Drinking Water SRF

If a project is not specifically listed below, states must explain in their IUP how the project addresses the purposes outlined in section III.A. of this memorandum.

I. Projects that prevent interruption of water distribution system operation in the event of a flood or natural disaster, including but not limited to:

a. Physical "hardening" or waterproofing of pumps and electrical equipment at pump stations and other components of distribution systems (including storage facilities and associated equipment) through upgrade or replacement, including:
   - Waterproofing electrical components (e.g. pump motors)
   - Waterproofing circuitry
   - Dry floodproofing/sealing of structure to prevent floodwater penetration
   - Installation/construction of wind resistant features (e.g. wind resistant roofing materials, wind-damage-resistant windows, storm shutters)

b. Relocation of pump stations or other distribution system facilities to less flood prone areas

c. Installation of physical barriers around pump stations or other distribution system facilities (e.g. levies or dykes)

d. Installation of back-up generators or alternative energy sources (including switch boxes) that service pump stations or other distribution system facilities

e. Installation/construction of redundant distribution system components and equipment

f. Construction of interconnections with neighboring water systems which could provide an emergency water supply

g. SCADA system projects to allow remote or multiple system operation locations

h. Replacement of damaged equipment with more energy efficient equipment

i. Construction or installation of flood attenuation, diversion, and retention infrastructure associated with an otherwise eligible drinking water project that protects the distribution system
   - Green infrastructure that reduces the risk of flooding by reducing stormwater runoff, including permeable pavement, green roofs and walls, bioretention infrastructure (e.g. constructed wetlands, detention basins, riparian buffers, or stormwater tree trenches/pits/boxes), stream daylighting, and downspout disconnection
   - Natural systems, and features thereof, capable of mitigating a storm surge, such as barrier beach and dune systems, tidal wetlands, living shorelines, and natural berms/levees
   - Floodwater pumping systems
   - Flood water channels/culverts, physical barriers, and retention infrastructure

II. Projects that prevent floodwaters from entering a treatment plant or well house, including but not limited to:

a. Installation of physical barriers around a facility (e.g. levies or dykes around the facility to prevent flooding)

b. Relocation of facilities to less flood prone areas

c. Construction or installation of flood attenuation, diversion, and retention infrastructure associated with an otherwise eligible drinking water project that protects the treatment plant
    - Green infrastructure that reduces the risk of flooding by reducing stormwater runoff, including permeable pavement, green roofs and walls, bioretention infrastructure (e.g. constructed wetlands, detention basins, riparian buffers, or stormwater tree trenches/pits/boxes), stream daylighting, and downspout disconnection
    - Natural systems, and features thereof, capable of mitigating a storm surge, such as barrier beach and dune systems, tidal wetlands, living shorelines, and natural berms/levees
    - Floodwater pumping systems
    - Flood water channels/culverts, physical barriers, and retention infrastructure

III. Projects that maintain the operation of a drinking water treatment plant, intake or well in the event of a flood or natural disaster, including but not limited to:

a. Physical "hardening" or waterproofing of pumps and electrical equipment at pump stations and other components of distribution systems (including storage facilities and associated equipment) through upgrade or replacement, including:
    - Waterproofing electrical components (e.g. pump motors)
    - Waterproofing circuitry
    - Dry floodproofing/sealing of structure to prevent floodwater penetration
    - Installation/construction of wind resistant features (e.g. wind resistant roofing materials, wind-damage-resistant windows, storm shutters)
b. Relocation of critical equipment to less flood prone areas of a facility and/or elevation of critical structures
c. Installation of physical barriers around individual treatment processes
    - Flood walls around treatment tanks
    - Elevated walls or capping of treatment tanks (e.g. tanks, vaults)
d. Installation of larger capacity storage tanks
    - Installation of larger capacity chemical storage tanks for continued treatment in absence of delivery service
    - Installation of larger capacity fuel storage tanks for back-up generators
    - Installation of larger capacity water storage facilities (e.g. raw water reservoirs, backwash tanks, contact basins)
e. Installation of back-up energy supply or alternative energy sources and/or hardening of existing connections to the power grid
f. Installation/construction of redundant distribution system components and equipment
g. Replacement of damaged equipment with more energy efficient equipment
h. SCADA system projects to allow remote or multiple system operation locations

IV. Projects that preserve and protect water system equipment in the event of a flood or natural disaster, including but not limited to:

a. Relocation of critical equipment to less flood prone areas of a facility and/or elevation of critical structure
b. Prevention of saltwater damage to materials and equipment
    - Installation of salt water resistant chemical storage tanks
    - Installation of salt water resistant fuel storage tanks

- Installation of salt water resistant equipment and appurtenances

V. Planning projects that assess a treatment works' vulnerability to flood damage or that analyze the best approach to integrate system and community sustainability/resiliency priorities in the face of a variety of uncertain futures including natural disasters and more frequent and intense extreme weather events, provided the planning work is reasonably expected to result in a capital project, including but not limited to:

a. Risk/vulnerability assessments considering recent floodplain maps and projected sea level rise
b. Alternatives analysis
c. Asset Management Plans
d. Emergency Preparedness, Response, and Recovery Plans

VII. Projects that assess, prepare for, protect, or mitigate damage to drinking water plant or well house or water distribution system from earthquakes and wildfires, including but not limited to:

a. Risk/vulnerability assessments considering recent seismic and liquefaction maps and wildfire hazard maps
b. Emergency Preparedness, Response, and Recovery Plans considering ground movement and wildfire potentials
c. Installation of flexible piping at pipe/conduit connections to equipment to accommodate expected movement in an earthquake
d. Installation of seismic resilient pipe or other strategies (e.g., bypassing pumping plan) at key failure nodes
e. Installation of shut-off valves so that damaged sections of pipeline can be isolated
f. Retrofit buildings and tanks to address earthquakes and that comply with seismic standards (e.g., American Society of Civil Engineers ASCE 41)
g. Take actions to protect the "backbone" of water distribution network including key conduits, transmission mains, critical facilities, reservoirs and tanks
h. Develop water storage designed to withstand earthquake threats
i. Anchor equipment (e.g., computers, bookshelves) as well as laboratory equipment and chemical and fuel tanks
j. Consider options to protect fixed water system assets in liquefaction zones, including improving soils with soil mixing, cement grouting, stone columns, piles, compaction or movement of assets into non-liquefaction areas
k. Maintain seismically certified emergency generators at key facilities to help mitigate widespread power outages
l. Consider locating wells outside of seismic hazard zones or design the upper casing to resist all imposed loads due to liquefaction and/or lateral spread
m. In the wake of wildfires, install sensors upstream of the reservoir to monitor the amount of debris and sediment coming down the river, allowing utility to shut down its treatment plant before flash floods could cause damage; monitor raw water quality to adjust treatment, as necessary; resize culverts to handle increased flow
n. Practice mechanical thinning, weed control, selective harvesting, controlled burns and creation of fire breaks on utility managed property

o. Create a zone of defensible space for utility equipment and facilities (e.g., wellheads, structures, supports to wires and transformers); keep intakes clear of debris
p. Install manual or automatic irrigation systems to provide wetting of components and groundcover for vulnerable areas (e.g., chlorine storage, control equipment buildings)
q. Installation of fire-resistant building materials
r. Purchase of fire suppression equipment and fire safety kits as key components of emergency response equipment