

The Intimate Stranger

by Lisa M Alexander

Oil. We live with it, we work with it, we regulate it and we clean it up, but what if we actually ran out? In a recent news story, the US military says we might, and soon. Meanwhile, we have thousands of gallons a day gushing uncontrollably into the Gulf of Mexico at the start of hurricane season. Does that even make sense?

Following some thoughts about oil, and some recent oil-related enforcement stories, this month's article includes a helpful hint about Remedial Additives, emphasizing when written approval is *absolutely* required along with other considerations when making decisions about this option.

OIL

We have all grown up in the Age of Oil. "Bitumen" has been oozing out of the ground since mastodons slipped into the La Brea Tar Pits and Sumerians used it to waterproof sailing vessels. But the business of drilling, refining and exploiting oil for all its truly amazing properties is barely a century old, sometime after Edwin Drake drilled a well in 1859 (<http://www.priweb.org/ed/pgws/history/pennsylvania/pennsylvania.html>). Many of the products derived from oil have only been around since World War II.

We think we know oil. It's old hat, ordinary, almost - boring. We have a love-hate relationship with oil, but we're immersed in it, dependent on it in so many invisible ways. We drive on it, fly with it, carry stuff in it and wear it. It's in everything from lipstick, nail polish, fragrance and skin creams to synthetic fabrics and cell phones. It's used to make solvents, detergents, shaving cream, credit cards, faucet washers, contact lenses, household appliances and the fertilizers and pesticides used by big agribusiness and backyard gardeners.

Oil is the substrate of modern life. It's found in refrigerants, telephones, carpets, roofing materials, movie film, CDs, DVDs and computer hardware. It's the basis of the plastic in all those nifty hand held gadgets that keep us connected to each other. It's made into artificial limbs, ballpoint pens, solvents, crayons, coffee pots, food preservatives, fast food packaging and the ever ubiquitous plastic bag. The US uses about 12 million gallons of oil to make about 100 billion plastic shopping bags, annually, <http://www.reusablebags.com/facts.php?id=4>. The bags are often thrown away within minutes of purchase, ending up in landfills for up to 1000 years, or clogging the intestines of marine animals as one of the last meals they'll ever eat. It's used in antiseptics, safety glass, water pipes, paint brushes and paint. We take it on vacation as surfboards, fishing boots, tackle boxes, boats, golf balls, i-Pods, insect repellent, sunscreen, sunglasses, ice buckets, coolers, candles and cameras. The list seems endless. And there are plenty of lists, including these two:

- <http://www.anwr.org/features/oiluses.htm>
- <http://www.ranken-energy.com/Products%20from%20Petroleum.htm>

We accept that we need oil for transportation, heat and power generation, and, and most of us are happy to “live with” the enemy, to accept a certain amount of risk for the myriad of benefits.

But what if it ran out?

Future of Oil

A headline in the UK Guardian, dated April 11, 2010 proclaims: “US Military warns oil output may dip causing massive shortages by 2015.” The subtitle said the cost of crude could reach \$100 per barrel, while the article says “peak oil” is now being “acknowledged” by industry and by the military, and is not just a fear tactic, nor an artificial high price created for quick profit by commodities traders. (The link to the complete article is: <http://www.guardian.co.uk/business/2010/apr/11/peak-oil-production-supply>.)

Would oil contamination in soil ever become a prospective selling feature, rather than a reason to discount a piece of real estate? Are we wasteful and sloppy with oil because it’s relatively cheap and abundant? Would we be more careful if it was a rare commodity? While a small minority of people argue that oil isn’t even a fossil fuel (try a search for “abiotic oil”), there are *dozens* of internet sites on oil heading for decline or suggesting we are already there. One of these sites, <http://www.oildecline.com/>, says,

“It is a coming crisis that few understand but with far reaching implications. Nations will fight over the remaining oil. Without hydrocarbons, this planet can only produce enough food to sustain a population of 2.5 billion. The current world population is in excess of 6 billion and growing... In the US, without industrial agriculture, it is estimated that only 2/3's of the current population can be fed ... Fossil fuels... [have artificially] raised the carrying capacity of the earth...”

