

[ABS10]

Cartridge Change-Out Recommendations Specific to Conditions Relevant to Respiratory Protection
Equipment Used in the Response to the Deepwater Horizon Oil Incident

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Recommended respirator types for the Deepwater Horizon response include full and half facepieces with organic vapor / particulate type cartridges when near the damaged well, off shore, and when decontaminating wildlife. Potential hazards include oil mist, volatile organic compounds, crude oil and dispersants. Of concern are low levels of benzene and other aromatic contaminants. Cartridge service life is under-predicted at these conditions, leading to more frequent change out.

This study seeks to examine the deviation of service life calculation under such conditions. Both experimental method and simulation method are used to study service life of a standard air purifying combination cartridge. Corrections to the traditional service life models, as well as more accurate change out schedules for low concentration organic vapor and high humidity conditions, are suggested.