

US EPA Region 9**Climate Adaptation Implementation Plan Addendum****September 2024**

This 2024 Addendum to the [October 2022 US EPA Region 9 Climate Adaptation Implementation Plan](#) (CAIP) was developed in response to a request from US EPA's Office of Policy to highlight priority actions that:

1. Integrate Indigenous Knowledge (IK)
2. Increase the knowledge of US EPA staff on climate adaptation, and
3. Incorporate climate adaptation considerations into EPA grants funded by the Bipartisan Infrastructure Law (BIL) or the Inflation Reduction Act (IRA).

These three topics are addressed in one or more of the Priority Actions in the CAIP, listed below.

Requested Info	Priority Action #
Integrate Indigenous Knowledge	1- Building Tribes' Climate Change Adaptation Capacity
Increase staff knowledge on climate	12- Climate Change and Disaster Speaker Series
Incorporate climate adaptation into EPA grants funded by BIL or IRA	11- Building Resilience in SF Bay

Other changes from the original CAIP Priority Actions include:

- Indication of completed actions as of September 2023
- Updated division names and points of contact.
- Addition of new priority actions

Environmental Justice, Community Engagement, & Environmental Review Division (EJCEER)

1. Build Tribes' Climate Change Adaptation Capacity

<p>Time Frame – FY22-25</p> <p>Cross-EPA Priorities – #2 & #5</p> <p>Climate Impact Addressed – Wildfires, storms, flooding, drought, food scarcity</p> <p>Region 9 Lead – Sophia Usow, EJCEERD</p> <p>Co-benefits – This action can also build capacity of Tribes to develop sustainable methods to address climate change issues.</p> <p>Partners– Federally Recognized Tribal Governments in Region 9</p> <p>Resource requirements – Using existing resources</p> <p>Challenges or Barriers – None identified</p>	<p>Description</p> <p>The Tribal Branch will provide technical assistance to Tribes in Region 9 to develop and update climate vulnerability assessments and adaptation plans using General Assistance Program (GAP) grant funding for FY22 and identify such actions for FY23 grant workplans. To support development of assessments and plans in FY22, the Tribal Branch delivered a Climate Change webinar for Tribes in Region 9 on September 23, 2021, providing guidance to Tribal grantees on the use of GAP grants to fund development of vulnerability assessments and adaptation plans. The Tribal Branch will also provide technical assistance through identifying science needs and training needs with Tribes around climate adaptation. Region 9 will coordinate with EPA's American Indian Environmental Office on Indigenous Knowledge (IK) in climate adaptation actions. To consider incorporation of IK where the Tribe feels it is appropriate, in the Tribe's environmental protection program or climate adaptation action, and/or in implementation of an EPA-supported environmental program for one or more specific Tribes.</p> <p>Performance Metrics</p> <p>The number of climate change related activities in Tribes' FY22, FY23, FY24 workplans. This includes the number of Tribes the GAP office provides assistance to for climate vulnerability assessment, climate adaptation and drought contingency plans.</p> <ul style="list-style-type: none"> • FY 22, Tribes will complete 3 plans. (Completed) • FY 23, Tribes will complete 2 plans. (Completed) • FY 24, Tribes will complete 4 plans • FY 25, Tribes will complete 3 plans <p>Outcome</p> <p>Tribes' have increased knowledge of climate impacts, climate adaptation actions and funding/technical sources to support their climate adaptation priorities.</p>
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2. Host Binational and Border Region Climate Change Presentations with a Focus on Tribes and Communities **(COMPLETED)**

<p>Time Frame – FY22 COMPLETED</p> <p>Cross-EPA Priorities – #2 & #5</p> <p>Climate Impact Addressed – Wildfires, heatwaves, sustained drought, extreme rain events</p> <p>Region 9 Lead – Emily Pimentel, Mexico Border Branch, EJCEER</p> <p>Co-benefits – sharing information on climate mitigation planning</p> <p>Partners– CalEPA, AZ Department of Environmental Quality (ADEQ), Mexican Secretariat for Natural Resources (SEMARNAT), and potentially National Oceanic and Atmospheric Administration (NOAA) and Bureau of Indian Affairs (BIA)</p> <p>Resource requirements – Using existing resources</p> <p>Challenges or Barriers – Partners' Availability</p>	<p>Description Develop and hold two presentations (workshop and forum) at the Border Region that include Climate Adaptation and Climate Mitigation.</p> <ol style="list-style-type: none"> 1. One presentation (a workshop) will be for the 24 Federally Recognized Tribes in the California and Arizona Border Region on the range of climate change impacts, adaptation and planning tools, and mitigation in their region. The webinar will be developed in partnership with other Federal agencies and expert organizations. 2. The second presentation (a forum) will be a binational event engaging with tribal leaders and tribal cultural specialists. The presentation will include climate adaptation planning and climate mitigation. Participants will share examples and create connections to replicate best practices for building resilience to climate impacts. <p>Performance Metrics</p> <ul style="list-style-type: none"> • 1 Workshop with Institute for Tribal Environmental Professionals (March 2022) (Completed) • 1 Forum May Forum with Climate Science Alliance (May 2022) - The forum with Climate Alliance was in person, not a webinar as originally planned. The forum drew about one hundred attendees. (Completed) <p>Outcome Tribes and Border Communities have increased knowledge of climate impacts, potential adaptation actions and tools and mitigation; and stronger peer-to-peer ties regarding climate-related work.</p>
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3. Assist the Commonwealth of Northern Mariana Islands to Build Typhoon Resilience

