24th Florida Remediation Conference 2018 – Another Success!

The twenty-fourth annual Florida Remediation Conference (FRC) was presented on December 5th and 6th at the Rosen Centre Hotel by the National Technical Communications Company, Inc., the publisher of the Florida Specifier. Approximately 520 attendees, including staff from Broward County, were on hand to hear 55 speakers discuss the latest advances in existing and innovative remedial strategies and the current state of environmental regulation in a relaxed and casual atmosphere. Over 100 exhibitors including environmental laboratories, drilling firms, trade groups, and environmental consultants showcased their products and services.

During the two-day conference, speakers were generally grouped into the following themes: Per- and Polyfluoroalkyl Substances (PFAS), Aggressive In-Situ Technologies, Conceptual Site Model Development, Liquid Carbon Injection and Zero Valent Iron strategies, and In-Situ Bioremediation. The Young Professionals and the five-minute “speed talk” sessions covered a variety of topics including drone technology, electronic field data collection, and horizontal drilling. As a departure from prior years, the Annual Regulatory Session was performed remotely as Florida Department of Environmental Protection (FDEP) personnel were unable to travel to the conference. The attendees were able to hear program summary and farewell remarks from Austin Hofmeister, the outgoing Program Administrator for the FDEP Petroleum Restoration Program (PRP). The scheduled Panel included Mr. Hofmeister; Teresa Booeshaghi, Program Administrator in the Division of Waste Management; Brian Dougherty, PhD., Program Manager with the FDEP Office of District and Business Support; and Wilbur Mayorga, P.E., Miami-Dade County Chief of Environmental and Restoration Division. The current status of the PRP and other FDEP programs were reviewed and discussed.

The FRC also included a touching charity function, and this year the Golf Tournament, Charity Auction, and after lunch raffles benefitted the Pink Butterfly Charity, which assists families facing acute financial needs. More information regarding the 2018 FRC charity can be found at https://www.thepinkbutterfly.org/. This year over $30,000 was raised for the Pink Butterfly Foundation; for the nine (9) years of charity events conducted in connection with the FRC, the charity tournament and raffle has raised over $200,000. As Mike Eastman said, “This is a great reflection of the generosity of the soil and groundwater cleanup industry.”

For the past 24 years, the FRC has given consultants, laboratory, regulatory agencies, contractors, and suppliers the opportunity to introduce their knowledge, products and services as well as providing an opportunity for networking. To inquire about vendor opportunities or to make a presentation in the next year’s conference contact Mike Eastman at mreast@enviro-net.com. Additional information may be found at the Enviro-Net website which also provides information on Florida’s environmental issues and concerns: http://www.enviro-net.com.

This article was prepared by John Gomolka, P.G. Questions can be directed to at (954) 519-1279 or jgomolka@broward.org.
PFAS: Emerging Contaminants of Concern

Per- and polyfluoroalkyl substances (PFAS) are man-made, emerging contaminants of concern that have been identified to have potential adverse impacts to human health and the environment. PFAS are complex substances with different physical and chemical properties and encompass two major classes: Per- (PFAS with carbon chains that are totally fluorinated) and polyfluorinated chemicals (PFAS with at least one carbon chain atom that is not totally fluorinated). The Interstate Technology Regulatory Council (ITRC) has published PFAS Fact Sheets (https://pfas-1.itrcweb.org/fact-sheets/) summarizing the latest science and emerging technologies. Some of the issues presented in the PFAS Fact Sheets are brought to the forefront below.

PFAS are widely used (and have been for over 50 years) in industry and are found in common products such as textiles, paper products, and cookware, and are also used to formulate some firefighting foams which have applications in the aerospace, automotive, construction, electronics, and aviation industries. Potential sources, possible release mechanisms, and associated pathway-receptor relationships come into greater focus by understanding how they are manufactured and currently used. There are indications (https://www.epa.gov/pfas/basic-information-pfas) that in animals, PFAS can cause tumors as well as reproductive and developmental, liver and kidney, and immunological effects. In humans, the most consistent findings are increased cholesterol levels among exposed populations, with more limited findings related to infant birth weights, effects on the immune system, cancer, and/or thyroid hormone disruption.

The understanding of the environmental and health impacts associated with PFAS is constantly evolving. As such, site characterization tools, sampling techniques and analytical methods, as well as remedial technologies are constantly being developed/refined. Fate and transport of PFAS are complicated due to the variety of source materials, the number and diversity of PFAS, and the fact that they often exist as mixtures that can change over time. Due to the strength of the bonds between the fluorine and carbon atoms, some PFAS are difficult to remediate and are persistent in the environment.

