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Sent: Tuesday, May 14, 2013 12:46 PM
To: Callahan, Elizabeth.J (DEP)
Cc: Wendy Rundle
Subject: Comments on Proposed Changes to MCP

Hi Liz,

I have decided to provide detailed comments only on the NAPL and Source section.

It should not be assumed that I agree with all the other changes.....

Here they are:

May 14, 2013

Comments on NAPL and Source Changes

From Wesley E Stimpson

40.0006

Nonaqueous Phase Liquid (NAPL) –

The proposed definition has problems because of the way the term NAPL is used in the regulations. As detailed in the LSPA LNAPL White Paper, Part I and in information prepared by Paul Locke (www.mass.gov/dep/cleanup/csatsat1208.pdf,) and Brost and DeVaul (www.api.org/ehs/groundwater/upload/09_bull.pdf), the definition will require that soil contaminated with oil or solvents at concentrations less than 1000 mg/kg be evaluated under proposed 40.0483(1)(e)5., 40.0835(4)(f) and 40.0924(2)(b)3.d, for example. This is because a separate phase liquid must be assumed to exist when the concentration of the material in soil exceeds the Soil Saturation Concentration (Csat). These concentrations presented by Locke and the LSPA indicate values of 912 mg/kg for benzene, 819 mg/kg for TCE, 366 mg/kg for PCE, 106 mg/kg for gasoline and 18 mg/kg for diesel fuel.

It is assumed that the Department does not intend to regulate OHM at these concentrations as NAPL.

The options available are to come up with a different definition that does not define NAPL as occurring in concentrations as low as C_{sat} or to simplify the definition and clarify the NAPL conditions that warrant addressing in the regulations.

For my comments, I have assumed that the definition will be simplified and the NAPL conditions requiring separate response clarified.

To simplify the definition, second sentence should be deleted.

The definition of Soil Saturation Concentration may need to be added. Per Locke that would be:

“the contaminant concentration in soil at which the absorptive limits of the soil particles, the solubility limits of the soil pore water, and saturation of soil pore air have been reached”

Non-Stable NAPL –

Consider moving proposed LCSM evaluation principles in 40.0995(5)(c)3. to supplement this definition. A suggested rewording would be:

“Non-Stable NAPL means a NAPL that is: (a) migrating along or within a preferred flow path; (b) discharging or periodically discharging to a subsurface structure, utility or surface water body; or (c) spreading or expanding laterally or vertically as a bulk fluid through or from subsurface strata. In the case of the last criteria, for LNAPL, analysis using current LCSM principles which may include, but are not limited to, fluid specific LNAPL Transmissivity evaluations, Residual Saturation comparisons, and decline-curve analyses are encouraged.;

Transmissivity and T_n –

this needs work. While there does not appear to be a universal definition of Transmissivity, as used in the evaluation of LNAP stability, most definitions are not rate based and do not include and integration of hydraulic conductivity. It is suggested that this term be redefined to be “LNAPL Transmissivity” as this is the more common usage in LCSM publications.

ASTM states that LNAPL transmissivity is not an intrinsic aquifer property but rather a summary metric based on the aquifer properties, LNAPL physical properties, and the magnitude of LNAPL saturation over a given interval of aquifer. It goes on to define LNAPL transmissivity as representing the volume of LNAPL (L³) through a unit width (L) of aquifer per unit time (t) per unit drawdown (L) with units of (L²/T). API and ITRC don't appear to have a definition and use it more as an indicator of hydraulic recovery evaluated by field testing. More research as to how to best describe this approach is needed.

Source of OHM Contamination –

remove “,” after the word media so that it isn't the point of discharge that is migrating. Also add “or have a component or a by-product that is likely to migrate” after “likely to migrate”. This will pick up degradation products and components of petroleum products.

The first sentence would then read ” Source of OHM Contamination means a point of discharge of OHM into environmental media and/or OHM that is migrating within environmental media or is likely to migrate, or have a component or a by-product that is likely to migrate, in a dissolved or vapor state or as a separate phase liquid.”

In recognition of the issues associated with the definition of NAPL, Item 5 should be changed to “Non-stable Nonaqueous Phase Liquids.” The stable NAPLs are addressed under Item 3 “contaminated fill, soil and sediment”.

This change shows the importance of recognizing the issues associated with the definition of Nonaqueous Phase Liquid

40.0313(1) – the goal of this change was to avoid the need to re-notify on a site that already had an RTN for oil contamination when oil was found in a well. Making this a 72 hour notice for a smaller thickness of oil doesn't do it. The term “subsurface depression” is confusing and undefined and, if it is a geologic depression that exists in the sub-strata, the thickness can't be measured without an excavation or well. Therefore this term should be removed. It is recommended that this notification condition be changed to 120 days. There will be very few instances where NAPL in a well warrants all of the regulatory compliance obligations that a 72 hr notice triggers, and in those cases there are other MCP triggers that will generate immediate responses.

