

# **Notes from the February 9, 2012 Vapor Intrusion Discussion**

## **MassDEP – MCP Regulation Revisions**

### **Introduction**

MassDEP: This conversation focuses on potential regulation changes, not the recently issued guidance.

We Still want to hear input on the guidance – how it is working, etc... - and want to update it to reflect those comments and the upcoming MCP changes too.

Timeline discussion – draft of proposed MCP revisions by end of March – there may be a need for more meetings, but we should make the most of this one.

This is a good opportunity for DEP – we have a 20-year old program, and it is time for a fresh look at regulatory endpoints and how people get there... we need to *appropriately* update MCP... look at what the endpoints are and should be. It is good to step back and think of the MCP as it was intended to work in 1993 and how it functions today. The basic question is whether we should fit Vapor Intrusion into current structure or change the structure.

We have from 1993 several Response Action Outcome categories (RAOs): Class A (Permanent Solutions), Class B (No Response Required), and Class C (Temporary Solutions). Think of the difference between Classes A 1 through 4 – there are different categories for different circumstances. How does Vapor Intrusion fit in? Should VI get special treatment or does it fit nicely to the existing structure? Remedy Operation Status (ROS) was added in 1997 to accommodate groundwater treatment systems where you are working towards a Permanent Solution, but you are not there yet. How do you create something in the MCP that works for such a condition and gives a useful stopping place w/o using the actual RAO language? In 1998 ROS was codified by the legislature & given more importance, including liability protections. We need to look at the statutory mandates that exist, the definition of Permanent Solution, Remedy Operation Status, etc...

I mention all this because the theme today is whether Vapor Intrusion is something special needing a special approach or can be fit in to current structure.

### **TOPIC 1: Immediate Response Actions (IRAs) and Critical Exposure Pathways (CEPs)**

Comment: The regulations are confusing – VI guidance now addresses CEP and answers the major questions. It doesn't need further regulation changes.

Comment: I disagree – the MCP says “any concentration” constitutes a CEP – how do you get to the point where you can get out of it?

Comment: You can use the Threshold Values

MassDEP: Two questions – what the guidance says and what the regulations say.

Comment: CEP is appropriately addressed in regulation, and the guidance addresses it.

Comment: The regulations need clarification – you address a CEP with an IRA. When you complete the Phase 2, risk assessment & Phase 3, you can close the IRA and go to Phase 4 addressing VI as part of Phase 4. The regulations don't say that clearly – so it could be written better. The regulations also need to clarify that as part of an IRA you are trying to eliminate/mitigate the CEP, but when you close the IRA and are continuing to address the CEP condition in Phase 4, the endpoint is No Significant Risk, NOT elimination/mitigation. DEP needs to clarify this.

Comment: There are other staff interpretations that we've seen.

MassDEP: Is the guidance better/clearer on this?

Comment: The guidance does a good job saying what the regulatory provision intended to say.

Comment: The guidance needs to be clearer that you're going to a different endpoint- the performance standard is No Significant Risk.

Comment: Does everyone agree on the final performance standard?

MassDEP: The final endpoint still includes the background feasibility requirement, not just No Significant Risk.

Comment: That's different from saying you still have to mitigate the CEP to the extent feasible. Does everyone agree?

Comment: I'm saying, when you close the IRA, the CEP goes away (it is a function of IRA) and you are left with the normal performance standards of No Significant Risk, not zero concentration or Threshold Values.

MassDEP: Anything else?

Comment: When are you closing your IRA?

Comment: At the end of Phase 3... you might have no Imminent Hazard but still have significant risk and still need to address it under Phase 4

Comment: You address the CEP as an IRA until you get to the end of Phase 3, submit the IRAC, wrap it into Phase 4 to address the significant risk. It isn't necessarily the only thing you're doing, but it becomes part of the Comprehensive Response Action (CRA).

MassDEP: Anything else on this topic?

Comment: Having two performance standards is fine, but if the only difference is the timing of phase 4... what's the point of having two?

Comment: It does make sense. Under the IRA you are taking actions to mitigate a condition that you may not completely understand – an unknown, potential risk. So you mitigate to extent feasible while you are learning about the site. By end of Phase 2 you know more, and it is appropriate to have different standards.

Comment: There's a comment in the guidance that does a good job of explaining this [cites and reads section].

