Superfund Sediment Site

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OCTOBER, 2015

The Superfund Program t

* 45,512 sites assessed (of 51,323 in the inventory)
* 1764 proposed, final and deleted NPL sites
* 1154 sites (66.4%) with all Construction Complete
* 12,500 removal actions at 9,300 sites
* >1.4 M acres of land determined to be protective for people; and 471 K acres determined ready for anticipated use.

* Enforcement Program:
  * $32.7 B worth of cleanup work by PRPs
  * $6.4 B in cost recovery
* EPA cleanup expenditures: $22.4 B
* Total: $61.8 billion
* Billions more at federal facilities

Superfund Trends

* NPL Listings are up
  * 2004-2007 average = 13/yr final listings
  * 2008-2014 average = 19.7/yr final listings
* More complex, costly sites
  * Urban rivers; large mining sites
  * More fund-lead sites
* Over the life of the program, PRPs have paid ~70% (cleanups + cost recovery)

Trends: Construction Completions

* Two thirds of all NPL sites have Construction Complete (CC)
* Non-CC sites generally more complex & costly:
  * ~ 40% are federal facilities (typically large/complex) and/or high cost (>$50 M)…
    * … but federal facilities & high cost sites = only 12% of all CC sites.
  * Many sediment sites not yet CC
  * Non-CC sites average 4.2 Operable Units each; CC sites average 1.8 OUs.
  * 60% of non-CC sites have construction underway…
    * … but at only 12% of these is it the *final* construction project.

Trends: Funding

* Congressional appropriations flat from mid-1990s to 2008
* 2009: $600 M extra Stimulus funding
* Appropriations for remedial cleanups cut 18%:
  * 2011: $605 M … 2014: $500 M (same in 2015)
  * No new federally funded construction starts in 2012, few in 2013 & 2014…backlog of unfunded "shovel ready" sites.
  * Additional cuts to removal, enforcement & "pipeline"
  * Slight increase in President's FY-2016 budget proposal
* Expensive "Fund-lead" cleanups (e.g., sediment sites such as New Bedford Harbor, Vineland Chemical) are typically spread out over multiple years, which reduces efficiency, increases cost

Difficult policy question: How Clean is Clean?

* CERCLA goals:
  * Cancer risk range of 10^{-4} to 10^{-6}
    * 10^{-6} is "point of departure"
  * Human health and ecological hazard quotients of 1.0 or lower
* At sediment sites, human health risk pathway is through consumption of fish & crabs.
  * Health advisories are widely ignored

Sediment sites are expensive!

* Passaic River, NJ ($1.8 B)
* Hudson River, NY(~ $2 B)
* Fox River, WI ($1 B)
* New Bedford Harbor, MA ($900 M)
* Gowanus Canal, NY ($504 M)
* Onondaga Lake, NY (~$500 M)
* Lower Duwamish Waterway, WA ($342 M)
* Cornell Dubilier
* Grasse River, NY ($240 M)

<u>Coming up:</u>

* Portland Harbor
* Newtown Creek

… as are other kinds of [illegible]

* Mining Sites
  * Libby, MT ($450 M)
  * Summitville, CO ($235 M)
  * Midnite Mine, WA ($193 M)
  * ~ $20 B for all NPL mining sites
  * [illegible]
  * Wellsbach, NJ ($800 M - $1 B)
  * Rocky Flats, CO ($7.5 B – $10 B)
  * **Hanford, WA (~$113.6 B; 586 square miles; 45 years to complete)**

Technical questions at sediment sites

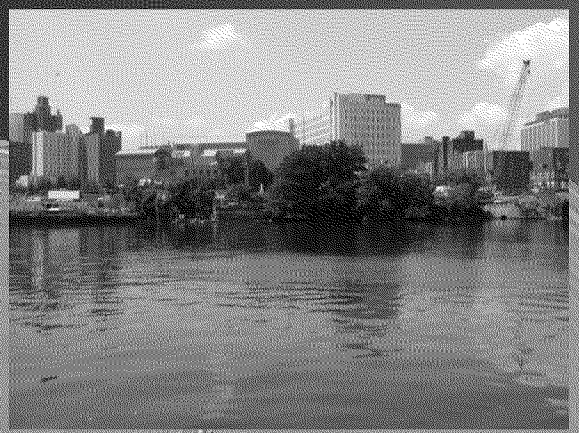
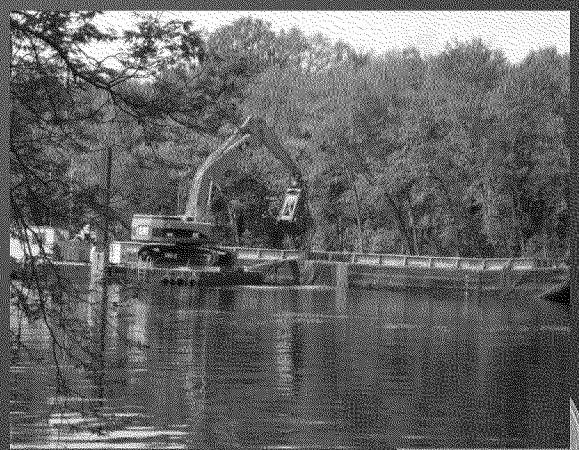
* High costs, large volumes and long construction schedules accentuate typical CERCLA debates:
  * Is natural attenuation occurring and sufficient?
  * Amount of data needed (for modeling, design, baseline and post-construction monitoring, etc.)
    * Uncertainties cause greater concern; studies become longer, more expensive
  * Mass removal vs. cap
  * Off-site vs. on-site (or near-site) disposal
  * Construction impacts on infrastructure (e.g., bridges, utilities) and traffic (on shore and vessels)
  * Siting of treatment and support facilities
  * Quality of life concerns (noise, night-time lighting, odors, emissions from equipment)

Technical questions at sediment sites

* Other technical questions are specific to sediment sites:
  * Concerns about resuspension
    * How much is too much?
  * Concerns about recontamination after remedy is complete
    * Ongoing point source discharges, including municipal sewage treatment plants and CSOs
    * Other point and non-point sources

REGION 2 SEDIMENT SITES include:

- Gowanus Canal
- Newtown Creek
- Passaic River
- Onondaga Lake
- Hudson River
- Grasse River
- 18-Mile Creek
- Berry's Creek
- Vineland Chem.
- Bound Brook
- (Hackensack R?)



Sediment load into Onondaga Lake from Onondaga Creek. In the foreground is Metro the recently upgraded sewage facility for the City of Syracuse