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Preparing Post-Construction Cleanup Sites for Natural Disasters

June 2020

The Association of State and Territorial Solid Waste Management Officials (ASTSWMO) CERCLA Post Construction Focus Group (CPC FG) is comprised of State and Territorial (State) members from all United States Environmental Protection Agency (EPA) regions. This checklist was prepared by the ASTSWMO CPC FG, under Cooperative Agreement 83870001 with the U.S. EPA Office of Superfund Remediation and Technology Innovation (OSRTI).

The mission of the ASTSWMO CPC FG is to promote facilitation and maintenance of reliable, effective, and protective remedies constructed at contaminated sites, to include identification of the resources necessary following remedy construction, and to communicate State program strategies effectively among interested parties.

This document is solely intended to help States in identifying efficient and effective measures for preparation in advance of potential natural disasters to aid in the identification of likely concerns following a natural disaster. The information provided on the checklist can be used to identify and respond to changed conditions at sites to support action to ensure protectiveness of human health and the environment. It does not reflect EPA's position on the issues raised.

Based upon the development of this checklist, the team recommends the following practices that will help States be prepared to react following a natural disaster:

- Pre-event planning: Assess site conditions to compile site specific details to complete the checklist prior to a natural disaster.
- Pre-event information: Identify and collect site plans/data and contact information so the information is readily available should a disaster occur. Periodically review this information to ensure that it is current.
- Post-event information: Use the checklist to identify conditions that require action/repair and track planned actions.

The team also recommends considering the use of a version of this checklist for sites that may be in active cleanup stages.

Preparing Post-Construction Cleanup Sites for Natural Disasters

Clear Data

The purpose of this checklist is to provide a planning tool for post-construction sites (sites) in the event of a natural disaster. The checklist was developed for CERCLA post-construction sites; however, it may also be used for similar "non-CERCLA" post-construction sites. The checklist includes site-specific information that should be considered prior to and post natural disaster event to streamline site security, minimize damage to remedy components, and reduce the risk of site-related environmental impacts. The checklist does not replace Health and Safety Plans (HASP), Standard Operating Procedures (SOP), or other site-specific / programmatic guidance documents. Site managers are encouraged to complete the checklist following review of these guidance documents, and incorporate supporting information, as appropriate.

It is important to note that the damage caused by a natural disaster event will vary greatly depending on the nature of the event and site-specific vulnerabilities. Also, the occurrence of natural disasters is highly variable. A natural disaster event (an "event") can occur with little to no warning (e.g., earthquake, flash flood, tornadoes) or with some predictability or seasonal regularly (e.g., hurricane, river flooding, wildfires). Due to the diverse nature of these events, site managers should consider the following when completing the checklist: type of disasters that will most likely impact the site, frequency of the event(s), and the site-specific vulnerabilities. These factors will help the site manager in determining how the checklist should be used in order to prepare for and respond to these events if they should occur.

The checklist is divided into pre-event planning, pre-event information, and post-event information. Pre-event planning includes the initial identification of sites and gathering appropriate contact information for notification and coordination. The pre-event information includes the site-specific details that will assist in securing a site to ensure remedy protectiveness. This information includes: site location and access details, contact information for response personnel, identification of the type(s) of natural disasters that may impact a site, potential risks posed by a site, identification of remedy components (both active and passive), and the safety measures that should be taken to secure a site prior to an event. Site managers should also consider the current tenant or business operations, and access limitations that may need to be considered prior to an event. Details regarding access and tenant considerations should be included in the Pre-event information under the Access Section and Site-Specific Evaluations Section. Pre-event information includes a section to identify reference documents that may be used when updating or implementing the checklist, and a section for photo documentation of the site's current status. Following completion of the pre-event information, the checklist should be circulated to all field technicians who may respond during an event. If an onsite location is available, the checklist may be posted at the site for reference.

Post-event information includes the site-specific evaluation of site remedy components that require repair and a description of the potential environmental impacts. Post-event action items should provide details on when repairs will be performed and who will complete the repairs. The post-event review includes recommendations and /or lessons learned that should be considered for future events. Post-event photo documentation should be included, for both impacted and non-impacted areas, to demonstrate site conditions following an event.

Due to the diverse nature of site-specific cleanup conditions and changing environmental conditions, this checklist should be updated as site conditions and personnel change. Maintaining current data will ensure maximum usefulness of the checklist.

