CHECKLIST:

How to Address Changing Climate Concerns in an Analysis of Brownfield Cleanup Alternatives (ABCA)

Our climate is changing and we need to adapt to make sure our cleanups are still protective of human health and the environment now and into the future. To ensure that cleanups remain effective as the climate changes, EPA has added a new term and condition starting in the FY13 Cleanup and Revolving Loan Fund (RLF) grants that requires recipients to "evaluate the resilience of the remedial options in light of reasonably foreseeable changing climate conditions (e.g., sea level rise, increased frequency and intensity of flooding and/or extreme weather events, etc.)."

An Analysis of Brownfield Cleanup Alternatives (ABCA) typically includes sections describing the background and current conditions of the site (maps, previous uses, assessment findings, reuse goals), applicable regulations and cleanup standards, an evaluation of cleanup alternatives and a recommended remedial action. The evaluation of cleanup alternatives is based on the effectiveness, ease of implementation and cost of each remedial action.

As directed under EPA's Climate Change Adaptation Plan, the ABCA must also include a discussion of observed and forecasted climate change conditions for the area of the project and the associated site-specific risk factors. Examples of changing climate conditions include, but are not limited to:

- Increased/decreased temperatures
- Increased/decreased precipitation
- Extreme weather events (e.g., storms of unusual intensity, increased frequency and intensity of localized flooding events)
- Increased risk of wildfires
- Changing dates for ground thaw/freezing
- Rising sea level
- Changing flood zones
- Changing environmental/ecological zones
- Increased salt water intrusion
- Higher/lower groundwater tables

Identified climate change conditions and risk factors should then be considered in the evaluation of cleanup alternatives. Both current and forecasted climate changes may impact the effectiveness of a remedial alternative (e.g., increased flooding of a site could compromise an engineered cap) and should be considered in the effectiveness portion of the ABCA.

Considerations to think about when addressing climate adaptation in the ABCA:

- ❑ Review an authoritative resource (e.g., USGS Web site, state or local resources) to identify observed and potential changing climate conditions for the area in which the cleanup project is located.
- ❑ Given the pertinent climate change concerns, identify the site-specific risk factors, taking into account known conditions (e.g., proximity to the ocean, property affected by a revised FEMA flood plain map, infrastructure vulnerabilities, vulnerability of soil type due to moisture and hydraulic changes, ground and surface drinking water vulnerabilities).
- ❑ Include in your effectiveness evaluation how well each alternative can accommodate the identified climate change risk factors. Remember to consider all stages of the cleanup and long-term reuse of the site.

Note: EPA does not expect grant recipients to generate new site-specific climate change measurements to complete this analysis. Through the ABCA, grant recipients must demonstrate they have reviewed available current and authoritative information for the cleanup analysis. The level of analysis expected depends on the complexity of the project and the degree of risk involved given the feasible remedial options and targeted reuse of the site.

Examples of Federal Resources to Identify Current and Potential Changing Climate Conditions:

Climate Resources on Data.gov: **http://www.data.gov/climate/**

U.S. Global Change Research Program (USGCRP):
http://www.globalchange.gov/resources/federal-agency-adaptation-planning-resources

USGS Climate Land Change Science Program: **http://www.usgs.gov/climate_landuse/lcs/**

EPA Web site: **http://www.epa.gov/climatechange/**

Tool Kits for Public Officials:
http://www.epa.gov/climatechange/impacts-adaptation/adapt-tools.html

Office of Water's Stormwater Calculator Climate Assessment Tool:
http://www.epa.gov/nrmrl/wswrd/wq/models/swc/

Federal Government Web site: **https://www.fedcenter.gov/programs/climate/**

FEMA Map Service Center:
https://msc.fema.gov/webapp/wcs/stores/servlet/FemaWelcomeView?storeId=10001&catalogId=10001&langId=-1

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