governmental regulations have a causal association with certain types of acute myelogenous leukemia. (see API brief for further information).

In September 2009, researchers from the Shanghai Health Study will present research findings from the Shanghai Health Study at a benzene symposium in Munich, Germany. There have been some negative media reports regarding the study and the findings from the study may generate media interest.

<http://www.tum-benzenesymposium.de/index.html>

2. Benzene and Shell

Shell chemicals companies are leading players in the benzene sector, with global capabilities in manufacturing and supply.

Benzene is manufactured on behalf of Shell Chemicals at the following locations at 15 sites globally:

Sarnia, Canada;
Scotford (Canada);
CSPCL Nanhai (China);
Godorf, Germany;
Heide, Germany;
Wesseling, Germany;
Schwedt (Germany);
Yokkaichi, Japan;
Yamaguchi, Japan;
Kawasaki, Japan;
Moerdijk (Netherlands);
SASREF, Saudi Arabia;
Jurong Island (Ayer Merbau) PCS;
Stanlow (UK)
Deer Park (USA).

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.

3. Reactive Media Statement

- We can confirm that Shell has contributed to an API administered study in Shanghai that aims to better understand the health risks from exposure to benzene.
- Our support for this study is as part of Shell'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, Applied Health Sciences, Inc. and Cinpathogen, Inc.
- The research is being overseen by scientific and ethics review panels composed of independent experts.
- The results of the studies are being peer-reviewed and published by the researchers in scientific journals.

4. Q and As

See attached Q&A prepared by the API.

[will insert API document when finalized]

Q. How much did Shell spend on this study?

A. That information is commercially confidential.

If pressed

This was a major piece of original research led by highly reputable academics over many years. This kind of detailed research requires a fairly sizeable investment.

Q. Did anyone from Shell try and influence the outcome of any of the research?

A. No.

Q. If the study shows that there are major health issues regarding benzene what will you do about that?

A. Based on some results [from studies?] published in 2005, we slightly modified the MSDS for benzene. In the event that more new information is generated which provides greater insights into health issues regarding benzene, we will of course consider what appropriate action we may need to take.

Q. Did Shell review the research prior to publication?

No.

Q. What is benzene?

A. Benzene is a cyclical, six carbon, six hydrogen molecule. It is a clear, colourless, volatile liquid with a characteristic 'aromatic' smell. Benzene is extracted from two primary sources: from pyrolysis gasoline (pygas) which is a co-product of ethylene manufacture, or from reformat, a stream resulting from the catalytic reforming process used to produce high octane gasoline. Benzene can also be derived from toluene via two on-purpose routes: hydrodealkylation and disproportionation.

Q. How is benzene used?

A. Benzene is an important basic chemical, produced in large quantities and traded internationally. It is widely used in the industrial sector, where it is combined and processed with other basic chemicals (such as ethylene or propylene) to produce countless consumer goods. The end result is a variety of products that we all use everyday: clothing, packaging, paints, adhesives, unbreakable windows, plywood, computer casings, compact discs, dyes, agrochemicals, pharmaceuticals and many more.

Q. What is the main use for benzene?

A. The largest derivative outlet for benzene is ethylbenzene, an intermediate used in the production of styrene, which is further converted into materials such as polystyrene. It is also widely used to produce cumene, which in turn leads to phenol, a component in phenolic resins and adhesives; cyclohexane, a precursor of caprolactam and adipic acid, both used in nylon; and aniline, a material needed to produce methylene diphenyl diisocyanate (MDI) which is used in urethanes and other speciality applications.

The end result is a variety of products that we all use everyday: clothing, packaging, paints, adhesives, unbreakable windows, plywood, computer casings, compact discs, dyes, agrochemicals, pharmaceuticals and many more.

Q. Where does Shell produce benzene?

A. Shell chemicals companies are leading players in the benzene sector, with global capabilities in manufacturing and supply. Benzene is converted into many of the intermediates and polymers which are needed to produce an extensive range of everyday items.

Benzene is manufactured on behalf of Shell Chemicals at the following locations:

Canada: Sarnia, Scotford

China: CSPCL Nanhai

Germany: Godorf, Heide, Wesseling, Schwedt

Japan: Kawasaki, Yokkaichi, Yamaguchi

Netherlands: Moerdijk

Saudi Arabia: SASREF

Singapore: Jurong Island (Ayer Merbau) PCS

UK: Stanlow

United States of America: Deer Park

Further information on benzene:

http://www.shell.com/home/content/chemicals/products_services/our_products/aromatics/benzene/index_benzene.html

5. Benzene Issue Brief

Shell is one of the biggest manufacturers and marketers of Benzene globally. Stakeholders (local communities, NGOs, governments and the media) continue to express concerns about the potential human health impacts of benzene emissions from refineries, chemical plants, retail sites, vehicles, and soil and groundwater contamination from oil products.