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I. Pre-Event Planning

A. Initial Identification of impacted facilities

Review available State and Federal resources that may identify post-construction cleanup sites. Many States have inventories or databases of cleanup sites that are easily available for review. One resource of this type from EPA is [Cleanups in my Community](#).

US EPA: [Cleanups in my Community](#)

Compare to the projected or known impact area to identify all potentially impacted sites & facilities.

Clarify the relevant "plan". Use checklist to crosscheck against previously established plans, such as a site management plan that outlines site vulnerabilities and the corresponding controls/measures that should be checked before and after an event.

B. Notification of State Program Managers and Project Manager

Notify the State program manager(s) (PMs) of the lists of potentially-impacted facilities. Query PMs for any known issues for the sites; which sites have active remediation or passive remediation which may be impacted by the event.

Note when contact was made, with who, etc. for each planning step.

C. Coordination with state and/or local Emergency Management for immediate impacts

Notify the State and/or local EMs of any potential releases which may pose a threat to public or responders. Request that responders put eyes on sites/facilities if possible and report back with observations. Relay the field observations to PMs to begin formulating response.

Note when contact was made, with who, etc. for each planning step.

D. Coordinate with Facility Contacts and/or State Contractors:

Communication with point-of-contact for the facility to obtain Facility Response Plan / Extreme Weather Action Plans (or similar). Identify trigger points for facility actions (process shut down, evacuation, etc). Identify what products are currently in the facility and identify a worse-case-scenario discharge.

Note when contact was made, with who, etc. for each planning step.

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II. Pre-Event Information (Site status info to be updated at X interval)

Site Name:

EPA/SEMS Facility ID #:

State Facility ID #:

State:

Address:

Location Coordinates:

Lead Regulatory Agency:

Organization responsible for O&M operations:

Location of Administrative Record/Site Files:

A. Contact

State Regulatory Contact

Name:

Telephone:

e-mail:

EPA Remedial Project Manager

Name:

Telephone:

e-mail:

Consultant

Name:

Telephone:

e-mail:

O&M Staff

Name:

Telephone:

e-mail:

State Emergency Operations Center

Name:

Telephone:

e-mail:

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EPA Regional Emergency Operations Center

Name:

Telephone:

e-mail:

Local Municipality

Name:

Telephone:

e-mail:

B. Access

Is there a current access agreement? Yes No

C. Site-Specific Evaluations

Site Conditions - Provide Brief Description of Site and Remedy:

Include information on the vulnerability rationale (e.g. the extent of sea level rise that has occurred since the time of remedy construction).

Site Vulnerability: (Check all that apply)

- | | |
|--|---|
| <input type="checkbox"/> Flooding | <input type="checkbox"/> Storm surge |
| <input type="checkbox"/> Wind | <input type="checkbox"/> Fire hazard |
| <input type="checkbox"/> Earthquakes | <input type="checkbox"/> Overhead utility lines |
| <input type="checkbox"/> Tornado | <input type="checkbox"/> Power Outage |
| <input type="checkbox"/> Roadway Traffic | <input type="checkbox"/> Blizzards |
| <input type="checkbox"/> Other _____ | |

Define the vulnerability in terms of resilience thresholds at the specific site

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Summary of Risks Posed by Site:

- Type of contamination
 - VOCs - Describe: _____
 - Metals - Describe: _____
 - Other - Describe: _____
- Direct contact with a contaminant source
- Migration of a contaminant source to:
 - A drinking water aquifer
 - Surface water
 - Soil or other solid media
 - Air (via wind-borne material)
 - Air (via volatilization)
 - Other - Describe: _____
- Stored Chemicals/Wastes - Hazardous
- Stored Chemicals/Wastes - Nonhazardous
- Vapor intrusion or indoor air exposure
- Off-gas exposure/migration
- Other risk - Describe: _____

Remedy Components: (Check all that apply)

- Passive Remedy
- Active Remedy

Passive Remedy Components: (Check all that apply)

- Landfill cover/containment
- Monitor wells
- Solar panels
- Vertical barrier walls
- Passive groundwater containment
- Institutional controls
- Physical access controls (incl. fencing/barriers)
- Signage
- Other _____

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Active Remedy Components: (Check all that apply)

