

Remedial Additives

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As LSPs know by now, a revised version of the Massachusetts Contingency Plan was released in April 2014, necessitating updates of our forms and some procedures. One area which we want to emphasize at this time is remedial additives and a very important *checkbox*. This is the checkbox to indicate that any proposed remedial additives will be used in a “sensitive area” relative to ecological or human health.

Remedial additives are those compounds added (usually) to groundwater in an attempt to create a localized reaction that will expedite breakdown of oil or hazardous contaminants into less toxic or non-toxic compounds. Depending on the contaminant, the additive, and the environment where this takes place, remedial additives may be an effective (and cost-effective) treatment. They may also be used as part of a Release Abatement Measure (RAM) after a thirty-day presumptive approval period.

Sounds great, right? Well, maybe... *IF* they aren't being used in an area where they may cause human or ecological damage, migrate to surface water or create another problem!

All forms regarding planned remediation must be filled out correctly and completely. Failure to check the box indicating that Remedial Additives are part of the plan is a statement to the Department that use of Remedial Additives is *not* planned. If the box is not checked, explicit approval (or disapproval) should not be expected, and likewise, one cannot assume that presumptive approval applies.

So, why would BWSC want to approve the use of Remedial Additives in some cases?

Well, our experience has shown that there can be problems when the reaction (or the additive) creates more toxic compounds, increases migration of the contaminants toward surface water, wetlands or drinking water, or releases vapors which may adversely affect the indoor air of occupied buildings. Yes, the use of Remedial Additives in some instances *may* have serious consequences.

Reviewing some recent cases in our files which ended up in higher level enforcement with substantial penalties, the following instructive examples were noted (leaving out the PRPs, LSPs and regions):

- First, at a manufacturing facility near a coastal area, a release of fuel oil occurred from an above ground storage tank. Proper notification was made. MassDEP gave oral approval to remove up to 20 cubic yards of impacted soil and place oil absorbent pads and booms on a nearby river. The written Immediate Response Action Plan came in, which included steps to monitor and replace pads and booms and to power wash and monitor the impacted area and remove any severely impacted soil. During a phone call with the PRP's consultant, MassDEP determined that *without prior notification or approval*, 500 gallons of a proprietary remedial additive had been applied to soil and rocks along the waterway during low tide in violation of the MCP (310 CMR 40.0046(3)). MassDEP subsequently issued an Administrative Consent Order with a Penalty of \$5,750, the majority of which was suspended unless additional violations occur.
- Next, a former dry cleaner, located in an urban area, was in Phase V when a Phase IV Modification Report was filed. MassDEP initiated an Audit in March of that year, and then conducted a field inspection in September. During the field inspection, MassDEP staff learned that an in-situ chemical oxidation pilot test had recently been completed, involving injection of 200 gallons of a Remedial Additive into 12 different monitoring wells on the site with 10, 20 or 30 gallons into the various wells. Unfortunately for the PRP, this pilot test had never been proposed in the Phase III or at any other time. Based on the facts of the case, MassDEP determined that the work done constituted a remedial action that differed significantly from the Remedy Implementation Plan previously submitted (310 CMR 40.0871(6)) and issued an Administrative Consent Order with Penalty of \$8,630, the larger portion of which was suspended unless additional violations occur.
- Finally, we had a case at a commercial shopping center with retail shops, a grocery store and a former dry cleaner (i.e., a typical Anytown, USA shopping center). At this site, where a historic release of perchloroethylene (PCE) had occurred, remedial additives were added to treat residual PCE in soil and groundwater. During an audit of the site, MassDEP discovered that the application of the remedial additive created both indoor air problems and a groundwater discharge through a storm water system to a nearby wetland. Despite knowledge of the discharge (based on sampling results), the condition was not reported. An Administrative Consent Order with a Penalty was issued, indicating a penalty exposure of \$24,430, a portion of which was suspended, pending full compliance. The PRP was required to make changes to the storm drain system and the remedial additive program, to increase operation of the existing sub-slab system and to conduct additional site assessment. Multiple violations were cited in this case:
 - Discharge of pollutants to surface waters of the Commonwealth (314 CMR 3.03(1));

- Failure to timely notify of a Condition of Substantial Release Migration within 72 hours after obtaining knowledge of same, based on receipt of the laboratory analytical reports of samples collected from a catch basin (310 CMR 40.0313(5));
- Application of Remedial Additives that exacerbated existing conditions (310 CMR 40.0046(1)(c));
- Failure to properly collect appropriate groundwater samples after the application of Remedial Additives as part of monitoring Remedial Additives and by-products and to monitor any migration of oil/hazardous material and/or Remedial Additives and/or their by-products (310 CMR 40.0046(4)(b)(c));
- Failure to properly achieve and maintain Remedy Operation Status by failing to properly monitor groundwater before and quarterly after each injection of remedial additives, failure to report indoor air quality as sampled every six months and failure to eliminate or control the migration of site contaminants (310 CMR (40.0893(2)(c)(d) and (i));
- Failure to sufficiently evaluate new data indicating potential migration pathways for groundwater and vapor intrusion when laboratory data indicated preferential pathways (310 CMR 40.0835(4)(e)(2) ad (3)); and,
- Failure to maintain protective well covers over all monitoring wells (310 CMR 40.0028).

There are situations where Remedial Additives can help clean up a site, but there are also situations where Remedial Additives can make things worse. Therefore, the MCP has necessary sampling requirements and limitations on where and when Remedial Additives may be used. And one of the limitations is that in certain ecologically sensitive areas or locations with potential human health risk, use of Remedial Additives requires approval from MassDEP.

For additional information on this topic, check the updated master list of MCP Q&A topics at: <http://www.mass.gov/eea/docs/dep/cleanup/laws/mastqa.pdf>

And finally, here is a helpful hint from one of our regional staff.

Helpful Hint – Remedial Additives Near Sensitive Receptors

By Stephanie Kelley, Environmental Analyst in MassDEP's Central Region, BWSC

Reminder! When applying Remedial Additives near a sensitive receptor, **written approval is required** from MassDEP in accordance with 310 CMR 40.0046(3).

CHECK THE BOX! For the application of Remedial Additives near a sensitive receptor there is now a box to check on the BWSC forms listed below. The checked box tells MassDEP that Remedial Additives are being proposed near a sensitive receptor (such as a public or private water supply well, a surface water used in a public water system, a surface water body etc.) and

that a time-critical review is warranted. It is important to remember to **check the box** on the appropriate form as indicated, below:

BWSC105, IRA Form – Section B, Item 10

BWSC106 – RAM Form - Section B, Item 9

BWSC108 – CRA Form – Section B, Item 24

As with all BWSC Forms, you are certifying that the information on the form is accurate and COMPLETE. **If the “Plan for the Application of Remedial Additives” box is NOT checked, the submittal will not be flagged as one requiring timely MassDEP review and approval, and the 30 day presumptive approval will not apply!** Failure to check off the box could potentially be exposing yourself and your client to enforcement actions.

If you have recently submitted a plan for Remedial Additives, and you aren't sure whether your site is in a sensitive area, you may re-submit the form with the “Plan for the Application of Remedial Additives” box checked. This will *start* the 30 day presumptive approval clock.

To reiterate, any plan that is submitted for the application of remedial additives and that requires MassDEP approval as part of the plan, must wait 30 days to implement *any* of the proposed response actions identified.