Lifetime Health Advisories of 70 nanograms per liter (equivalent to parts per trillion) for perfluorooctanoate and for perfluorooctane sulfonate have been issued by the USEPA. USEPA has compiled an online resource for PFAS that includes topics such as policy and guidance, chemistry and behavior, occurrence, toxicology, site characterization, and remediation technologies (USEPA 2017h). The National Groundwater Association (NGWA) has also published a resource on PFAS that includes information about sampling and analytical methods (NGWA 2017).

Even though PFAS are widely used, they are not sufficiently understood or regulated and as such, potential exposure to PFAS exists and their potential impacts cannot be ignored.

Any questions regarding this article can be directed to Norman Arrazola, P.E. at (954) 519-1237 or narrazola@broward.org
PRP Lowers Funding Eligibility Score to 12

Effective October 23, 2018, the Petroleum Restoration Program (PRP) has lowered the priority score funding threshold from 20 to 12.

The priority score for a petroleum discharge is established in accordance with the criteria set forth in Chapter 62-771, F.A.C., Petroleum Contamination Site Priority Ranking Rule. This rule awards points based upon a site’s potential threat to human health, public welfare and the environment. These points are summed to determine the discharge’s priority score. The priority score is a number that represents the relative threat the discharge poses to potential receptors (the higher the score, the greater the potential threat). The most important criterion is the discharge’s location in relation to public and private drinking water wells. It is important to remember that the magnitude and extent of contamination has relatively little impact on the score, so that it is quite possible to have a large, highly contaminated site that has a low priority score. A low priority score indicates that there are no known receptors for that contamination nearby, so its relative threat is less than that of a site that may be less contaminated but is closer to receptors. A discharge’s score can be found on the discharge information screen of the Storage Tank and Contamination Monitoring Database (STCM) database. More information on site scoring can be found in Site Priority Scoring Guidance.

Scores are assigned to individual discharges at a facility. Discharge scores at the same facility typically vary by only a few points, but more dramatic differences are possible if there is a new discharge at a site with different risk characteristics or where the previous discharge had already been cleaned up (because completed discharges are not subject to re-scoring), or where there are large distances separating multiple storage systems under the same facility number. In all cases, a facility’s priority ranking is determined by the highest scored eligible discharge still awaiting cleanup. Detailed information concerning all aspects of the PRP’s scoring system can be found on their website, here: https://floridadep.gov/waste/petroleum-restoration/content/sop-4-site-priority-score-and-priority-score-order

Any questions regarding this article can be directed to Matt Theisen, P.G. at (954) 519-1279 or mtheisen@broward.org

Interim Source Removal Using Air Sparging in an Open Pit

A Fort Lauderdale facility successful utilized Air Sparging in an Open Pit (ASOP) for groundwater remediation as permitted by Interim Source Removal (IRR) Rule 62-780.525, F.A.C. Table 1 shows the levels of reduction in the contaminants of concern achieved after 6 weeks of operation. Table 2 shows the ASOP results after 4 weeks of operation at a Hollywood facility.

Table 1: Reduction of Contaminant Levels using ASOP at a Fort Lauderdale Facility

<table>
<thead>
<tr>
<th>Contaminant</th>
<th>Start of ASOP (ug/L)</th>
<th>After ASOP (ug/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,2,4-Trimethylbenzene</td>
<td>292</td>
<td>4.9 (GCTL 10)</td>
</tr>
<tr>
<td>1,3,5-Trimethylbenzene</td>
<td>296</td>
<td>2.8 (GCTL 10)</td>
</tr>
<tr>
<td>1,2,3-Trimethylbenzene</td>
<td>518</td>
<td>3.8 (GCTL 70)</td>
</tr>
<tr>
<td>Total Xylenes</td>
<td>106</td>
<td>1.5 (GCTL 20)</td>
</tr>
<tr>
<td>Isopropylbenzene (cumene)</td>
<td>36.9</td>
<td>0.5 (GCTL 0.8)</td>
</tr>
</tbody>
</table>

GCTL: Groundwater Cleanup Target Levels (GCTLs) listed in Table I of Chapter 62-777, F.A.C.
ASOP was permitted for IRR without prior approval of a formal Remedial Action Plan (RAP) since the criteria of subparagraphs 62-780.525(3)(a)2. - 4., F.A.C., (such as the groundwater contamination area not exceeding one-quarter (1/4) acre, or free products being present) were not applicable to the site. Also, the ASOP proposal included the same level of engineering details as a RAP. An underground injection control order was not required since the air sparge points did not penetrate the aquifer.