<p>Time Frame – FY22 – 26</p> <p>Cross-EPA Priorities – #2</p> <p>Climate Impact Addressed – Typhoon</p> <p>Region 9 Lead – Michelle Baker, Land, Chemicals and Redevelopment Division (LCRD)</p> <p>Co-benefits – Builds sustainability, conserves natural resources, reduced embodied carbon, green job creation</p> <p>Partners – EPA Region 9 Pacific Islands and Mexico Border Section, Intergovernmental Branch (PIMBS/EJCEER); EPA Region 2; CNMI Bureau of Environmental and Coastal Quality (BECQ); CNMI Department of Public Works (DPW), CNMI Office of Planning and Development (OPD); Mayors Offices of Saipan, Tinian, Rota, and the Northern Islands; and the Inter-Island Solid Waste Management Task Force with participants from Saipan, Rota, and Tinian</p> <p>Resource requirements – Using existing ASADRA Typhoon Yutu recovery resources</p> <p>Challenges or Barriers – pandemic-related impacts in Pacific Island territories (i.e., travel restrictions, resource constraints, shipping restrictions and costs, staff shortages and losses) present unexpected and compounded challenges for Pacific Island environmental agencies in accomplishing both short and longer-term goals</p>	<p>Description</p> <p>Provide extensive technical assistance through review of landfill design documents, planning documents, draft ordinances, position descriptions for new hires, workplans, and budgets for Federal grants for the Commonwealth of Northern Mariana Islands (CNMI). Provide funding assistance and technical assistance to the CNMI to repair and rebuild their solid waste infrastructure. Functioning solid waste programs and facilities build resilience to disasters, including typhoons. Region 9 administered approximately \$10 million in grant funding for further repairs and upgrades to the Marpi Landfill in Saipan in FY22 and is working with the CNMI to support their effective management of \$56 million of funds by FY26. The Pacific Islands Office in EJCEER transitioned project management to LCRD in FY24. LCRD and our partners plan to share lessons learned from the CNMI's disaster recovery and expand and increase technical assistance to Guam (Chamorro populations) and American Samoa (Samoa populations) to build typhoon resilience.</p> <p>Performance Metrics</p> <ul style="list-style-type: none"> • Conduct 1 in-person Zero Waste training. (Completed 3 in-person trainings, FY22, FY23 & FY24) • Provide technical assistance to the CNMI to complete the following deliverables: <ul style="list-style-type: none"> ○ Comprehensive Solid Waste Management Plan (FY 24-25), ○ A Zero Waste feasibility report (FY24-25) ○ An Alternative Energy feasibility study for Marpi Landfill (Completed FY24) • Provide grant administration to repair and upgrade the Marpi Landfill in Saipan in FY22. (Completed FY23) • The CNMI's full expenditure of award funds (\$56 mil) within 4-5 years. • The CNMI has functioning solid waste program by FY27. • Expand/increase technical assistance to Guam (Chamorro populations) and American Samoa (Samoan populations) to build typhoon resilience. (FY20-27) <p>Outcome</p> <p>Waste and related climate impacts are reduced and landfills and other solid waste infrastructure in CNMI are made more resilient to typhoon events to prevent the release and dispersal of trash and associated contaminants. CNMI program staffing and training will build islands resilience and response capacity for future disasters while reducing marine debris, embodied carbon emissions, and landfill methane emissions. Guam and American Samoa learn from CNMI's example and carry out similar actions.</p>
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OFFICE OF PUBLIC AFFAIRS (OPA)

4. Protect Children and Communities from Wildfire and Extreme Heat Health Effects **(COMPLETED)**

<p>Time Frame – FY22-23 COMPLETED</p> <p>Cross-EPA Priorities– #2</p> <p>Climate Impact Addressed– Wildfires, extreme heat.</p> <p>Region 9 Lead– Sarah Sullivan, Children’s Environmental Health and Healthy Schools, Community Revitalization Section, EJCEER</p> <p>Co-benefits– A co-benefit is better indoor air quality for students and school staff throughout the year, even when there are not wildfires or heat events. This has positive implications for reducing COVID-19 transmission as well. Allows schools to stay open during wildfires and heat events, improving access to education.</p> <p>Partners– <u>Internal</u>: EPA Region 9 Air and Radiation Division; R9 Indoor Environments Team; EPA Region 9 Border Program; Office of Children’s Health Protection; Office of Air Quality Planning and Standards; Office of Community Revitalization; Office of Air and Radiation; <u>External</u>: Bay Area Air Quality Management District and its partners; Pima County Health Department and its partners; Western States Pediatric Environmental Health Specialty Unit; Schools, community organizations, and Tribes participating in the Air Quality Flag Program</p> <p>Resource requirements– Using existing resources.</p> <p>Challenges or Barriers– Staff time, competing priorities, COVID-19 impacting travel and events, lack of consistent access to communication tools (e.g., GovDelivery for email delivery and analytics, and Zoom for simultaneous translation).</p>	<p>Description</p> <p>EPA Region 9 will work on the following projects:</p> <ul style="list-style-type: none"> • In FY22, through a pilot project, help partners in Pima County, Arizona, and the San Francisco Bay Area develop steps and funding sources for retrofitting school HVAC systems to meet multiple goals. Goals include providing healthy air for students and school staff and providing neighborhood clean air and cooling shelters. EPA Office of Community Revitalization is the pilot project lead, in partnership with EPA Regions 9 and 10. Technical assistance will be provided directly from EPA and through contractors. EPA and its consultant team will have expertise in disaster policy, community engagement, and HVAC engineering. EPA will create an action plan to retrofit selected schools. • Develop the children’s book, “Why is Coco Red” in FY22, focused specifically on wildfires. This is a multi- region collaboration. and is a sequel to “Why is Coco Orange.” Eileen Shanahan (Environmental Education Program) is the Region 9 lead for this item. • Continue to collaborate with the EPA Region 9 Air and Radiation Division to encourage use of Air Quality Flags in more communities. Provide information to the communities on how the program works, and encouragement to adopt the program. • Continue to collaborate with the EPA partner Western States Pediatric Environmental Health Specialty Unit (WSPEHSU). Promote the <i>Story of Health</i> E-book chapter on wildfires that was developed using EPA FY21 interagency agreement funds. Promote wildfire outreach materials. Collaborate on wildfire outreach and education opportunities. Support WSPEHSU research on children’s health impacts from wildfire smoke. • Develop and support outreach and education, including webinars, emails, social media, videos, presentations, conferences/events educating the public (parents/caregivers, teachers, school staff, community members, public health workers, physicians) about wildfire (primary) and extreme heat (secondary) health impacts and steps they can take to protect children and other vulnerable populations in their communities. <p>Performance Metrics</p> <ul style="list-style-type: none"> • Number of schools set up as community cleaner air and cooling centers. Completed: FY22 (2) • Number of community workshops to set up schools as community cleaner air and cooling centers. Completed: FY23 (1) • Number of new organizations enrolled in the Air Quality Flag
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	<p>Program each year. Completed: FY22 (34), FY23 (13)</p> <ul style="list-style-type: none"> • Number of views on four wildfire and health videos produced in FY21 in English and Spanish. Completed: FY22 (659), FY23 (493) • Number of outreach/education events with content related to wildfires and/or extreme heat. Completed: FY22 (6), FY23 (6) • Number of emails/social media posts related to wildfires and/or extreme heat. Completed: FY22 (66), FY23 (30) • ‘Why is Coco Red?’ book development complete and published. Completed in FY22 <p>Outcome: Communities and those who have influence over children’s environments understand the ways they can limit the health impacts from exposure to smoke and extreme heat.</p>
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AIR AND RADIATION DIVISION (ARD)

