Greening Removals

Region 5
Emergency Response Branch
Climate Change

• EPA has many plans and tools in place
  – HQ, OSWER, Region 5 and R5 SFD

• ERB actions focus on:
  – reducing emissions
  – response to increased frequency and duration of flooding
Reducing Emissions

Green Removal Requirements

• Greener Cleanup Implementation Strategy requires:
  • GC training
  • GC language in all SFD contracts
  • GC Removal Requirements
    • Recycle consumables
    • Idle restrictions
    • Double-sided printing on recycled paper
    • Evaluate and document green activities
Green Activity Tracking

1. Complete Green BMP Planning Checklist before starting site
   • Submit to Green Coordinator
Green Activity Tracking

1. Complete Green BMP Planning Checklist before starting site
   - Submit to Green Coordinator

2. Track required metrics during removals
   - Include metric data in final POLREPs
## Required Data Collection

<table>
<thead>
<tr>
<th>Site</th>
<th>Metric</th>
<th>Amount Used</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greener Plating</td>
<td>Diesel Fuel Used</td>
<td></td>
<td>gallons</td>
</tr>
<tr>
<td>Greener Plating</td>
<td>Unleaded Fuel Used</td>
<td></td>
<td>gallons</td>
</tr>
<tr>
<td>Greener Plating</td>
<td>Alternative / E 85 Fuel Used</td>
<td></td>
<td>gallons</td>
</tr>
<tr>
<td>Greener Plating</td>
<td>Electricity from Electric Provider</td>
<td></td>
<td>kW</td>
</tr>
<tr>
<td>Greener Plating</td>
<td>Electricity from Other Sources</td>
<td></td>
<td>kW</td>
</tr>
<tr>
<td>Greener Plating</td>
<td>Solid waste reused</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Greener Plating</td>
<td>Soild waste recycled</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Greener Plating</td>
<td>Water Used</td>
<td></td>
<td>gallons</td>
</tr>
</tbody>
</table>
FY15 Metric Data - Fuel Use at Removal Sites

- Fuel Used/Alternative, 18,165
- Fuel Used/Unleaded, 9,002
- Fuel Used/Diesel

Generators

Legend:
- Blue: Fuel Used/Alternative
- Red: Fuel Used/Diesel
- Green: Fuel Used/Unleaded
Solar Powered Generator!

EPA's Region 8 News and Events

Using the Sun to Power Environmental Cleanup at the Pennsylvania Mine

EPA is using the sun to power cleanup work at the Pennsylvania Mine above Keystone, Colorado. In an effort to reduce the amount of toxic metals flowing into Peru Creek, a tributary to the Snake River, EPA is performing work to stabilize and prevent erosion of mine waste at the mine as well as supporting the Colorado Division of Reclamation, Mining & Safety in plugging mine tunnels to decrease the flow of metals-contaminated water. Usually this type of field operation involves running a diesel generator continuously to power and recharge tools, sampling devices, communication equipment and computers. At the Penn Mine EPA is using a solar powered generator with battery backup.

More about EPA's strategy for greener cleanups »
Connecting to the Grid
FY15 Electric Source R5 Removals

- Coal: 58%
- Nuclear: 34%
- Gas: 4%
- Wind: 2%
- Hydroelectric/solar wind: 1%
- wholesale: 1%
Climate Change

Preparing for Increased Frequency and Duration of Flooding
Increases in Very Heavy Precipitation Events

- Heavy rainfall events are expected to increase nationwide, and they’re already increasing everywhere.
- The Northeast and Upper Midwest have experienced the most significant increases in extreme precipitation.
Total Declaration(s) 35

Declarations by Incident Type

- Flood: 11
- Severe Storm: 8
- Tornado: 6
- Snow: 5
- Drought: 1
- Fire: 1
- Freezing: 1
- Hurricane: 1
- Other: 1

Click on an incident type or year for more information.

Number of Declarations

1
Plotted Superfund Sites Near or Within 10 & 500 Year Floodplains

**Note: Pilot effort based on CERCLIS ID locations only; findings need to be verified**
Flood Preparedness
Goals for R5 SFD Emergency Response

– Increase program flexibility
– Assess programmatic resources/needs
– Develop/centralize outreach materials
– Outreach
– Increase preparedness for responding under the National Disaster Recovery Framework
Flood Preparedness
Goals R5 Emergency Response

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National Response Framework
Flood Response- ESF 10 Tasks

• Respond to oil and hazardous materials (hazmat) releases and threats to the environment:
  – Detect and assess
  – Prevent, mitigate, minimize
  – Contain and stabilize
  – Collect, manage, and dispose
  – Clean up/decontaminate
    environment, structures, buildings

• Develop site safety plan for oil/hazmat sites
National Response Framework
ESF 10 Tasks

• Collect/manage household hazardous waste
• Collect/manage Freon from white goods (Often via ESF 3)
National Response Framework