On the positive side, their final analysis for those who prepare, might eventually be a return to a simpler, healthier, more rewarding life. Well, maybe it’s a good thing my yard is full of violets and dandelions, they’re quite edible.

Meanwhile, clean ups go on, the arguments ensue, the love-hate continues. But, if – or when – it’s no longer a part of every aspect of our daily lives, will we look back and say, “Oil, we hardly knew ye”?

Recent Oil Enforcement Stories

Sometimes the oil release stories sound more like Three Stooges than Three Mile Island. At 4 a.m., April 13th, a delivery driver in Hatfield backed a truck over a rock, rupturing a diesel fuel line and spilling 100 gallons of diesel into a parking lot. The company took some initial actions to try to contain the spill, but the oil ran from paved areas into storm drains. The company reported the release six hours after it first occurred. Two \$9,500

Consent Orders later (one for the trucking company, one for the grocer <http://www.mass.gov/dep/public/press/0610cans.htm>), the company arranged for completion of all response actions and agreed to institute a re-training program for applicable employees on the proper reporting and responses for releases of oil and hazardous materials. It was the second time the company had this type of violation and enforcement action.

Other times, there seems to be a certain amount of “well meaning” but a short-sighted understanding of what’s actually required. In late March or early April, a homeowner in Lancaster decided to have a half-buried 275-gallon fuel oil tank removed from her property, and apparently did so without using a licensed contractor. The residence sits 20 feet in elevation above a nearby pond. Not surprisingly, on April 2nd, the Lancaster Fire Department called MassDEP about oil seeping up from the ground on the shore behind the residence, migrating to pond, with separate phase product on the ground causing obvious stress to vegetation at the edge of the shoreline. An absorbent boom and pads were deployed to the shoreline and impacted grassy area by the Fire Department and MassDEP. The Immediate Response Action (IRA) started with installation of 100 feet of containment booms, management of the accumulated remediation waste, and installation of an interceptor trench for product recovery. (Four days into the release, the homeowner confirmed that her insurance company would provide coverage to address the release.) Assessment actions are expected to continue at the site. While the initial impulse to remove the tank was good, circumventing the appropriate removal process certainly didn’t save any time *or* money.

Accidents that never should happen with oil – happen. On Earth Day, April 22nd, a 12,000-gallon capacity diesel fuel tanker truck rolled over at the intersection of routes 8 and 9 in Dalton. MassDEP staff responded to the accident, which occurred when the truck was negotiating a turn. Upon impact, the tanker ruptured and the spill completely shut down this major roadway intersection. Diesel fuel was released to pavement and entered storm drains that discharged to a rip-rapped drainage swale. The release was largely uncontrolled due to the puncture. Emergency personnel from the Town of Dalton and the Massachusetts Department of Transportation responded by bringing large quantities of sand to build a berm to contain the release. The trucking company retained two contractors to provide vacuum tankers and manpower to collect the spilled oil. Collection efforts were hampered by a rainstorm that occurred shortly after cleanup began. Nevertheless, the contractors were able to recover over 9,000 gallons of diesel fuel within the first few hours, thereby preventing a release to the Housatonic River. MassDEP personnel returned to the site the next day to supervise continued cleanup of the storm drain system and some excavation of the drainage swale.

It pays that MassDEP and the US Coast Guard have substantial spent time coordinating and preparing for potential emergencies. On May 20th, 7:30 p.m., MassDEP got a call from the Fairhaven Harbormaster about a large oil sheen blowing in from the New Bedford side of the harbor. MassDEP responded, deploying absorbent booms and pads to an impacted beach in Fairhaven. The US Coast Guard also responded to the scene, ultimately engaging a contractor to perform cleanup. Within 24 hours, the oil was traced

to a fishing vessel where it was determined that the release had occurred as a result of improper fuel transfer procedures, resulting in the loss of 50 to 100 gallons of diesel through a vent line on the deck. The release impacted the harbor North of Route 6 from New Bedford to Fairhaven.

