

# Proposed Standard - Extractable Petroleum Hydrocarbons

Remediation Standards Stakeholder  
Meeting

November 12, 2014



“Our standards are very high. We even have high double standards.”

# Proposed Standard

- EPH- #2 Fuel Oil and Diesel (Category 1):
  - Residential : 5,100
  - Non-Residential 75,000 (+/-)
- EPH- Other ie. #4, #6, used, (Category 2)
  - Residential: N/A
  - Non-Residential N/A

# Non-Residential EPH Revisited

- Re-evaluation of the non-residential EPH for Category 1 fuels yielded a proposed standard (in the range of) 38% greater than the current value.
- Proposed remediation standard for RDCSCC EPH remains unchanged from current guidance.
- What changed?

# Does proposed standard eliminate reliance (enforcement) on guidance?

**1950 Apartments: #4 Oil,  
EPH Standard = N/A**



**1970 Apartments: #2 Oil,  
EPH Standard = 5,100**



# Residual product/ Free product VALUE\*,

**Category 2- 17,000**



**Category 1- 8,000**



\* Note: This is neither a screening level nor a standard

# Proposed Standard, Non-Residential



**75,000**

# Effective Standard



**8,000**



# Really?



# Concerns

- Are we to be regulated by standards or by guidance?
- How does establishment of an EPH Standard answer this?
- Do we remediate to standards or to screening levels?
- Do we regulate on fuel or on property use?
- Do we import screening levels into guidance and then enforce upon them?
- Can we cite a study, which by design sought to identify the 'most conservative screening level and use that study to support enforcement?
- What is the role of professional judgment when remediating EPH?

# EPH as a Screening Level

- Department states an EPH standard for inhalation and for MtGW are not proposed and will continue to require analysis for contaminants of concern.
- Accordingly- EPH is a screening level for these pathways

# Does EPH Standard Change Anything?

- The existing EPH Guidance will continue to be in force
  - For residential sites with historical use of heavier fuels
  - For all non-residential sites
- The existing EPH Guidance will remain a significant ‘driver’ in remediation.
  - Department will rely on protocol’s use of a defined EPH concentration as constituting the presence of ‘free or residual’ product

# Proposed Standard and Existing Protocol Must be Considered Jointly

- Brost and DuVaul
  - **Conservative screening concentrations** for non-aqueous phase liquids (NAPL) that could be considered immobile in unsaturated zone soils are presented.
  - ...immobile NAPL reported in the literature vary considerably with soil type...
  - proposed screening levels are conservative, (lower range) estimates within the range of measured residual LNAP
  - Higher values could be applicable in many cases, both in unsaturated and saturated soil conditions.

- Volume of NAPL depletes as immobile residual chemical is left behind through the soil column in which the NAPL is descending.
  - NAPL migration may be limited by this depletion, or
  - by physical barriers such as low permeability layers.
- Our interest is to determine **conservative** NAPL concentrations in unsaturated soil...
- By conservative, we mean **under-predicting** the concentration at which mobility will occur.

- EPH Protocol
  - “Brost and DeVaul recommend a residual saturation concentration of 8,000 mg/kg for medium sand soil and middle distillates (i.e., diesel and No. 2 fuel oil).” However-
  - The compiled data from Brost and DeVaul indicate that residual saturation concentrations for "middle distillates" (i.e., No. 2 fuel oil and diesel) ranged from 2,300-23,000 mg/kg as soil texture ranged from coarse gravel to silt (data from Fussell et al.).
  - Sand was selected by the NJDEP as a reasonably conservative soil texture for determination of a default upper limit concentration for No. 2 fuel oil and diesel based on the residual saturation point. The results of Fussell et al. indicate that the residual saturation point for "medium sand" ranged from of 8,000-13,000 mg/kg.

# LSRP World and EPH

- 7:26 E2.1-14. Determine if either free product or residual product is present in any environmental media using direct observation, enhanced field observation methods, field instrumentation measurements, or laboratory analytical data;
- EPH Protocol states: The final task in the protocol is to evaluate the calculated human health based value against the residual product/free product value.
  - The user shall be aware that **deviations from this protocol require Department approval.**
- Consider VI, which allows the use of different soil characteristics to derive screening levels.



- The Department will consider technical impracticability as a basis for not completing the remediation pursuant to this protocol.