Comment: All this makes sense, but sometimes you can assess risk based on IRA assessment activities... I've seen situation where you have enough data to competently assess risk – you don't need Phase 2/3 to feel comfortable to close out an IRA

Comment: That's OK building-by-building, but Phase 2/3 is a comprehensive for the site as a whole.

Comment: The problem with having rules change is that you are now waiting to get to Phase 4 – if you close before that with a RAM, you may not actually do a Phase 2. You aren't being sketchy (although you could be) but you may just be fast!

## **ITEM 2: Source Elimination & Control**

MassDEP: We threw out some ideas on the agenda – shall we just jump in?

Comment: Could source control be established through an operating permit? Could that be a demonstration of sufficient control? Other programs have similar ways of controlling systems...

MassDEP: Think about it procedurally. You can do it on a case-by-case basis, or with a general permit, rather than standards.

MassDEP: If you have closure with an operating sub-slab system, it would remove the driving force to control the source enough to prevent future risk... you may not be getting at the same issue.

Comment: It's not trying to get at the same issue.

Comment: I thought the question was whether you've done enough to address the source of contamination (the overt release & source) and now you're looking at the plume – you see steady state or decreasing concentrations in the plume – it is stable or shrinking, etc. DEP shouldn't be dictating specific measures or be too prescriptive. If you have an increasing plume you haven't done enough nature and extent to close the site anyway. If you're left with an exposure prevention system, that's different than controlling source – it is pathway elimination not remediation.

Comment: The proposal to use NAPL at 1% is too stringent – you should use the EPA range of 1-10%.

MassDEP: I hear you that you don't think we need to better define what "eliminate or control" a source is .

Comment: I'm concerned about DEP being too descriptive about what eliminate or control a source is.  
Once the LSP shows the source is gone and controlled, that is enough.

Comment: An expanding plume means there is no controlled source.

MassDEP: I'm not so sure that the current definition rules out expanding plumes [being consistent with a uncontrolled source].

MassDEP: How about decreasing concentrations within the plume?

Comment: Allowing an SSDS as part of a Permanent Solution is no different from having an AUL or pavement to prevent exposure. I understand DEP's discomfort with sites closed with a potential source to indoor air, etc... I also see a desire to regulate to the lowest denominator – we don't need such detailed regulations to address this.

Comment: I've seen sites with rules applied to shallow groundwater and conditions are different in deep groundwater. You can't apply rules across the board. You need flexibility to address specific conditions. The situations aren't the same.

MassDEP: The definition of source should vary based on the potential for exposure?

Comment: No, the VI rules can vary based on specific conditions. A Class C RAO needs to address sources as well, it may vary.

Comment: The issue is not whether there's NAPL but whether the sources is controlled. You can have NAPL and have a stable plume. The guidance makes a distinction between "source" and "Source" – "Source" being the MCP defined source that is the origin of the release. That's what we are talking about now. The "small-s-source" is the contaminated groundwater that may lead to contaminated indoor air. That's different, and that's not what needs to be controlled.

Comment: I disagree – the MCP calls out sources that result in inter-media transfer.

Comment: That's a problem – simply moving from one media to another doesn't make it a Source.

Comment: I disagree – it may be a Source, but it is a controlled Source.

Comment: Big-S-Source is what's in the ground resulting in an expanding plume. That's what needs to be controlled. You may continue to have indoor air contamination that needs to be controlled, not a Source. Source control is different from pathway mitigation in the MCP.

Comment: You could never close a site if intermedia transfer is a "Source" to indoor air.

Comment: Even so, if the indoor air concentrations aren't increasing, then you've controlled the source.

Comment: If you expand the definition of Source to include contaminated groundwater, then that drives groundwater remediation at every site – it will control actions at every site.

Comment: That's why you don't want to define Sources in the MCP.

Comment: But it is already in the MCP.

MassDEP: Does the VI guidance clarify this?

Comment: The guidance does address this question and says groundwater can be a source if it causes increasing concentrations in indoor air. The question is if this is correct. To turn that into a regulation change, we'd like that even less. Clearly that's the DEP position. You should be looking at source as the historical source, not the fourth generation effect – the entire site would become the “source”.

MassDEP: The “original source” is the goal and focus of our guidance. We also can't ignore our practical experience and what we see – it's not the lowest common denominator – we have to look at what the effect of a change would be.

Comment: I agree with DEP's interpretation that if a groundwater plume results in increasing concentrations then there is an uncontrolled source present.