The International Agency for Research on Cancer (IARC), US Environmental Protection Agency (EPA) and the EU classify benzene as a human carcinogen. Various health and environmental regulations continue to focus on benzene, tending to push down emissions and potential exposure. For example, the European Commission has published a target community ambient level of 1.5 ppb as an annual mean to be achieved by January 2010. There are continuing discussions regarding how stringently controls must be applied (or the sale and use of benzene restricted) based on health related research reports.

Benzene is an important basic chemical used in the manufacturing process for many products we use everyday, such as clothing, packaging, paints, adhesives, computer casings and compact discs. Benzene is naturally present in small quantities in gasoline [I don't think benzene is naturally present in gasoline; I think it is added to increase octane. Benzene is naturally occurring in crude oil and natural gas condensate].

KEY MESSAGES

- Shell is committed to protecting the health and safety of its workers, customers and communities wherever we operate.
- Shell companies strive to comply with all benzene laws and regulations where they operate. In addition, Shell has introduced an Occupational Exposure Limit (OEL) for benzene throughout our Downstream operations (refineries, chemical plants, retail sites etc), which will further improve Shell's consistent and safe management of benzene¹.
- Shell supports the industry's Global Product Stewardship (GPS) outreach initiative, which seeks to ensure chemicals are properly managed across the supply chain. In line with industry good/best practice, we have implemented a range of measures to reduce benzene exposure relating to our operations.
- Shell is at the forefront of action being taken to better understand the health and environmental effects of benzene. Shell sponsors a number of research programmes to better understand the health and environmental impacts of benzene (see below).

SUPPORTING MESSAGES

- Shell has an ongoing programme to minimise risks associated with the transport of benzene and to avoid its transport altogether where possible. For example, the siting of the benzene extraction unit at Moerdijk facility in the Netherlands has reduced the movement of benzene across Europe.
- Shell is a member of a privately sponsored ambient air monitoring network that is participating in a project to lower annual average benzene emissions in the Lynchburg Ferry area of Houston.

BENZENE RESEARCH PROGRAMMES

- Shell has contributed several million dollars to an independent, multi-stakeholder study in Shanghai that aims to understand better the health risks from exposure to benzene. The results of the study will be presented to the public and to study sponsors at the Benzene Symposium in Munich, Germany in September 2009.
- Shell contributes to the Voluntary Children's Chemical Evaluation Programme (VCCEP), led by the US Environmental Protection Agency (EPA), which provides data to help understand potential health risks to children associated with certain chemical exposures.
- Shell, through membership in industry associations including CONCAWE (Europe) and the API (USA) are sponsoring a pooled analysis of three epidemiological studies carried

¹ Full compliance with this new OEL is expected no later than December 31, 2009

out among oil distribution workers in Australia, Canada and the UK. There is a target date of January 2010 to publish results.

APPENDIX

For information only – not approved for external use

REGULATIONS

The US Environmental Protection Agency (EPA), EU and the International Agency for Research on Cancer (IARC) classify benzene as a human carcinogen. Increased risk of leukaemia (AML) has been reported in benzene-exposed workers in the chemical industry, shoemaking and oil refineries.

Various health and environmental regulations continue to focus on benzene, tending to push down emissions and potential exposure. Under European REACH regulations, it is the viewpoint of the Benzene Consortium that benzene will be registered as an intermediate, which would exempt it from further extensive testing under this regulation (we are committed to future studies to address gaps in understanding). If registered as a substance, it would have to undergo "authorization" which would assess whether industry can continue marketing the chemical in Europe and under which conditions. The latter case will likely further increase the profile and public dialog surrounding health risks of benzene.

SHELL APPROACH TO MANAGING BENZENE EXPOSURE THROUGH OUR OPERATIONS

Shell companies must comply with all Occupational Exposure Levels (OELs), including for benzene, set by national governments. In addition, Shell Downstream has adopted a global internal OEL of 0.5 ppm TWA (Time-Weighted Average) and 2.5 ppm STEL (Short-Term Exposure Limit). Significant progress has been made in closing off implementation plans /gaps in Manufacturing at the site level (expected completion by mid Q2) and Supply & Distribution (complete). Full implementation is required by the end of 2009.

