

Waste Treatment Plant Project

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# Tank Vapors: WTP Workers are Safe

ESH Industrial Hygiene

*November 2014*





## WTP Workers are Safe

- Past assessments have demonstrated that the tank farm vapors are not detectable at the WTP fence line
- Vapor Assessment Team used a conservative approach for estimating vapor travel distances
- The results of the report demonstrate tank farm vapor sources are too far away from WTP for any vapor detection

## Vapor Team Findings – Confirmations

- Full-shift (chronic) exposures from tank vapors are adequately documented at the tank farms and sampling results are credible
- Radiological emissions are not a concern because of HEPA filters on tank outlets



Retrieval in C Single-Shell tank farm



## Vapor Team Postulations Based on Computational Modeling

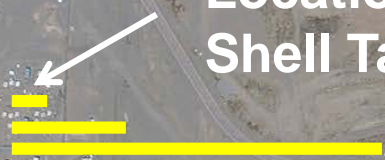
- Short-term, high-concentration chemical releases require improved monitoring and controls for tank farm workers
- When these postulated transient releases occur in single-shell tank farms, chemical vapors released from 4-foot-high breather pipes can produce a meandering, downwind plume a few feet wide that is capable of impacting unprotected tank farm workers as far as 300 feet from the source

## WTP is beyond vapor detection

Prevailing Winds



Location of Single Shell Tanks



100 ft.

300 ft.

1000 ft.

~600 ft.

1062 ft. between fence lines

Distance from Riser	% of Head Space Conc.	Example using 100 ppm of vapors in puff
3 ft.	97%	97 ppm
10 ft.	81%	81 ppm
100 ft.	4.2%	4.2 ppm
300 ft.	0.67%	0.67 ppm
1000 ft.	<0.0001*	<0.0001 ppm*

\*Data from Droppo report

## No WTP Impacts: WTP Workers are Safe

- The results of the report demonstrate tank farm vapor sources are too far away from WTP for any vapor detection
- There are no recommendations specific to WTP
- WTP will continue to track tank farm actions and update staff accordingly





## Department of Energy-Office of River Protection Assessment

*“The Savannah River National Laboratory independent report provides the Department and its tank farms contractor, Washington River Protection Solutions, with additional insight and recommendations on how to build on the steps that have already been taken to reduce vapor exposures in the tank farms.”*



## Washington River Protection Solutions Assessment

*“The report’s recommendations will serve as a road map to help WRPS make necessary enhancements in a number of areas [in the tank farms]. The development of novel strategies or new technologies may be necessary to deal with the unique nature of Hanford tank waste.”*





## WTP Workers are Safe

- WTP is committed to providing a safe work environment
- WTP Workers are safe: Distance and dilution mitigates risk
- We'll continue to provide accurate information
  - Hanford Tank Vapor Assessment Report
    - [http://srnl.doe.gov/documents/Hanford\\_TVAT\\_Report\\_2014-10-30-FINAL.pdf](http://srnl.doe.gov/documents/Hanford_TVAT_Report_2014-10-30-FINAL.pdf)
  - Prevailing wind data from the Hanford Site Environmental Report, Meteorology section 1.4, beginning on page 45
    - <http://msa.hanford.gov/page.cfm/EnvironmentalReports2001-latest>
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