DETECTION // TREATMENT // REGULATION

EMERGING CONTAMINANTS

Air Force Meets Challenges of PFOS/PFOA at Closed Installations

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Agenda

- BRAC Program Mission and Vision
- Background
- CERCLA Process
- BRAC Perfluorooctanesulfonic acid (PFOS)/Perfluorooctanoic acid (PFOA) CERCLA Status
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#ECSUM18 -



BRAC Program Mission and Vision

Mission

•Execute the disposal of Air Force property in support of BRAC law, optimize post transfer management of assets and liabilities, eliminate or reduce environmental liabilities, and support other Real Property services and decisions.

Vision

•Complete property transfer by 2027 and achieve response complete at over 96% of all environmental sites by 2020; reduce liabilities to the lowest level that can be practicably achieved; maintain proactive and responsive relationships with communities; and retain and maintain unique BRAC capabilities.



Background

- 1969 Formally issued Military Specification for Aqueous Film Forming Foam (AFFF) (MIL-F-24385)
- 1970 Air Force began use of AFFF containing PFOS with resulting degradation precursor substance, PFOA through base closure
- 2009 US EPA issued provisional Health Advisory (HA) for PFOS/PFOA
- 2013 BRAC initiated Preliminary Assessments (PAs) and Site Inspections (SIs)
- 2016 US EPA issued lifetime HA for PFOS/PFOA
- 2017 Air Force replaces legacy AFFF for use in firefighting vehicles



CERCLA Process



• PA

- Review historical records
- Identify potential release locations
- SI
 - Determine if release occurred
 - Identify drinking water receptors
 - Can be expanded to include mitigation and investigation



CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act

BRAC PFOS/PFOA CERCLA Status

- Preliminary Assessment (PA) 2015-2016 all 40 locations
 - No SI required 11 locations
- Site Inspection (SI) 2015-2018 29 locations
 - Determine release of PFOS/PFOA
 - Identify drinking water receptors
 - No release (1); SI Report complete (3)
- PA/SIs completed by Dec 2018
 - Can be expanded (Supplemental SI) to include mitigation and streamlined investigation



Drinking Water Mitigation and Groundwater Impacts



Drinking Water Mitigation

	Installation	Private Drinking Water Wells		Public Wells		
		Number Sampled	Number Above HA	Number Sampled	Number Above HA	
	Former K.I. Sawyer, MI	9	I	4	0	
	Former March, CA	2	2	2	I	
	Former Pease, NH	45	4	5	I	
	Former Plattsburgh, NY	50	4	0	0	
	Former Reese,TX	135	51*	0	0	
	Former Wurtsmith, MI	55	I	2	0	
#ECSUM18	EPA Health Advisory = HA *Includes exceedance of Texas criteria				Emergin S	IG CONTAMINANTS

Protecting Drinking Water

- Focus on protecting drinking water
- Use Supplemental SIs
 - Evaluation of drinking water exposure pathway

• Tiered approach for prioritization

PFOS/PFOA Tiered Prioritization				
Tier I	An Air Force release linked to contamination found in receptor drinking water > HA			
Tier 2	An Air Force release linked to groundwater contamination > HA that will likely impact receptor drinking water			
Tier 3	An Air Force release linked to groundwater contamination > HA with no drinking water receptors			
Other	Other requirements*			
*Such as: applicable State requirements, meet permit requirements, regulatory enforcement,				



Spotlight BRAC – Former Pease AFB

- First AF PFOS/PFOA drinking water impact
- Municipal well shut down May 2014
 - Tested above the EPA Health Advisory (HA)
 - 50% of the municipal supply capacity
 - Remaining capacity in two wells downgradient
 - 400 to 600 gallons per minute (gpm)
- Limited supplemental water from system serving the rest of the community
- 4 private drinking water wells tested above HA
 - Installed whole-house treatment systems



Spotlight BRAC – Former Pease AFB





Spotlight BRAC – Former Wurtsmith AFB

- "Do not eat fish" Michigan advisory for Clarks Marsh
 - Downgradient of former fire training area
- Groundwater interceptor wells and treatment system operational 2015
- One private drinking water well tested above HA
 - Home connected to municipal water supply
- PFOS/PFOA treatment systems added to existing TCE groundwater treatment
- Michigan groundwater surface water interface regulation



Spotlight BRAC – Former Wurtsmith AFB



Spotlight BRAC – Former Reese AFB

- Fire Training Area had low level PFOS/PFOA
- Groundwater wells typically 100 150 feet deep
- EPA HA for PFOS/PFOA and Texas protective concentration levels (PCLs) for additional PFAS
- 51 of 135 drinking water wells tested above HA and/or PCLs
 - Requires combination of resin and granular activated carbon (GAC) for whole-house treatment system



Spotlight BRAC – Former Reese AFB





Nonpotable Water Mitigation

Installation	Mitigation Summary			
Former Chanute, IN	Landfill leachate being treated for discharge to wastewater treatment plant			
Former Mather, CA	Effluent from pump and treat system being treated prior to re- injection near private wells			
Former Pease, NH	Effluent from pump and treat system being treated prior to re- injection near private wells			
Former Wurtsmith, MI	Effluent from pump and treat systems being treated prior to discharge			



Final Thoughts

- PFOS/PFOA
 - Changing regulatory horizon
 - Evolving requirements in response to public concerns
 - Rush to cleanup
 - Opportunities in lower cost treatment technologies
- Managing resources
- Maintaining momentum on overall cleanup