5. Reduce Exposure to Wildland Fire Smoke **(COMPLETED)**

<p>Time Frame – FY22-23 COMPLETED</p> <p>Cross-EPA Priorities– #1,2,3 & 5</p> <p>Climate Impact Addressed– elevated concentrations of particulate matter (PM) in outdoor and indoor air, resulting from wildland fires.</p> <p>Region 9 Lead– Niloufar Nazmi, Immediate Office, ARD</p> <p>Co-benefits– As exposures to smoke from wildland fires are reduced, human health will be protected.</p> <p>Partners– <u>Internal partners</u> include Office of Policy (OP), Office of Children’s Health Protection (OCHP), Office of Air Quality Planning and Standards (OAQPS), Office of Radiation and Indoor Air (ORIA), ORD and EPA Regions 1, 2, 4, 7, 8, and 10. <u>External partners</u> include US Forest Service, States, air districts, Tribes, Western States Pediatric Environmental Health Specialty Unit, schools and impacted communities.</p> <p>Resource requirements– Using existing resources and need new resources.</p> <p>Challenges or Barriers– Lack of dedicated staff time and funding. Recent loss of an EPA Region 9 subject matter expert. Unfunded multi-lingual communication needs. Lack of public access to internet resources, air filtration equipment and clean air shelters.</p>	<p>Description</p> <p>Climate change in the Pacific Southwest is increasing the frequency and intensity of wildfires. Federal, state, tribal, and local land managers are seeking to increase the acreage of prescribed and cultural fires to reduce the threat from wildfires in the future. Wildfires and prescribed/cultural fires, together referred to as “wildland fire,” produce smoke and degrade outdoor and indoor air quality, impacting the health of millions of people. EPA Region 9 is leading a new Office of Air and Radiation (OAR) Wildland Fire Smoke Sub-Lead Workgroup to promote agency-wide communication on smoke issues and expand the agency's capacity to provide consistent, science- based, effective tools and messaging to support the public in reducing exposures to wildland fire smoke. The specific goals and tasks are being developed. The workgroup is forming in FY22.</p> <p>Performance Metrics –</p> <ul style="list-style-type: none"> • FY22 - Convene Sub-lead Workgroup with representatives from multiple OAR program offices, regions, and Office of Research and Development (ORD). (Completed) • FY22 – Sub-lead workgroup to develop purpose, goals, and tasks. (Completed) • FY22 - EPA Region 9 to assist with development and delivery of tribal training class addressing indoor air quality and post-fire cleanup after a wildfire. (Completed) • FY23 - In our role as wildfire sublead, present need for national focus on reducing exposure to wildland fire smoke at OAR senior leadership meeting. (Completed) • FY23 - As sublead, initiate planning for implementing national focus. (Completed) • FY23 - Determine if and how Section 60201 of the Inflation Reduction Law can promote national focus and seek to influence EPA's implementation as sublead for wildfire. (Completed) • FY23 - Conduct outreach activities targeting underserved communities in R9 by providing actionable information and tools allowing communities to reduce their exposure to wildland fire smoke. (Completed) • FY23 - Create initial (i.e., first of its kind) targeted media packet, in partnership with US Forest Service, CalEPA, Cal Fire and others, for location-specific distribution to media outlets reporting on areas experiencing wildland fire smoke impacts. (Completed) <p>Outcome: Reduce exposure to wildland fire smoke.</p>
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***Additional notes** – This action partially addresses two known air quality vulnerabilities of:

1. increasing particulate matter concentrations from more frequent and severe wildfires; and
2. worsening indoor air quality from wildfire smoke infiltrating homes and buildings, as identified in EPA’s October 2021 National Climate Adaptation Plan.

ENFORCEMENT AND COMPLIANCE ASSURANCE DIVISION (ECAD)