ESF 10 Tasks

• Debris support to USACE/states – *ESF #10 or ESF #3 subtask*
  – Air monitoring of debris operations/landfills
  – Landfill monitors to assure compliance with environmental requirements
  – Technical advice to USACE/states/locals on proper debris management/disposal
  – Review USACE/state/local debris management plans
  – Check debris piles for oil/hazmat contamination
Flood Preparedness
Goals R5 Emergency Response

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Resources Compiled

Internal Use

• Examples Documents:
  – Databases for tracking regulated facilities & contacts
  – HASPs
  – FEMA Mission Assignments
  – State Requests for Assistance
  – Hazard inventory forms
  – FEMA Flood Briefings

• Regulations

• Presentations, reports and OSC websites for past responses

@ epaosc.org/RCC
Resources Compiled/Actions Taken

Internal /External

- Quarterly meetings with FEMA
- Nationwide ESF 10 Workgroup
- R5 disaster debris workgroup

@http://www.epa.gov/region5/waste/solidwaste/kmlgraphics/r5ddrd.kmz
Resources Compiled/Actions Taken
Internal /External

Geoplatform Map location:
http://epa.maps.arcgis.com/home/webmap/viewer.html?webmap=cba75e6a3bee477dbe25aed6feba7401

Shapefiles @ epaoscr.org/RCC
Other Available Resources

Internal / External

• GIS Data / Flexviewer Datasets
  – ISA (facilities, transportation)
  – State mapping projects (HSIP, CAMEO)
  – Hydroviewer (facilities, floodplain delineation)
Resources Compiled
Public/Local Agencies

Example Fact Sheets:
• Protecting children
• Cleanup (after flood, bleach, flood mud, mold, basement pumpout, HHW & HHW separation, waste disposal)
• Asbestos (and SOPs)
• Oil and oil contaminated soil
• Flooded USTs
• Debris Mgmt (example state SOP)

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Flood Preparedness
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52 of 62 oil terminals in the path of Hurricane Sandy had to be entirely or partially shut down.
Resources Compiled
Public/Locals/Facilities

- Flood risk information
- Planning guidance

Great tools from WD

@ www2.epa.gov/crwu
Resources Compiled
Public/Locals/Facilities

- Flood Resilience Guide
- Excellent risk assessment and planning tool

@ www2.epa.gov/crwu
Resources Compiled
Public/Locals/Facilities

Overview

- Guide for drinking water and wastewater utilities that have not begun to consider climate change in utility planning
- Navigate guide like a website
- Goals:
  - Present easy-to-understand climate science
  - Translate science into impacts to utilities
  - List adaptation strategies related to impacts
  - Assist in the adaptation planning process
Resources Compiled
Public/ Locals/ Facilities

Climate Ready Water Utilities

High Flow Events and Flooding (DW)

Intense precipitation events may occur more frequently, concentrating the annual total rainfall into episodes that may challenge current infrastructure for water management and flood control. When these protections fail, inundation may disrupt service and damage infrastructure such as treatment plants, intake facilities, and water conveyance and distribution systems. Episodic peak flow into reservoirs will strain the capacity of these systems. Furthermore, inflows will be of lesser quality due to soil erosion and contaminants from overland flows, leading to treatment challenges and degraded conditions in reservoirs.

CLIMATE INFORMATION

- Since 1991, the amount of rain falling in very heavy precipitation events has been above average across most of the United States (USGCRP 2014). This observed trend has been greatest in the Northeast, Midwest, and Great Plains—projections for these regions indicate that 30% more precipitation will fall in very heavy rain events relative to the 1901-1960 average (Karl et al., 2009).
- Heavy downpours are increasing nationally, with especially large increases in the Midwest and Northeast (Kunkel et al., 2012, USGCRP 2014). Precipitation intensity (e.g., precipitation per rainy day) is projected to continue to increase by mid-century for most of the US. This change is expected even for regions that are projected to experience decreases in mean annual precipitation, such as the Southwest (Kunkel et al., 2012, Webster, 2013, USGCRP 2014).
- The increasing intensity of precipitation events can be expected to lead to more flooding and high flow events in rivers. For example, by the end of the century, New York City is projected to experience almost twice as many days of extreme precipitation that cause flood damage (Medeiros et al., 2016). For the US overall, a recent assessment of flood risks found that the odds of experiencing a 100-year flood are expected to double by 2080 (USGCRP 2014).
- The intensity, frequency, and duration of North Atlantic hurricanes has increased in recent decades, and the intensity of these storms is likely to increase in this century (USGCRP 2014).

