Human Health Risks Associated with Louisiana Crude Oil

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1. **Direct contact**
   Volunteers, fishermen, residents or other personnel who directly contact the oil or sludge associated with the BP spill should be appropriately trained with personal protective gear and decontamination procedures since Louisiana crude is known to contain carcinogenic chemicals such as polynuclear aromatic hydrocarbons (PAHs). The primary PAHs of concern found in Louisiana crude include benzo(a)anthracene, chrysene, benzo(a)pyrene and others. PAHs are essentially non-volatile and remain within the oil and residual tar and are absorbed directly through the skin. Repeated contact without proper protection over an extended period poses a substantial health risk of skin cancer and other malignancies. Additionally, the PAH-contaminated oil and tar is readily transmitted from gloves, boots, tools and tracked in soil into the living quarters of residents posing a risk to children who may receive further exposure. Thus personal protective gear, training, and professional oversight is warranted.

2. **Direct inhalation of volatile hydrocarbons**

   Under certain atmospheric conditions, reports have documented adverse health effects in humans from the inhalation of the volatile fraction emanating from large-scale crude oil releases. The volatile hydrocarbon fraction of crude oil contains aromatic hydrocarbons such as toluene, xylenes and benzene at levels from 0.1% to greater than 1%. The potential for such health effects are highly dependent on release quantity and atmospheric conditions (wind, atmospheric inversion) and potentially includes upper respiratory irritation effects, neurological effects and risk to the developing fetus among pregnant females. This is primarily an issue for those living in close proximity to the shoreline and may include large-scale coastal city populations in the event of complete catastrophic failure/release. Emergency management must anticipate this remote possibility.

3. **Ozone hazard**

   In the event of sustained or catastrophic crude oil releases with specific meteorological conditions present, sufficient volatile hydrocarbons would be present to catalyze the generation of high ozone levels within urban areas such as New Orleans. Ozone is formed in the lower atmosphere regions from the interaction of hydrocarbons and nitrogen dioxide with sunlight. Nitrogen dioxide is already present in urban areas from auto exhaust and other combustion sources. Ozone levels in excess of 40 parts per billion in urban areas are associated with increased morbidity and mortality. Controlled burns would further exacerbate ozone formation.