6. Target Compliance Inspections to Facilities Vulnerable to Climate Change Impacts

<p>Time Frame – FY22-26</p> <p>Cross-EPA Priorities– #2</p> <p>Climate Impact Addressed– This action would facilitate facility adaptation to multiple climate impacts including sea-level rise, flooding, wildfire, and drought/heat.</p> <p>Region 9 Lead– Kendall Johnson, Data Solutions Section, ECAD</p> <p>Co-benefits– Enforcement and compliance assistance ensures regulated facilities operate according to environmental standards, protects vulnerable communities, and builds awareness of potential public health and environmental threats.</p> <p>Partners– <u>Internal</u>: HQ Office of Enforcement and Compliance Assurance (OECA) Climate Adaptation Reporting/Tracking work group, EPA HQ OECA inspection targeting staff work group. <u>External</u>: U.S. Government Accountability Office (GAO), CalEPA, California Air Resources Board, California Water Boards, CUPAs.</p> <p>Resource requirements– Using existing resources and need new resources.</p> <p>Challenges or Barriers– Limits to regulatory authority, inspection staff, and funding pose challenges for this action. This action will need EPA management support and facilitation. Achieving the short-term goals requires ECAD management to facilitate inspections in targeted areas and provide inspectors with training on how to incorporate climate change risks with-in the regulatory of the statutes they inspect under. Long-term goals will require OECA support in creating a data system to report and track activities with climate-related components.</p>	<p>Description</p> <p>Climate change increases vulnerability of facilities and therein compliance to EPA regulations. Increasing inspections at facilities vulnerable to climate change and facilitating conversation with facilities on how climate change is altering the natural hazard risk landscape facilities face can prevent non-compliance and safeguard communities. This must be done within the capacity of our current regulatory authority per each statute. This action includes:</p> <ul style="list-style-type: none"> • FY23 – Develop, or identify and utilize, an inspection targeting tool to identify facilities vulnerable to climate change. For CWA inspections, identify priority coral reef watershed(s). Identify the number of inspections per program area to be conducted. Incorporate analysis of facility climate change risks into inspection targeting and case development. Utilize EJ Screen climate layers to analyze facility risks to climate change. • FY24 – Conduct 10 or more inspections at Risk Management Plan (RMP) facilities identified as vulnerable to climate change identified in the GAO Chemical Accident Prevention Report. Conduct 1 climate focused MS4 audit at a CWA facility with MS4 requirements. Conduct at least 3 CWA inspections in priority coral reef watershed(s). • FY25- Conduct 28 total inspections across all program areas at facilities identified as vulnerable to climate change using the climate change inspection targeting tool or other identified methods. <p>Performance Metrics –</p> <ul style="list-style-type: none"> • In FY23- Tool identified to target inspections vulnerable to climate change. SOP for analyzing facility climate risks and vulnerabilities. Number of inspections planned per program area. (Completed: Exploring alternative tools due to limitations with recent EJSCREEN updates) • In FY23-25- Number of inspections planned and conducted per program area and totals across all program areas at facilities identified as vulnerable to climate change. (FY24 15 inspections - 10 RMP, 4 stormwater/wastewater, 1 MS4 Audit; FY25: 28 inspections) <p>Outcome: Standard Operating Procedure defining universal standard for evaluating facility climate risks and including climate change information in case screenings (DONE). Inspection targeting tool identified and/or developed (DONE). 10 or more inspections conducted at RMP facilities identified as vulnerable to climate change for FY24 (DONE). 1 climate focused MS4 audit at a CWA facility with MS4 requirements for FY24 (DONE). 3 CWA inspections in priority coral reef watershed(s) for FY24 (PARTIAL). 28 additional climate focused inspections in FY25 (PLANNED).</p>
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***Additional Notes** - This action will be enhanced by the OECA Priority Action for tracking and measuring compliance monitoring and enforcement matters with climate change-related components. The tracking of these aspects will improve the targeting tool and tracking our progress on addressing facility-level climate risks.

7. Incorporate Climate Change and Resilience Principles in Enforcement Case Resolutions Where Appropriate (NEW!)

<p>Time Frame – FY24-26</p> <p>Cross-EPA Priorities– #1</p> <p>Climate Impact Addressed– This action would facilitate facility contribution to climate-related solutions and/or facility adaptation to multiple climate impacts including sea-level rise, flooding, wildfire, and drought/heat.</p> <p>Region 9 Lead– Kendall Johnson, Data Solutions Section, ECAD</p> <p>Co-benefits– Incorporating climate change into enforcement case developments ensures regulated facilities are resilient to future climate impacts and/or are taking steps to mitigate climate change which in turn mitigates as well as protects vulnerable communities from environmental threats.</p> <p>Partners– <u>Internal</u>: HQ Office of Enforcement and Compliance Assurance (OECA), Office of Regional Council (ORC), Office of Compliance (OC), Office of Policy (OP), R9 Tech Center (R9TC), Regional Climate Assistance Network (RCAN), Climate Adaptation Reporting/Tracking work group <u>External</u>: Arizona Department of Environmental Quality (ADEQ), California Environment Protection Agency (CalEPA), Nevada Division of Environmental Protection, Hawaii Department of Health (HDOH), Guam EPA (GEPA)</p> <p>Resource requirements– Using existing resources and need new resources.</p> <p>Challenges or Barriers– Lack of funding and limits to regulatory authority and training of EPA staff pose challenges for this action. This action will need EPA management support and facilitation. Achieving the goals herein requires coordination between ECAD case developers and attorneys from ORC.</p>	<p>Description</p> <p>Violation of EPA regulations provides potential opportunities for improving facility resilience to future impacts of climate change and/or adoption of climate-related solutions where appropriate. Incorporating consideration of climate change and resilience principles in case resolutions can prevent potential future non-compliance and safeguard communities. How climate change is incorporated into case resolutions will be determined on a case-by-case basis and must be done within the capacity of our current regulatory authority per each statute. This action would require consistent consideration of climate change in all enforcement matters and during the case development processes.</p> <p>This action includes:</p> <ul style="list-style-type: none"> • FY24 –Incorporate climate change and resilience principles in 1 case conclusions if appropriate. • FY25 – Develop, or identify and utilize, a screening tool for assessing site-specific climate risks at facilities. With support from R9 ORC, create a cross-divisional workgroup to assess media and statute specific opportunities to integrate climate change elements into our enforcement work. This includes implementation of national guidance, identifying resource gaps/challenges and targeting opportunities to integrate climate change in case resolutions in R9 when warranted and appropriate. Incorporate climate change and resilience principles in 6 or more case conclusions if appropriate. <p>Performance Metrics –</p> <ul style="list-style-type: none"> • In FY 24-25 - 1) Tool Identified for assessing site-specific climate risks at facilities. 2) Cross-division workgroup established. 3) Number of case conclusions that incorporate climate change total and per program area. <p>Outcome: Standard Operating Procedure defining universal standard for evaluating facility climate risks and including climate change information in case screenings (DONE). Incorporated climate change and resilience principles into 1 case conclusion for FY24 (DONE). Assessing site-specific climate risks at facilities (PLANNED). Cross-division workgroup established (PLANNED).</p> <p>*Additional Notes – The addition of this priority action in FY 24 will build upon our Standard Operating Procedure for evaluated facility climate risks and including climate change in case screenings that was completed in FY23. For case conclusion action goals, no committed target is set since it is enforcement and dependent on external inputs. This action will be enhanced by both the FY 2024-2027 NECI for “Mitigating Climate Change” as well as upcoming guidance expected from OECA on how to effectively incorporate climate change into case conclusions.</p>
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LAND, CHEMICALS AND REDEVELOPMENT DIVISION (LCRD)