- Shell Downstream operations must comply with the most stringent of these limits.
- The Commission of the European Communities has published a target community ambient level of 1.5 ppb as an annual mean to be achieved by January 2010.
- Shell Chemicals set and achieved a reduction in emissions from 2002 by 35%.
- In 2007, Shell Downstream established a cross business Leadership Steering team to facilitate a consistent approach to benzene risk management, advocacy and research.
- Shell has an ongoing programme to minimise risks associated with the transport of benzene and to avoid its transport altogether where possible. For example, the siting of a new benzene extraction unit at Moerdijk facility in the Netherlands has reduced the movement of benzene across Europe.
- During 2008, Shell Chemicals initiated work to modify its approach to contracting in order to voluntarily achieve lower Rhine River barge venting events by seeking the use of more dedicated barges. This practice effectively reduced emissions by 80% versus 2007 emissions. The goal is to reduce emissions by 90% in 2009.
- Shell is a member of a privately sponsored ambient air monitoring network that is participating in a project to lower annual average benzene emissions in the Lynchburg Ferry area of Houston. Effective efforts between the Texas air regulatory agency, benzene producers, and carriers have led to changes in barge operating and maintenance procedures that have kept average benzene emissions below the permissible level of 1.4 ppbv. This program, which demonstrates effective, voluntary co-operation among key players, will serve as a model for other areas where benzene is being moved along US waterways.

SUPPORTING DATA - SOURCES OF BENZENE

- Significant natural sources of benzene are biomass burning, brush and forest fires.
- Mobile sources are the largest contributor to benzene air levels, although individual industrial sources may have significant impact on local environments if not controlled (hot spots).

The relative importance of each source will vary between countries reflecting differing regulatory structures and differences in infrastructure.

SUPPORTING DATA – EXPOSURE LEVELS

Various studies over the last 20 years have been published showing a range of benzene exposures in society, reflecting both varying contributions from different sources and types of exposure to the public.

Examples include studies showing:

- Urban air levels of .71 ppb (ARB, 1997)
- EPA, indoor air study – mean reported level 1.4 ppb (presumably sources include household solvents and smoking)
- 13.3 ppb inside cars in California (1986-1987)
- European traffic hot spots (1997) of 3.7-16 ppb
- European rural, remote areas 5-1.0 ppb
- Air monitoring during 2004 of the Houston ship channel area show levels that are comparable to other metropolitan areas (.1-2.0 ppb)

BENZENE RESEARCH PROGRAMMES

- Shell has contributed several million dollars to a multi-stakeholder study in Shanghai that aims to better understand the health risks from exposure to benzene. Our support for this study is part of the company's ongoing commitment to health, safety and product stewardship. The study was wholly independent of Shell and was 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 was overseen by a scientific and ethics review panel composed of 14 world-renowned independent experts in the field. As of Q209, all case accruals have been completed and data analysis is in progress. The results of the study will be presented to the public and to study sponsors together at the Benzene Symposium in Munich, Germany in September 2009. Results will also be published in scientific journals.
- Shell has contributed to the Voluntary Children's Chemical Evaluation Programme (VCCEP), led by the US EPA. This provides data to help understand potential health risks to children associated with certain chemical exposures. Both the ACC and the API are contracting with different authors to publish the study results in scientific journals.
- Shell and industry associations including CONCAWE (Europe) and the API (USA) are sponsoring a pooled analysis of three epidemiological studies (case control studies) carried out among oil distribution workers in Australia, Canada and the UK along with an updated assessment of the Pliofilm cohort. There is a target date of January 2010 to publish results.
- Shell is supporting industry association activities to utilise new data from the CONCAWE/API pooled analysis, and possibly the Shanghai Health Study, to evaluate new methods of risk assessments that will estimate the probability of getting cancer and clarify the dose-response relationship for AML.
- Shell is an active supporter and is involved in the API Benzene Task Force as well as the Benzene Product Stewardship Consortium in the US, both of which are focused on promoting research and product stewardship on benzene. Shell is also actively involved in the Lower Olefins and Aromatics (LOA) REACH consortium.
- The International Agency for Review on Cancer (IARC) will be reviewing benzene in 10/09. Although benzene is already classified as a known human carcinogen, IARC intends to review with regards to the specific kinds of cancer and which organs are affected. Shell, through its various industry associations, is sponsoring the attendance of pre-eminent experts on benzene toxicology and epidemiology.

- Shell has co-authored a critique to a journal article published by Steinmaus et al in 2008 that suggested a possible link between benzene exposure and Non-Hodgkin's Lymphoma (NHL). The critique does not support the conclusions of the Steinmaus paper and challenges the study selection process. The critique, which went through the peer-review process and has been accepted for publication, will be submitted to the IARC review in October 2009.
- Shell Deer Park Refinery in the US has volunteered to be a test site for an EPA evaluation of air emission reporting. The 4-week study has been initiated in response to statements from local government that industry was under-reporting air emissions and that an overhaul is needed of the way emissions are monitored and reported.

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