- Active site security
- Groundwater extraction wells/piping
- Pumps
- Groundwater gradient controls
- Surface water collection and treatment
- Air sparge soil vapor extraction points/piping/blowers
- Treatment buildings (groundwater or vapor destruction)
- Leachate collection and/or treatment
- Landfill gas collection and/or treatment
- Vapor intrusion mitigation
- In Situ treatment cells
- Storage tanks for treatment components (such as amendments for in situ remedies, or temporary holding tanks for dewatering activities that are part of a remedy)
- Stream diversion devices for sediment removal or other in-stream remedy component
- Generators
- Other _____

Vulnerable Components:

- Stormwater controls that could become overwhelmed by extreme precipitation events (detention/sedimentation basins)
- Rising floodwater that could impact landfill liners/slopes (by inundation)
- Wash out of access roads to the site or certain areas of it
- Building components (roof, walls, window, etc.) damaged by winds, water or hail
- Loss of power to remedy components resulting in remedy failure or immediate concern for human health and/or the environment
- Damage to electrical components
- Access to monitoring wells cut off by flooding
- Fences damaged by fallen trees
- Other _____

Potential High-Hazard Failures

- Landfill slope failures
- Loss of access to site by flooding (washed out access road or bridges)
- Loss of power to the site
- Other _____

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Institutional Controls: (Check all that apply)

- | | |
|---|--|
| <input type="checkbox"/> Land use restrictions | <input type="checkbox"/> Soil disturbance restrictions |
| <input type="checkbox"/> Groundwater restrictions | <input type="checkbox"/> Easements that require notification |
| <input type="checkbox"/> Utility easements | <input type="checkbox"/> Restrictions to stormwater features |
| <input type="checkbox"/> Other _____ | |

Action Taken to Minimize Risk Prior to Event: (Check all that apply)

- | | |
|--|---|
| <input type="checkbox"/> Secure all ancillary items | <input type="checkbox"/> Fill tanks for added stability |
| <input type="checkbox"/> Turn off systems | <input type="checkbox"/> Connect backup power |
| <input type="checkbox"/> Treatment systems / trailer tie downs | <input type="checkbox"/> Stormwater runoff controls |
| <input type="checkbox"/> Temporary barrier installation to minimize flooding | |
| <input type="checkbox"/> Other _____ | |

Reference the applicable "plan" to be followed, which would detail the recommended precautionary actions, (e.g. turn off [which?] systems)

Back-up Systems: (Check all that apply)

- | | |
|---|--|
| <input type="checkbox"/> Computer - data collection | <input type="checkbox"/> Computer - operational controls |
| <input type="checkbox"/> Hard copies of manuals | |
| <input type="checkbox"/> Other _____ | |

Safety Equipment On Site: (Check all that apply)

- | | |
|---|---|
| <input type="checkbox"/> Fire Extinguisher | <input type="checkbox"/> PPE - Hard Hat, Tyvek suit, goggles, boot covers |
| <input type="checkbox"/> Plastic Sheeting | <input type="checkbox"/> Eye Wash Station |
| <input type="checkbox"/> Backup generator | <input type="checkbox"/> Back hoe/Excavator |
| <input type="checkbox"/> Radio/Communication System | |
| <input type="checkbox"/> Other _____ | |

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D. Site-Specific Documents

Because these documents may be required to respond to a natural disaster, verify what documents are currently available on-site, or note off-site location:

Documents Name	Document date	Electronic Location	On-site Location	Off-site Location
O&M plan				
O&M manual				
Equipment manuals				
As built drawings				
Health and Safety Plan				
Institutional Control/ Engineering Control Maintenance Plan				
Other				

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III. Post-Event Information (Identify items from Pre-event list and verify status)

A. Site Specific Evaluations

	Intact	Need Repair	Need Replaced	Priority Level to Fix (High, Medium, Low)
Passive Remedy Components:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Comments:				
Active Remedy Components:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Comments:				
Institutional Controls:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Comments:				

Were hazardous substances discharged to the environment as a result of event? If yes, describe:

B. Post-Event Actions

Develop action plan to fix items. How will damage be fixed, who will fix the problems, and when will they be fixed.

	Item	Repair Planned Date	Repair Completed Date	Who will fix?
Passive Remedy Components:				
Comments:				
Active Remedy Components:				
Comments:				
Institutional Controls:				
Comments:				

C. Post-Event Review

Describe impacts from event.
Discuss plan for reducing potential for damage from future events.

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IV. Photo Documentation

A. Pre Event Photos

Date added:

X

[Click Here to Add/Edit Image File](#)

Title:

Add Additional Image

B. Post Event Photos

Date added:

X

[Click Here to Add/Edit Image File](#)

Title:

Add Additional Image