8. Implement Climate Change Impacts on Remedy Resilience at RCRA and TSCAA PCB Cleanup Sites and Permitted Facilities

Time Frame – FY22-26	Description
<p>Cross-EPA Priorities– #1, #2</p> <p>Climate Impact Addressed– Coastal Storm Surge, Sea-Level Rise, Groundwater Table Rise, Tsunami, and Wildfires.</p> <p>Region 9 Lead - Karen Irwin, Corrective Action Office, LCRD</p> <p>Co-benefits– To the extent that efforts to address climate change resiliency in site remedies are paired with implementation of greener cleanups measures, this would have climate mitigation and sustainability co-benefits. (EPA Region 9 has a greener cleanups checklist tailored to PCB cleanup sites.)</p> <p>Partners – State agencies, tribal agencies, Responsible Parties.</p> <p>Resource requirements– Using existing resource.</p> <p>Challenges or Barriers– Ensuring consistency with national guidance for PCB and RCRA sites to be developed by EPA Headquarters-led climate change adaptation workgroups. EPA Region 9 is participating on the workgroups.</p>	<p>Evaluate resiliency of remedies for cleanup sites and permitted facilities to withstand increased climate-change related risks associated with rising sea levels, storm surges, groundwater tables, tsunamis, and wildfires.</p> <p>Sites at which PCBs are disposed in-place located in zones at risk for sea-level rise and storm surges of increasing intensity are subject to greater risk of temporary or permanent flooding, increasing the potential for PCBs to be mobilized. TSCA submittals to EPA for such sites typically do not consider increased risk from projected rising water levels in future years brought about by climate change. However, TSCA disposal-in-place remedies are intended to remain effective in perpetuity (or until the contamination is removed with EPA approval, as needed). Remedial decisions for PCB and RCRA sites or facilities often rely upon engineering controls, including pumps and electrical equipment, and physical barriers (e.g., hard caps, liners) to ensure protectiveness over time. In the past, our RCRA remedial and hazardous waste permit decisions were evaluated against 100-year flood levels anticipated from heavy rain events. EPA needs to ensure that both our RCRA and PCB cleanup site remedies and permit decisions are sufficiently resilient to withstand the combined effects of sea-level change and severe weather events, as well as increased risk of fire danger for select sites/conditions. EPA's October 2021 National Climate Adaptation Action Plan includes a commitment to develop/update national policy for remedy selection for RCRA and PCB cleanup sites to address sea-level rise. Anticipated tasks for this action include:</p> <ul style="list-style-type: none">For PCB cleanup sites, EPA Region 9 will evaluate the combined effect of sea-level rise and storm surge projections up to a 7-foot total water level within an 80-year timeframe at our sites as an interim guideline until EPA national policy is developed/updated. For RCRA sites and PCB permitted disposal facilities, EPA will, at minimum, evaluate the combined effect of sea-level rise and storm surge projections within the expected life of the remedy or permit expiration date (e.g., 30 years). Factors to consider include projected sea-level rise, projected groundwater table rise, projected rise in water levels from up to a 100-year storm, the levels and depths of contaminants to remain in soil or other media, susceptibility for release/mobilization of PCBs or hazardous waste from future changes in total water levels or wildfires, and potential future pathways of exposure and receptors. For sites at which climate change-induced factors pose an added threat to the long-term protectiveness of a disposal-in-place remedy or permitted disposal, EPA will consider whether our approval should be contingent upon alterations being made to the remedy, long-

	<p>term site monitoring plan (including groundwater monitoring), and/or site contingency plan. For example, EPA applied resiliency measures at one facility by requiring pumps and electrical equipment to be housed on the second floor of a parking garage within an area that might be flooded due to sea-level rise and storm surge. EPA will also carry out Long-Term Stewardship reviews for cleanup sites and permitted facilities which incorporate climate change risk factors. Long-Term Stewardship reviews may include periodic re-evaluation of changes in site vulnerability to disasters (e.g., from updated climate change impact projections or countermeasures such as constructing or increasing the height of levee systems).</p> <ul style="list-style-type: none"> Finally, EPA will carry out training for PCB and RCRA Project Managers in LCRD on how to evaluate sites/facilities and associated remedies for climate change impacts and ways to implement climate change resiliency into remedy protectiveness. <p>Performance metrics</p> <p><u>Quantitative:</u></p> <ul style="list-style-type: none"> Number of PCB and RCRA Project Managers who attended training on how to evaluate sites or permitted facilities for climate-change driven future conditions. <ul style="list-style-type: none"> FY22 (0) and FY23 (18) and FY24 (18) Number of new PCB cleanup site and facility permit applications evaluated for climate-change driven future conditions. <ul style="list-style-type: none"> FY22 (1), FY23 (2) and FY24 (7) and FY25 (7). Number of existing RCRA and PCB cleanup sites or permitted facilities that have received EPA approvals evaluated for climate-change conditions as part of long-term stewardship activities. <ul style="list-style-type: none"> FY22 (1) FY23 (2) <p><u>Qualitative:</u></p> <ul style="list-style-type: none"> Identify types of climate change resilient remedies implemented at RCRA and PCB cleanup sites and permitted facilities. <p>Outcome: All Region 9 approvals include screening and, where appropriate, evaluation of climate vulnerability and long-term protectiveness of the proposed cleanup and/or disposal action or remedy, with the findings summarized in EPA's approvals.</p>
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SUPERFUND AND EMERGENCY MANAGEMENT DIVISION (SEMD)

9. Incorporate Climate Change Resilience into Remedy Selection and Protectiveness Determinations for Currently Listed Superfund Sites