40.0483(1)(e)5. – another instance where the proposed definition of NAPL does not work. Consider changing “NAPL” to “potentially Non-stable NAPL”. Both Non-stable and Stable NAPL will be addressed as soil contamination too.

How does one determine “thickness” with proposed definition?

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40.0483(1)(f)1.d. – add the words “and subsurface void spaces” after “utility lines”

40.0835(4)(e) – add the words “and subsurface void spaces” after “utility lines”. Is LNAPL different from soil as used in this context? Are you concerned about the movement of bulk LNAPL along preferential migration pathways? Maybe you should say “or LNAPL moving along preferential migration pathways”.

40.0835(4)(f) – Is “source(s)” intended to be “Sources of OHNM Contamination”? If so, you don’t need to list NAPL separately. If it isn’t, then you need to define this “source” and it is another instance where the proposed definition of NAPL does not work. Change “NAPL” to “potentially Non-stable NAPL”. You are mostly concerned with those portions of the disposal site with elevated levels of NAPL in soil.

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40.0835(4)(i) – remove the words “a thorough discussion of the”. The CSM needs to be presented first and then it can be supported by additional discussion as the remaining words imply.

40.0924(2)(b)3.d. - another instance where the proposed definition of NAPL does not work without changes to 40.1003.

40.0956(2) – While not a proposed change, it appears that a condition of No Substantial Hazard to the Environment cannot exist unless “steps have been taken to eliminate or mitigate....”. Is this what the Department intends? That means that a condition of No Substantial Hazard to the Environment cannot exist if steps are not needed to meet the listed criteria?

Note to Reviewers on page 168 – Stable NAPL is Stable NAPL. There should be no requirement to undertake remedial and/or recovery methods to reduce the volume to the extent feasible if it can be demonstrated through current NAPL scientific methods that Stable NAPL exists. This requirement is in effect cleanup for cleanup sake which is not required for other contaminants.

In response to the second paragraph, it is recommended that the definition be clarified as discussed previously. If the final definition reads something like this:

Source of OHM Contamination means a point of discharge of OHM into environmental media and/or OHM that is migrating within environmental media or is likely to migrate, or have a component or a by-product that is likely to migrate, in a dissolved or vapor state or as a separate phase liquid. Sources of OHM Contamination may include, without limitation:

1. leaking storage tanks, vessels, drums and other containers;
2. dry wells or wastewater disposal systems that are not in compliance with regulations governing discharges from those systems;
3. contaminated fill, soil and sediment;
4. sludges and waste deposits; and
5. Non-stable Nonaqueous Phase Liquids.

and the changes suggested below are made, then there should not be a presumption that all sources are uncontrolled.

40.1003(5)(c)3. – delete this requirement. It is not necessary to attempt to remove LNAPL to show an absence of Non-Stable NAPL. In the case of LNAPL, two of the principles listed do not require response actions to demonstrate. In addition, LCSM principles are inherent in demonstrating absence of Non-stable LNAPL and therefore the requirement is not needed if the requirement in 40.1002(5)(c)2. is met and there is an absence of Non-Stable NAPL. The suggested tools are better utilized in the definition of Non-Stable NAPL. See suggestions in comments in 40.0006.

40.1003(5)(c)4. – The use of 1 percent is too restrictive. After completing site characterization studies with data sufficient to file a Permanent Solution, the possible presence of a source that will result in expanding OHM plumes should be known without resorting to a rule of thumb that is set sufficient low to cast a broad net for investigation purposes. The requirement of 40.1003(5)(c)5. eliminates the need for this requirement and therefore it should be deleted. If the

Department feels it is necessary to have an arbitrary number then add “in groundwater at” after “constituent concentration” to indicate the concentration is in groundwater and significantly increase the arbitrary amount of the required percentage.

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40.1003(5)(c)5. – add the word “the” at start of sentence

40.1003(5)(d) – this should be clarified to say “the feasibility of eliminating a Source of OHM Contamination for a Permanent and Temporary Solution and of controlling a Source of OHM Contamination for a Temporary Solution shall be evaluated in accordance with the criteria in 310 CMR 40.0860.” As currently written it could be read to say that you do not need to control a Source of OHM Contamination for a Permanent Solution if it is not feasible to do so.

40.1012(2)(d) – add the words “at a depth less than 15 feet below ground surface” after “present” to be consistent with other MCP requirements for risk characterization.