So we have adapted to living with oil, and through recycling, and lifestyle choices as simple as buying reusable grocery bags, we try to reduce the negative impacts on the personal level. Meanwhile, the uncontrolled gusher in the Gulf of Mexico at the start of the 2010 hurricane season appears to be the beginning of an ecological disaster that could reverberate for decades, an Oil Chernobyl. One article on the more immediate impacts to the various and complex coastal wetlands in the Gulf notes that some of these wetlands may recover fairly rapidly, but others will likely take years, if not decades, (<http://www.burkinc.com/May22.pdf>).

REMEDIAL ADDITIVES

The MCP defines Remedial Additives at 310 CMR 40.0006 as:

any aqueous, gaseous or solid phase agent that is designed to treat or enhance the treatment of, soil and/or groundwater. The term shall include oxidizing agents, encapsulants, sequestering agents, non-pathogenic microbes, enzymes, nutrients, surfactants and anti-fouling agents used to inhibit microbial growth in remedial treatment systems and monitoring wells.

Remedial Additive By-products are defined as “any physical, chemical, or biological reaction by-product that results from the application or discharge of Remedial Additives to soil and/or groundwater.”

[Note that the oil dispersal compound being used in the Gulf doesn't fall into this category because it is being used in open water. It is, however, controversial, may be more toxic than the oil itself (<http://www.emagazine.com/view/?5181>), and is, itself, a petroleum derived product.]

The MCP has a number of regulations pertaining to remedial additives, starting at 310 CMR 40.0040. During the recent Remediation Waste training put on by BWSC and Bureau of Waste Prevention, we stressed that there are situations where the regulations *require specific written* approval from MassDEP/BWSC for the application of remedial additives.

310 CMR 40.0046(3), Requirement for Application of Remedial Additives Near Water Supplies, says:

- Within 100 feet of any private water supply well;
- Within 800 feet of any public water supply well or well field;

- Within 800 feet of any surface water supply used in a public water system or any tributary thereto; or,
- Within 50 feet of any other surface water body or any tributary thereto

The application of Remedial Additives is expressly prohibited, *unless* approved in writing by the Department. Presumptive approval does not apply in any of these cases. If you make such a proposal (particularly via e-DEP) and do not receive approval in writing, make sure you contact us before proceeding.

There are several performance standards that apply in all cases where Remedial Additives are proposed. 310 CMR 40.0046(1) allows that remedial additives may only be applied if the Remedial Additives and any by-products:

- will not erode or otherwise impair the functioning of soils or subsurface soils;
- will not infiltrate underground utilities, building interiors or subsurface structures;
- will not result in groundwater mounding within 2 feet of the ground surface;
- will not result in flooding or breakout to the ground surface;
- will not result in concentrations of either the additive or remedial additive by-products in soil *or* groundwater that exceed Massachusetts Ground Water Quality Standards previously listed at 314 CMR 6.00 but now superseded by revised regulations at **314 CMR 5.00** (<http://www.mass.gov/dep/service/regulations/314cmr05.pdf>) 50 feet downgradient from the furthest downgradient point of application and will not exceed MCP soil *or* groundwater standards at any point measured 50 feet or more from the furthest downgradient point of application;
- will not exacerbate existing conditions or prevent or impair the performance of remedial actions at the disposal site; and
- is otherwise performed in compliance with the MCP.

And finally, 310 CMR 40.0046(2) cautions that any person performing Response Actions involving Remedial Additives may only apply the Remedial Additives without a permit only *if* the discharge is *also* exempt from any *other* permitting requirements described under **314 CMR 5.05**.