<p>Time Frame – FY22 and onward</p> <p>Cross-EPA Priorities– #1 and 2</p> <p>Climate Impact Addressed– flooding, wildfires, drought, hurricanes, sea-level rise.</p> <p>Region 9 Lead– Dana Barton, Assistant Director, and Nathan O’Neal, SEMD</p> <p>Co-benefits– Co-benefits of actions are site specific.</p> <p>Partners– Stakeholders may include Department of Defense, Tribes, or another Federal or private stakeholder or Potentially Responsible Parties at PRP-lead sites.</p> <p>Resource requirements– Using existing resources.</p> <p>Challenges or Barriers– PRP-lead sites will require an Enforcement element.</p> <p>*Additional Notes - Sources: Memorandum Consideration of Climate Resilience in the Superfund Cleanup Process for Non- Federal National Priorities List Sites, Larry Douchand, Director, Office of Superfund Remediation and Technology Innovation USEPA. Additional impacts are anticipated but not completely understood.</p>	<p>Description</p> <p>Consistent with Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), the Agency ensures protection of human health and the environment and in doing so may consider potential impacts of extreme weather events and changing climate conditions at Superfund sites to ensure the long-term integrity of response actions. The existing Superfund response selection and implementation process provides a basis to consider potential extreme weather impacts and sea-level rise and to act, as warranted, to increase remedy resilience. For example, the NCP provides nine criteria to evaluate remedial action alternatives prior to issuing a proposed plan for a given site [see 40 CFR§300.430(e)(9)(iii)]. Consideration of climate resilience should not be treated as a new criterion; however, some or all of the following five criteria may be relevant to evaluating a remedial action alternative’s climate resilience:</p> <ul style="list-style-type: none"> • Threshold criterion: Overall protection of human health and the environment. • Primary balancing criteria: • Long-term effectiveness and permanence; • Reduction of toxicity, mobility or volume through treatment; • Short-term effectiveness; and • Implementability. <p>There are other opportunities in the existing CERCLA framework that provide opportunity to evaluate and adapt to the effects of climate change. In instances where remedial actions have been selected but not yet implemented, the remedial design phase may provide an opportunity to consider potential site and remediation system vulnerabilities and identify adaptation measures to help maximize climate resilience. Climate change should also be considered when making a protectiveness determination during the Five-Year Review process at sites with remedies in place. Remedial Project Managers (RPMs) should gauge the impacts of climate change on existing remedies. Where the remedies may be impacted by the effect of climate change, make recommendations to enhance the effectiveness of the remedy or to evaluate new remedies that will ensure long-term protectiveness of human health and the environment.</p> <p>Specific adaptation measures may be identified through an evaluation of the following considerations:</p> <ul style="list-style-type: none"> • Assess the vulnerability of a remedial action’s components, including its associated site infrastructure and evaluate whether the long-term integrity of a selected remedy may be impaired by adverse effects of climate change. A site-specific analysis of the remedial action in light of current, forward-looking information on local or regional climate and weather regimes may be useful. For example, the assessment may include predictive information on future climate conditions, such as intensities and frequencies of extreme weather events over a timeframe corresponding to a remedy’s anticipated duration, including long-term monitoring. • Based on any potential vulnerabilities identified in (1) above, evaluate adaptation measures that increase the system’s resilience to a changing climate and ensure continued protectiveness of human health and the environment. Examples of climate resilience measures may include adapting a system’s operating parameters, such as installing equipment that enables offsite workers to remotely adjust or suspend operations during extreme weather events. Other measures may involve installing engineered structures that address vulnerabilities, such as elevation of onsite power supplies and enhanced erosion controls. Engineered structures also may help prevent
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transport of contaminated material across a site or to offsite areas during heavy or prolonged precipitation, thereby avoiding site recontamination due to stormwater runoff from offsite sources.

- Implement adaptation measures, as needed, to ensure the long-term integrity of CERCLA remedial actions and their protectiveness of human health and the environment.

The anticipated tasks for each Fiscal Year include:

- *In FY22*
 - Develop list of NPL sites that are either in the Feasibility Study stage or undergoing a Five-Year Review in FY22. **(Completed: 9 sites)**
 - Identify appropriate resources and training to assist technical staff with evaluations.
 - Evaluate climate change vulnerabilities and resiliency of remedies as described above.
- *In FY23*
 - Develop list of NPL sites that are either in the Feasibility Study stage or undergoing a Five-Year Review in FY23. **(Completed: 16 Sites)**
 - Identify appropriate resources and training to assist technical staff with evaluations.
 - Evaluate climate change vulnerabilities and resiliency of remedies as described above.
- *In FY24*
 - Develop list of NPL sites that are either in the Feasibility Study stage or undergoing a Five-Year Review in FY24.
 - Identify appropriate resources and training to assist technical staff with evaluations.
 - Evaluate climate change vulnerabilities and resiliency of remedies as described above.
- *In FY25*
 - Develop list of NPL sites that are undergoing a Five-Year Review in FY25.
 - Track new Climate Vulnerability Assessments completed during Five-Year Reviews.
 - Track how Climate Vulnerabilities identified in 2024 Five-Year Review Reports are addressed.
 - Identify appropriate resources and training to assist technical staff with evaluations.
 - Evaluate climate change vulnerabilities and resiliency of remedies as described above.

Performance metrics – Number of Five Year Review Reports and Feasibility Studies completed. An initial estimate of the number of sites is:

- **In FY22** - Approximately seven sites will complete Feasibility Studies and eight sites will complete Five Year Reviews. **(Completed: 8 FYRs and 1 Feasibility Study)**
- **In FY23** - Approximately fifteen sites will complete Feasibility Studies and three sites will complete Five Year Reviews. **(Completed: 13 FYRs and 3 Feasibility Study)**
- **In FY24** - Approximately four sites will complete Feasibility Studies and fourteen sites will complete Five Year Reviews. **(Completed: 9 FYRs, covering 14 sites and 5 Feasibility Studies)**
- **In FY25**- Approximately 20 Five Year Reviews will be completed.

Outcome - Actions are identified that increase selected NPL sites' resilience to climate impacts thereby increasing protection of human health and the environment.