Comment: We have these sites where there may be signs of DNAPL, but there may be 30 feet of clean groundwater between the “source” and the exposure.

Comment: Maybe it already is controlled if there's no migration or movement.

Comment: Even if it seems to be continuing to contaminate groundwater at 35 feet, it has nothing to do with risk or exposure.

Comment: But if the source is uncontrolled, it is only resulting in groundwater at increasing levels... the groundwater itself is not a source.

Comment: If the groundwater is migrating towards a building and the soil vapor is increasing in concentration...

Comment: DEP is saying in guidance is that increasing concentrations can make groundwater a source requiring mitigation/elimination. Does that mean you have to completely cleanup up the plume?

Comment: No just control it.

Comment: Groundwater contaminated with VOCs can be considered a source to indoor air. I think that is inconsistent with the MCP – the word “groundwater” is not in the MCP definition of source.

Comment: The list in the regulation says “may” include.

Comment: The list represent the origin of the release, not the first generation of contamination – or second.

MassDEP: It has been helpful to get back to the original question on how to clarify “elimination and control of sources”. How about measurement question for clarity? I’ve heard resistance to DEP coming up with standard for this because LSPs want latitude to figure it out.

Comment: Is the concern that there’s something left behind at a closed site that will expose new receptors and lead to expanding plumes? Do you want a demonstration that you’ve looked and are confident the plume is stable?

Comment: I think it is reasonable to expand the regulations to say there are several criteria, and that “steady state” and “not an expanding plume” is ok.

Comment: It says what you can have... not what you can’t.

MassDEP: It does go on to say the leading edge of a plume is not a continuing source.

Comment: If that’s’ the way you [MassDEP] are interpreting it, then that’s a problem. If you can have a plume of 5 ppb moving down the street, that’s a problem.

MassDEP: Maybe the language in extent of contamination can be made clearer even if it is the MCP – but as a nontechnical person, the “not increasing” language is broad.

Comment: How about the Monitored Natural Attenuation (MNA) criteria?

MassDEP: How about the criteria for the shrinking plume performance standard in the petroleum-in-GW1-area regulations.

Comment: Nobody here is interpreting the language as allowing a moving plume at a constant concentration. If that’s the way DEP looks at it, then you do need to change the regulations.

Comment: NAPL moving into uncontaminated soil is a problem and a Source. This will come up again at the NAPL conversation. If you make a change, you have to look at all the media and it will become pretty complicated pretty quickly.

## CLOSURE

MassDEP: Closure and future use – there are many questions ...

- What are the factual circumstances? When is it difficult & what does it mean?
- Fact based – what are the different systems people are using and what does it practically mean for folks in making choices about closure? The difference between active & passive for instance.

Comment: Here’s an example site: an old dry cleaner with concentrations going down. Kindercare establishes a daycare, and they put in a control fan. There is no indoor air problem, no vapors sub-slab, but now they can’t turn off the system. How do we close the site? With an AUL that

says operate the fan forever? How do you demonstrate that you CAN turn it off when there are kids in there all the time?

Comment: You're not really concerned about turning it off, just turning it off and then sampling to prove it isn't needed.

Comment: You can turn it off, sample, get your RAO and then turn it back on and run it forever... do it [sampling] on the weekend or during vacation There's not a regulatory barrier here, just perception and risk communication. That's an easy one.

Comment: Future buildings are very problematic. If it is commercial now, or nothing there right now, you could collect good lines of evidence to adequately characterize risk without an AUL...

Comment: Ironically it is easier to close out residential VI sites than commercial.

MassDEP: AULs aren't useful?

Comment: Not if it means limiting the use of a property to a parking lot. The concern is that just because you have concentrations greater than GW2 you need an AUL... and AUL is a big deal. To put it on prophylactically is something none wants to do...

Comment: It is guilty until proven innocent and you don't give us the tools to show there's not a problem. Let us have tools beyond an AUL saying you can't build. Allow us an out by demonstration... or some RAO-VI so that it triggers a future demonstration.

MassDEP: A lot of AULs for soil seem to be prophylactic – what makes this different? It sounds like a VI AUL is no different.

Comment: With soil, LSPs can quantify the risk – with VI you can't evaluate the risk - you won't let us.

Comment: I agree. Although some people DO just throw on the AULs without evaluating the risk from soil.

Comment: The difference with VI is that the building is such a big factor.