ADAPTATION OPTIONS

<table>
<thead>
<tr>
<th>PLANNING</th>
<th>COST</th>
</tr>
</thead>
<tbody>
<tr>
<td>Integrate flood management and modeling into land use planning.</td>
<td>$</td>
</tr>
<tr>
<td>Develop models to understand potential water quality changes (e.g., increased turbidity) and costs of resultant changes in treatment.</td>
<td>$</td>
</tr>
<tr>
<td>Expand current resources by developing regional water connections to allow for water trading in times of service disruption or shortage.</td>
<td>$5-$15</td>
</tr>
<tr>
<td>Plan for alternative power supplies to support operations in case of loss of power.</td>
<td>$</td>
</tr>
<tr>
<td>Adopt insurance mechanisms and other financial instruments, such as catastrophe bonds, to protect against financial losses associated with infrastructure failures.</td>
<td>$</td>
</tr>
<tr>
<td>Conduct training for personnel in climate change impacts and adaptation.</td>
<td>$</td>
</tr>
<tr>
<td>Ensure that emergency response plans deal with flooding contingencies and include stakeholder engagement and communication.</td>
<td>$</td>
</tr>
<tr>
<td>Establish mutual aid agreements with neighboring utilities.</td>
<td>$</td>
</tr>
</tbody>
</table>

Click to link or name to check off options for consideration,  $1-$888 indicate relative costs
Click name of any option to review more information in the Directory
No Regrets options - actions that would provide benefits to the utility under current climate conditions as well as any future changes to climate. For more information on the Regrets options, see Page 11 in the Introduction.
Click on the Facebook icon to share the relevant Sustainability Brief.
Resources Compiled
Public/Locals/Facilities

Incident Action Checklist – Flooding

Flooding is common throughout much of the United States and can be caused by heavy precipitation events, storm surge, levee or dam failures or inadequate drainage. These events often occur with little or no notice, and can cause extensive damage to drinking water and wastewater infrastructure. Flooding impacts to utilities often include, but are not limited to:

- Infrastructure damage, possibly resulting in service interruptions
- Pipe breaks due to washouts, which could result in sewage spills or low water pressure throughout the service area
- Debris blockage at an intake or unearthed water and wastewater lines due to falling trees
- Loss of power and communication lines
- Combined sewer overflows (CSOs)
- Water quality changes to source waters and treated effluents, including increased turbidity, increased nutrients and other potential contaminants
- Restricted access to the facility due to debris, flood waters and damage to roadways from washouts and sinkholes
- Loss of water quality testing capability due to restricted facility and laboratory access and damage to utility equipment

The following sections outline actions water and wastewater utilities can take to prepare for, respond to and recover from floods.

- Flood is Predicted
- By stage
- Planning
- Coordination
- Communication
- Personnel
- Power, energy, fuel subsections

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Flood Preparedness
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Additional Outreach Ideas/Next Steps
Public/Locals/Facilities

- Define high priority geographic focus areas – outreach to state/local EMAs
- Direct outreach to FRP facilities at highest risk
- Outreach to planning areas
- Continue internal planning
  - actions to take in advance of floods
  - additional staff, training, equipment and communication channels needed
  - remediation technique changes that may be needed
  - Continue to review lessons learned
- Continue coordination with other agencies
- Continue core mission training
Flood Preparedness
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Figure 1. Recovery Continuum – Description of Activities by Phase

Pre-Disaster Preparedness
Examples include:
- Pre-disaster recovery planning
- Mitigation planning and implementation

Disaster

Short-Term Recovery
Examples include:
- Mass Care/Sheltering
- Provide integrated mass care and emergency services
- Debris
- Clear primary transportation

Intermediate Recovery
Examples include:
- Housing
- Provide accessible interim housing solutions
- Debris/Infrastructure
- Initiate debris removal

Long-Term Recovery
Examples include:
- Housing
- Develop permanent housing solutions
- Infrastructure
- Rebuild infrastructure to
NDRF

EPA’s Roles in Recovery

Draft EPA NDRF Organizational Chart

Recovery Support Function Leaders Group

Community Planning FEMA

Lead for EPA HQ, Office of Policy
Contact: Cathy Allen
Office of Sustainable Communities

Housing HUD

Lead for EPA HQ, Office of Water
Contact: David Goldbloom Helzner

Infra-structure USACE

Health HHS

Lead for EPA HQ, OHS

Natural Resources DOI

Economic Recovery DOC

Lead for EPA HQ, OSWER
Contact: Charlie Bartsch

Chris Choi
Becky Geyer
Jon Grosshans

Bev Kush
Mike Ribordy
NDRF

EPA’s Roles in Recovery

• not a COORDINATING Agency for any of the functions
• EPA is a PRIMARY Agency for 2 Functions
  • Health/Social Services
  • Natural and Cultural Resources
• EPA is a SUPPORTING Organization for the other four
• EPA provides assistance when requested by the Coordinating Agency, consistent with their own authorities and resources, or as directed by FEMA.
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Betsy Nightingale
734-770-8402
Nightingale.Elizabeth@epa.gov