10. Develop Contingency and Communications Plans for Private National Priority List (NPL) (Superfund) Sites Vulnerable to Extreme Weather Events or Wildfire

<p>Time Frame – FY22 and Onward</p> <p>Cross-EPA Priorities– #1 and #2</p> <p>Climate Impact Addressed– Flooding, wildfires, drought, hurricanes, sea-level rise, storm surges, etc.</p> <p>Region 9 Lead– Dana Barton, Assistant Director, and Nathan O’Neal, SEMD</p> <p>Co-benefits– Communities surrounding the NPL sites, build a collaborative partnership with Response stakeholders and local responders.</p> <p>Partners– Several organizations host tools that will be useful in gathering the necessary data, performing geospatial comparisons, and prioritizing the information, including NOAA, USFWS, USGS, and the EPA. Additionally, contingency planning involves emergency responders at federal, state and local levels. Some of the NPL sites are privately owned or operated.</p> <p>Resource requirements– Using existing resource.</p> <p>Challenges or Barriers– FTE availability; all our RPMs are highly over-scheduled and finding the needed time will be challenging. In addition, coordinating review with the OSCs can be challenging.</p>	<p>Description</p> <p>In Region 9, wildfires, drought, sea-level rise, and other climate change-induced effects threaten or may impact the remedies at our Superfund sites. Many of these sites are in or near vulnerable communities, Tribes, and/or territories. Some of these sites are in areas with valuable sensitive resources like endangered species, drinking water aquifers, or rivers that supply irrigation and drinking water supply.</p> <p>The anticipated tasks for each FY include:</p> <p>In FY22</p> <ul style="list-style-type: none"> • Complete development of contingency and communication plan template and requirements. • Develop list of sites that should be addressed and denote High Priority sites. • Complete Plan for each High priority site. <p>In FY23</p> <ul style="list-style-type: none"> • Review plan template and requirements for any needed updates. • Update existing plans as needed. • Review and evaluate if additional sites should be addressed. <p>In FY24</p> <ul style="list-style-type: none"> • Contingency Plans are being updated by RPMs as needed. • Identify sites that may need Contingency Plans during the FYR. <p>In FY25</p> <ul style="list-style-type: none"> • Develop or update sites that are identified with extreme climate vulnerabilities during the FY24 FYR process. <p>Contingency and Communications Plans would likely follow the outline below and the following elements should be included to assist in bridging Removal/Remedial programs:</p> <ul style="list-style-type: none"> • Name and contact information of the site On-Scene Coordinator (OSC). • Contact information for any of the following that apply: local CAL FIRE office, police and/or Sheriff’s office, fire department, property caretaker, neighboring property owner (if good working relationship exists), and city or county administration officials (Department of Public Health, Department of Emergency Services) • Addendum to contingency plan: One-page site overview to be used to convey key information to internal or external parties with the following information: <ul style="list-style-type: none"> ○ Site location, basic figure with site boundaries, how to access the site (gate codes, keys, etc.) If access is complicated it should include step-by-step instructions with photos/google earth screenshots. ○ 2-3 paragraph site background/overview. ○ Key EPA personnel and associated contact information. <p>Performance Metrics – Contingency Plan in place for all private NPL sites that are vulnerable to extreme weather events or wildfire. In FY22 will have plans in place for high priority sites (7 Completed). In FY23, will have plans in place for all other private sites.</p> <p>Outcome: Contingency and Communications Plans completed for high priority private National Priority List sites to increase readiness for climate impact events and collaboration with responders and communities.</p>
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WATER DIVISION (WD)

11. Increasing Beneficial Reuse of Dredged Material as a Critical Climate Adaptation and Resilience Strategy

<p>Time Frame – FY22-26</p> <p>Cross-EPA Priorities– #2</p> <p>Climate Impact Addressed– This action would provide adaptation to multiple climate impacts including sea-level rise, flooding, wildfire, and drought/heat.</p> <p>Region 9 Lead– Jennifer Siu, Wetlands Section, Water Division</p> <p>Co-benefits– Beneficial reuse of dredge material would provide increased ecological refugia, natural barriers of protection for human-built environment, increased buffering from storms/flooding, and increased sink for carbon sequestration. Realized better cost-to-benefit ratios for environmental actions and public protection measures. This action would benefit coastal and floodplain communities, including overburdened communities, by increasing resilience, increasing practicality of SLR actions, and developing recreation areas and greenspace.</p> <p>Partners– <u>Internal</u>: HQ OWOW workgroups on climate change through the 404 and MPRSA Programs. <u>External</u>: California Ocean Protection Council, California Regional Water Boards, Bay Conservation and Development Commission (BCDC), California Coastal Commission, National Marine Fisheries Service (NMFS), CA Department of Fish and Wildlife (CDFW), U.S. Fish and Wildlife Service (USFWS), United States Army Corps of Engineers (USACE), California Coastal Conservancy, Ports of Long Beach, Los Angeles, San Diego, Humboldt, San Francisco, and Oakland, and the San Francisco Estuary Institute (SFEI).</p>	<p>Description</p> <p>As the coastal and shoreline communities of Region 9 Plan for climate change and as sea level rises, it is vitally important that the millions of cubic yards of sediment dredged each year from ports, harbors and waterways be used beneficially for adaptation and resilience. The multiple benefits from reuse projects in augmenting habitat, rebuilding levees, and restoring wetlands are well known; but effective implementation for significant volumes of reuse has lagged significantly. The timing on this action is critical as many coastal areas must immediately begin significant beneficial reuse as part of their climate resiliency efforts to adapt infrastructure to rising seas and to build ecological resiliency.</p> <p>EPA Region 9 has long been a leader on this issue, establishing interagency policy and permitting frameworks to encourage/remove barriers to reuse (e.g., San Francisco Bay Long-term Management Strategy (LTMS), Southern CA Dredged Material Management Team (DMMT)). This action will require partnerships with Tribes, states, other federal agencies, and project proponents to strengthen adaptive capacity and increase the resilience of the nation. Beneficial reuse actions will also advance environmental justice through adaptation and resiliency of infrastructure in overburdened communities vulnerable to sea-level rise.</p> <p>The work will follow this schedule:</p> <ul style="list-style-type: none"> • FY22 - Strategic Planning and development of issue paper. • FY22-23 - Dissemination of information; collaboration and implementation with partners; assessment of specific beneficial reuse opportunities. • FY23-24 - Facilitation and implementation of specific projects. Initiation of California Outreach Project: Coastal Resiliency with Smart Sediment. Establishment of additional dredged material management office in Humboldt County. • FY25-26 - Strengthen and memorialize Federal/State/Regional commitments to beneficially reuse all suitable material from projects in Region 9. <p>EPA Region 9 will develop a position paper to outline past/current/future needs (including scientific data needs), actions, and challenges to increase visibility of the issue internally and externally. EPA will use existing collaborative frameworks to lead our partners in policy matters, funding opportunities, and implementation.</p> <p>EPA Region 9 will leverage our Marine Protection, Research, and Sanctuaries Act (MPRSA) authorities with USACE to direct sediment from maintenance projects to beneficial reuse instead of ocean disposal. EPA will assess opportunities throughout California and the</p>
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<p>Resource requirements – Using existing resources and need new resources.</p> <p>Challenges or barriers– This action will need EPA management support and facilitation. Achieving the short-term goals requires continued multi-agency and partner coordination and advocacy in both policy and regulation. Long-term goals will likely need additional federal and state funding for sediment management and may require legislative or HQ policy changes at EPA and USACE.</p>	<p>Pacific Islands for new work dredging to be beneficially reused in restoration projects and infrastructure and to facilitate efficient permitting of those projects.</p> <p>Performance Metrics –</p> <ul style="list-style-type: none"> • <i>In FY22</i> <ul style="list-style-type: none"> ○ Develop strategic plan and position paper with identification of strategic goals, resource needs, and specific implementation actions with timelines and metrics. (Completed) ○ Identify regulatory tools to require beneficial reuse instead of ocean disposal. (Completed) • <i>In FY22-23</i> <ul style="list-style-type: none"> ○ Disseminate position paper and implementation actions to 6 stakeholder and agency groups in collaboration with partners. (Partial Completion: disseminated to SF Bay Regional partners only) ○ Identify 3 actions to promote efficiencies in beneficial reuse and restoration permitting. (Completed) ○ Assess opportunities for beneficial reuse in 2-3 sites in Southern California and the Pacific Islands. (Completed for Port of Long Beach and Pearl Harbor) • <i>In FY23-24</i> <ul style="list-style-type: none"> ○ Facilitate the reuse of 1 million cubic yards (mcy) of material in SF Bay and 2 mcy in Southern California. (FY23: 450,000 cubic yards; FY24: 500,000 cubic yards in San Francisco and 3 mcy in Southern California) • <i>In FY25-26</i> <ul style="list-style-type: none"> ○ Develop workplan with actionable tasks for Federal/Tribal/State/Regional organizations and agencies for beneficial reuse of sediment in California. <p>Outcome – Effective implementation of beneficial reuse in the San Francisco Bay Area and elsewhere in Region 9; specifically, designation of clean water act section 404 nearshore renourishment sites at Humboldt Bay and Ocean Beach (San Francisco) as well as sediment reuse management plan for Humboldt Bay and Moss Landing (California) Harbor area. California workplan has been drafted.</p>
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12. Building Resilience in SF Bay (NEW!)