Comment: But what if there is a building there? With indoor air levels? Why can't I show it won't pose a risk?

Comment: It seems too restrictive to require an AUL whenever you are over GW2 concentrations.

Comment: It would be providing sufficient notice with an RAO-VI.

MassDEP: We deal a lot with commercial properties where an RAO-VI may be OK, but a residential development with only an MCP label may not work. There's a better chance if there's an AUL on the deed... although not perfect.

MassDEP: The AUL discussion group covered some possible improvement – if AULs are easier/better would that be OK?

Comment: NO. There are transaction costs and stigma – an RAO VI would allow someone to mitigate/control the pathway without the property being stigmatized.

Comment: When you raise concern about small residential developers – they need financing – the banks require the 21E assessment – they will see the RAO VI, just as if there were a deed restriction.

Comment: Yes, DEP is concerned about cases where that doesn't happen, but it is rare.

Comment: Maybe you WANT us to prophylactically evaluate this future use so that we know if it will be a problem.

Comment: It doesn't seem to work well with a residential building, but commercial should be ok.

Comment: What if owner of the site refuses to sign the AUL? Do you end up with a Temporary Solution forever?

MassDEP: Is there anything we can do about that?

Comment: RAO-VI ?

Comment: Wouldn't an RAO-VI have the same problem if the owner doesn't want it?

Comment: Town officials get notice with an AUL, but an RAO-VI may not have the same notice requirements and thus not the same oversight. With an AUL you also get the transferability.

Comment: I disagree – if there's an RAO they have to stay consistent with the RAO or it's a violation of the MCP.

Comment: Yes. If there's no building and someone puts one there without checking for Vapor Intrusion, then that's a problem.

Comment: Many people don't look at the details of the RAO – RAOVI is fine if you are a practicing LSP – an AUL makes clear what the obligations are. If the regulation or RAO states clearly what the obligations are, then it would work.

Comment: What we practice is a state of the art and a lay person may or may not understand it.

MassDEP: The RAO-VI issues are critical. If we create a new RAO category, it would have to be clear to people what it is they are getting – future owners, the town, etc... people need to understand it when they look at it.

Comment: There are two roles for an RAO-VI – to address an operating (active) SSD system and then the vacant land. You could have two classes: RAO-VI-1 for active system, RAO-VI-2 for undeveloped

land... or maybe one for commercial property. There's a difference between active systems and undeveloped property.

Comment: Or a combination of the two.

MassDEP: These are very different scenarios with different end points.

Comment: Also, if we entertain something like this for active systems, it is appropriate for some to stay in ROS – those that require off-gas treatment – that's a different universe needing status reports, etc.

MassDEP: What is the sense of the numbers in these different categories – passive systems & different types of active systems?

Comment: There aren't that many with off-gas treatment systems.

Comment: Some people put off-gas treatment systems on as precautionary when they really don't need them.

Comment: And if you really need them it is pretty bad.

Comment: If the object is to remove mass it is more of a treatment system rather than a mitigation system. 100 lbs a year is A LOT and isn't an RAO situation.

MassDEP: We will look carefully at statutory mandates in 21E. ROS is defined as "active" and Permanent Solution isn't – what that means for us – we have to work within the language of the law.

Comment: Statutes can be changed

MassDEP: Not in this time frame – that's not our task today. We gave ideas for kinds of O&M and reporting requirements regardless of whether you are in RAO or ROS to allow people to operate systems without us worrying about if they are doing a good job and make it clear. BIG picture: how much should DEP create a list of what is part of the remedy/O&M and how much should be identified by the LSP?

Comment: All of these aren't really LSP issues. They look a lot like Air or Water Pollution Control permits. Rather than writing it in to the MCP, they are like permit terms and conditions – maintenance issues – that's all done through the permit – that is the way permits work. A permit eliminates the need for an AUL or RAO-VI – DEP has a lot of experience implementing permits – permits allow DEP to look at special cases – general permits or individual permits with site-specific requirements.

Comment: Would the permits have reports/renewals on a regular basis? Models in air and water – low thresholds maybe not – you just certify & go – keep records but not report. As you have worse conditions you can have more reporting requirements.

Comment: Aren't you getting away from the privatized program? DEP would issue permits and provide oversight.

Comment: DEP wants to know about these things, with property transfers, etc... We're filing Remedial Monitoring Reports (RMRs) now.