A typical ASOP shown in Figure 1 has no vapor extraction or treatment systems. A series of manifolded air sparge points are installed beneath the exposed impacted groundwater surface in an excavated open pit. A blower is connected to the manifold to create aeration to volatilize hydrocarbon contaminants. Fugitive air emissions from the ASOP are monitored to ensure the volatile compounds released do not exceed the occupational safety and health administration permissible exposure limits for workers health protection, or cause public odor complaints. In addition, limiting the emissions to 5 ppm benzene (Hazardous Air Pollutant), for example, and operating at 200 cubic feet per minute for 8 hours per day would result in 0.09 lbs benzene per day (Note. Rule 62-780.700 (4) (a), F.A.C. allows the removal of the air treatment system from an air sparge/vacuum extraction system if the air emissions do not exceed 5.5 lbs/day for any single Hazardous Air Pollutant).

The effectiveness of the ASOP depends on the Henry Law constants for the particular contaminant; contaminants with relatively low HCs have a stronger affinity to remain dissolved in the groundwater than volatilize into the air sparge stream. As shown in Table 2, the ASOP for a Hollywood facility was not as effective in treating Naphthalene (low Hc). Utilizing an ASOP early in the cleanup is effective in shrinking the contaminated groundwater plume and reducing contaminant migration (i.e., in stabilizing the plume).

Any questions regarding this article can be directed to Seree Jairam, P.E. at (954) 519-1467 or sjairam@broward.org.

---

**FY 2019 Brownfields Multipurpose, Assessment, and Cleanup Grant**

Environmental Protection Agency (EPA) has opened the application period for Multipurpose, Assessment, Revolving Loan Fund (RLF), and Cleanup (MARC) Grants. Grants offered by the Brownfields Program may be used to address sites contaminated by hazardous substances, pollutants, or contaminants (including hazardous substances co-mingled with petroleum) and petroleum. The proposal submission deadline is January 31, 2019. Opportunities for funding are as follows:

- **Multipurpose Grants** – each proposal is funded up to $800,000 over five years. EPA anticipates selecting 10 proposals.
FY 2019 Multipurpose Grant Guidelines

- **Assessment Grants** – Community-wide and Site-specific proposals are each funded up to $200,000 over three years; Assessment Coalition proposals are funded up to $600,000 over three years. EPA anticipates selecting 114 proposals.

NEW Current EPA Brownfields Assessment Grant recipients must demonstrate that payment has been received from EPA (also known as ‘drawn down’) for at least 70% of each Assessment cooperative agreement they have with EPA by **January 1, 2019** in order to apply for additional Assessment Grant funding under this solicitation.

FY 2019 Assessment Grant Guidelines

- **Cleanup Grants** – each proposal funded up to $500,000 over three years. EPA anticipates selecting 40 proposals.

NEW Brownfield sites where EPA Cleanup Grant funds were previously expended may not receive additional EPA Cleanup Grant funding in FY 2019.

FY 2019 Cleanup Grant Guidelines

Please visit the [Types of Grant Funding](#) for an overview of the Multipurpose, Assessment and Cleanup Grants.

**Note:** A solicitation for new Revolving Loan Fund Grants will not be issued in FY 2019. EPA expects to solicit requests from existing, high-performing RLF Grant recipients supplemental funding through a Federal Register notice in early 2019.

Additional FY 2019 Application Resources

- FY 2019 Summary of Brownfields Grant Guideline Changes
- FY 2019 Frequently Asked Questions about Multipurpose, Assessment, and Cleanup Grants
- Tips for Submitting Proposal through Grants.gov
- Tips on How to Get Started Early on Preparing You Brownfields MARC Grant Proposal

- FY 2019 Brownfields Multipurpose, Assessment, and Cleanup National Grant Guideline Outreach Webinar
  - EPA hosted an outreach webinar on December 11, 2018 to assist applicants with understanding the FY19 Multipurpose, Assessment, and Cleanup Grant Guidelines. Please find the archived files from the webinar below.
    - FY19 MAC Grant Guideline Outreach Webinar Recording
    - FY19 MAC Grant Guideline Outreach Webinar Slide Presentation
    - FY19 MAC Grant Guideline Outreach Webinar Q&A Transcript

General Program Resources

- List of Entities Eligible to Apply for Multipurpose, Assessment, Cleanup and RLF Grants
- Programmatic Requirements
- Information on Health Monitoring Activities using an EPA Brownfield Grant
- Information on Eligible Planning Activities
- Information on CERCLA Liability Defenses
- Information on Sites Eligible for Brownfields Funding under CERCLA § 104(k)

Any questions regarding this article can be directed to Probas Adak, P.E. at (954) 519-1439 or padak@broward.org.