<p>Time Frame – FY22-26</p> <p>Cross-EPA Priorities– #1, 2</p> <p>Climate Impact Addressed– Sea-level rise, wetland loss.</p> <p>Region 9 Lead– Luisa Valiela, SF Bay Program, Water Division</p> <p>Co-benefits– Water quality improvement, stormwater management, habitat restoration, resilience building</p> <p>Partners– Continue to expand the list of entities receiving federal grants from over eighty current and past grantees representing all levels of government, non-profit organizations, and other community stakeholders eligible to receive grant awards.</p> <p>Resource requirements– Using existing resources.</p> <p>Challenges or Barriers– Limited staff resources to administer program</p>	<p>Description</p> <p>This action will issue regular Notice of Funding Opportunities (NOFOs) for the San Francisco Bay Geographic Program soliciting proposals and supporting grantees to protect and restore wetlands and water quality, implement green development projects, build regional resilience to climate stressors, and deliver environmental and public health benefits to underserved communities.</p> <p>Shoreline communities are most at risk of flooding from sea level and groundwater rise, and potential contamination from old industrial sites in the Bay. The San Francisco Bay Geographic Program competitive grant program protects and restores San Francisco Bay by funding multi-benefit shoreline protection projects, stormwater management, habitat restoration, and more. In 2022, Congress appropriated an additional \$24 million for grants through 2026 under the Bipartisan Infrastructure Law (BIL) specifically to support project implementation of climate resilience projects in underserved communities. This action will track the number of BIL grantees and projects that incorporate resilience by improving or restoring upper watershed habitats or shoreline resiliency.</p> <p>Performance Metrics –</p> <ul style="list-style-type: none"> • Issue at least one NOFO for SF Bay Geo Program for FY24, FY25 and FY26. • 1 webinar information session on SF Bay Geo Program and/or BIL funding for FY24, FY25 and FY26. • # of BIL grantees (~5-10 grantees/ per year) <p>Outcome: Build resilience in San Francisco Bay by protecting and restoring Baylands and watersheds.</p>
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13. Climate Change and Disaster Speaker Series (NEW!)

<p>Time Frame – FY23 and on.</p> <p>Cross-EPA Priorities– # 2</p> <p>Climate Impact Addressed– Any climate impacts can be addressed according to interest of staff.</p> <p>Region 9 Lead– Yeana Kwagh, Watersheds Section, Water Division</p> <p>Co-benefits– Build knowledge and capacity of staff to incorporate climate change in Region 9's work</p> <p>Partners– Staff volunteers across all divisions of R9</p> <p>Resource requirements– Staff time and existing resources.</p> <p>Challenges or Barriers– None</p>	<p>Description</p> <p>This action entails hosting a Quarterly Climate Change and Disaster Speaker Series open to all of Region 9 staff as part of the region's climate training plan. Each quarter, volunteers across different divisions of R9 and the action lead will strategically plan speaker sessions with regional experts (internal or external to EPA) who will be invited based on various climate topics of interest, themes, case studies for continuing education and knowledge development of R9 staff. This training series will equip Region 9 staff to better understand the impacts of climate change and disasters in our region and aims to inspire staff to incorporate climate adaptation considerations into their work.</p> <p>Performance Metrics –</p> <ul style="list-style-type: none">• Number of speaker sessions a year (Target = 4).• Number of volunteers across divisions engaged to organize speaker sessions. (No target. Will report on number annually)• Number of attendees who attend each session. (No target. Will report on number annually) <p>Outcome: increase staff understanding of climate impacts, disasters, and actions to build resilience.</p>
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