MassDEP: We could put these in – we think these could work (permit requirements).

MassDEP: I'm intrigued.

Comment: If there is an RAO-VI category, how does this differ from an AUL?

Comment: A permit is different from an AUL – less cumbersome and it insures continuity.

MassDEP: If there are sites with off-property impacts and multiple SSD systems – how would this work with all of them? The O&M? What's the right way to do it?

Comment: If you have the original PRP who put in the system, it doesn't make sense to delegate to subsequent individual owners.

Comment: What about transferability? When properties are sold... several future owners down the line... how do people know what the obligations are?

Comment: Think about an area where everyone is on private wells and you put carbon treatment systems on several houses...

Comment: NOT ANALOGOUS – that's not a permanent solution.

MassDEP: good point –

Comment: How do you manage the systems, though – even as an imperfect analogy.

MassDEP: Yes the carbon systems need to be checked.

Comment: In our experience, the PRP would address them.

Comment: Why would anyone else take on that role if the PRP is there?

Comment: I have an example from a site outside Massachusetts – individual homeowners wanted to have control over it (there may have been financial consideration). Maybe people wanted closure – there are a lot of reasons to keep it flexible but you could have several options/outcomes.

Comment: Homeowners may like an alternative to an AUL. They view AULs as death (for home sales).

MassDEP: Since AULs runs with land, that would be the homeowner's obligation. With a permit you could designate someone else other than the homeowners, with transfer provisions.

Comment: It may not be the only option, but ANOTHER option.

MassDEP: How about remote sensing technologies? Easy monitoring with reduced reporting burden.

Comment: We have lots of experience with it. It's not cheap but very effective. If the electricity goes off, you get notified and can respond in hours or days. They work and can be programmed to notify people in sequence, etc.

Comment: Also in Rhode Island at on-site wastewater treatment systems, they allow advanced systems that notify the consultant and RIDEM.

Comment: We've had positive experience, but someone needs to pay attention when system goes down.

MassDEP: The price?

Comment: We can get back to you.... \$1000 ... capital costs... how about phone bill overtime?

MassDEP: Can the systems also transfer you data automatically? Concentrations?

Comment: It depends – with internet access, you can get that if you want. For \$1000 you can get power and pressure switches. If you want to control the system remotely, that costs more.

Comment: It can be site-specific – we may not need as many boxes checked – it may work on a site-specific basis and not required across-the-board reporting.

MassDEP: We're not likely to require them, but want to explore their usefulness as an option.

MassDEP: Anything else we should be working on? Asking about? On your mind?

Comment: When you have concentrations above GW2 – can you get out for future uses? How about if you're below GW2 but you know there are problematic soil gas concentrations for future conditions?

Comment: You could easily have concentrations less than GW2 levels that exceed Threshold Values - stop sampling soil gas...

Comment: You're saying you shouldn't look?

Comment: You may have a possible soil source, not groundwater.

Comment: If you model from the GW2 concentrations, they end up being above TVs – or a multiple of TVs.

MassDEP: That's a subset of cases...

Comment: No, it is every case, but it is OK cause that's what the rule says...

MassDEP: Do we have all the info we need?

Comment: One last thing... RAO-VI... are there current tools... last piece ... VI sites in the marketplace are already different with more time & money spent on them - BUT those sites are STUCK and not being redeveloped – there are incentives not to put in SSDS. I would highlight the need for an RAOVI that isn't burdensome enough to keep these sites stuck. DEP gave an example of the developer not needing financing, but MOST of them would work well with the RAOVI.

Comment: You could argue that sites with AULs also have same non-recognition issue. Could you require RAO-VI sites also notice the board of health, etc... to increase scrutiny?

MassDEP: You have to wonder whether the people looking at AULs actually understand them. Are they effective in protecting public health?

Comment: RAOVI works if that's the only issue at the site... if you have lead, PCBs, etc, and you'll need an AUL anyway... do you do both?

Comment: RAO VI would avoid an AUL – if you are using an AUL anyway [for other chemicals/exposures], you wouldn't need the RAOVI.

Comment: RAO-VI would be useful for residential properties affected by drycleaner plumes, so there is probably a sizeable universe.

Comment: Insurance companies don't cover VI issues, but if groundwater is contaminated they may. They should take on the same responsibility for soil vapor as for groundwater .

MassDEP: I'm hearing no clamor for another meeting at this time. Please use the blog for commenting....