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### **Greenaction for Health and Environmental Justice Comments on DTSC's Sea Level Rise Guidance for Project Managers**

Greenaction for Health and Environmental Justice submits these comments on behalf of our thousands of members and constituents whose health and environment are threatened by climate-induced sea level and groundwater rise and shoreline. To date, public health and the environment have continued to be harmed and threatened by the failure of DTSC and other regulatory agencies to require and conduct truly comprehensive cleanup and remediation of hundreds of contaminated sites. Science and justice must guide DTSC in all its work.

While DTSC's regulatory guidance, *Sea Level Rise Guidance to DTSC Project Managers for Cleanup Activities* (The Guidance), issued February 2023 is long overdue, we welcome and overall support the regulatory Guidance and support the full adoption and immediate implementation of this Guidance in all toxic sites threatened by rising sea levels and rising groundwater.<sup>1</sup> This urgently needed and important regulatory Guidance must be implemented in DTSC's decision-making and remediation action to ensure proper and full clean up of toxic and radioactive contamination at and near the shoreline of San Francisco Bay and at other locations similarly at risk from rising sea levels and rising groundwater caused by climate change. DTSC must fully implement this Guidance immediately and thoroughly in order to carry out their mission to "protect California's people, communities, and environment from toxic substances, to

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<sup>1</sup> *Sea Level Rise Guidance to DTSC Project Managers for Cleanup Activities* (2023)

enhance economic vitality by restoring contaminated land, and to compel manufacturers to make safer consumer products.”

We particularly support and call for the immediate implementation of making revisions to previously developed cleanup plans for sites where the remedy has already been selected and is found vulnerable to sea level rise (SLR) and groundwater rise (GWR) based on the latest science. The Guidance states, “For sites where the remedy has already been selected: The remedy may require revision upon completion of the five-year review or upon introduction of new information that raises significant questions regarding protectiveness.”<sup>2</sup> However, it is insufficient to say that remedies “may” require revision, as it is absolutely clear that the so-called remedies for many major contamination sites never considered rising sea level or rising groundwater even when scientific evidence made it clear that this climate threat needed to be considered. Where a “remedy” has already been chosen, (including the Hunters Point Naval Shipyard Superfund Site, Treasure Island in San Francisco, and the Astra-Zeneca site in Richmond) DTSC must reevaluate and change the current “remedies” which include the capping of waste at and near the shoreline of San Francisco Bay despite the fact that these sites are clearly vulnerable to sea level and groundwater rise.

Leaving waste capped at and near waterways including the San Francisco Bay shoreline violates the mandates outlined in the guidance. All sites at or near areas threatened by rising sea levels and rising groundwater with capped waste must be immediately reevaluated and new remedies must be chosen. This process of reevaluating sites that are vulnerable to SLR should have started in February when this Guidance was initially released. We expect DTSC to formally adopt this draft Guidance and implement the guidelines immediately in order to begin addressing sea level rise and groundwater rise.

Where a remedy has not yet been chosen, we support the requirements set forth in the Guidance that a remedy must be developed that takes into consideration the latest scientific projections on sea level and groundwater rise. These remedies must not include capping of contamination at or near locations that will potentially be impacted by rising sea levels and rising groundwater in the near or long term future. Creating and implementing remedies that will truly be protective is essential as it will save lives and help protect the environment, especially for more vulnerable communities already impacted by other environmental injustices and unjust socioeconomic factors.

We are unaware of DTSC actually implementing this Guidance and making revisions to existing or proposed site remedies despite the mandate in the regulatory guidance. DTSC must implement the Guidance immediately where it is the lead agency or one of the responsible agencies, and also inform Responsible Parties and other government agencies that existing or proposed

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<sup>2</sup> *Sea Level Rise Guidance to DTSC Project Managers for Cleanup Activities* (2023) pg.14

“remedies” must be immediately changed and improved to consider the latest scientific projections on sea level and groundwater rise.

### **Using the Latest Science on SLR and GWR**

We insist that DTSC follow through on its commitment to monitor “the best available science to address SLR as it relates to known or anticipated impacts on contaminated sites regulated by DTSC’s Site Mitigation and Restoration Program (SMRP), and update or adjust based on new science as necessary.”<sup>3</sup>

It is essential that there are specific requirements for Responsible Parties and DTSC to use the latest scientific projections to assess the vulnerability of sites to rising sea levels and groundwater and implement remedies to ensure that contaminated sites are not inundated and the contamination does not spread into neighborhoods, watersheds, and groundwater. In order to truly assess the vulnerability of specific sites, the most recent SLR and GWR projections must be taken into account. If specific groundwater rise projections do not yet exist for certain locations and/or sites, obtaining them needs to be a priority of DTSC and related agencies as this information is essential for protecting people and the environment from toxic and radioactive wastes. DTSC should refer to the work of academic experts including Dr. Kristina Hill in these matters.

Coordination between DTSC and other agencies responsible for publicizing the latest SLR and GWR data is also essential. It was encouraging to see a representative from the Ocean Protection Council (OPC) at the second Listening Session, but it was discouraging to hear that they will be releasing a new report with updated data likely *after* the DTSC has finalized this Guidance. This shows that these agencies could be better working together on the same timeline to ensure the latest data is implemented to update the Guidance immediately.

### **Sea Level Rise Projections**

The Guidance states that DTSC, “is charged with monitoring the best available science to address SLR” yet there are recent reports that acknowledge higher projections than stated in The Guidance.<sup>4</sup> In October 2022, the Port of San Francisco stated the need to adapt the shoreline to be prepared for 7 feet of SLR by 2100.<sup>5</sup> The current sea level rise (SLR) projections cited by The Guidance (3.5 feet by 2050 and 6 feet by 2100) is a good minimum but the Guidance must plan and prepare for site remediation to remain protective under worst case scenario projections.

DTSC, other government agencies, and Responsible Parties must prepare for a “worst case scenario” even beyond current projections as a precautionary principle to guide cleanups/

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<sup>3</sup> *Sea Level Rise Guidance to DTSC Project Managers for Cleanup Activities* (2023) pg. 3

<sup>4</sup> *Ibid*, pg 3

<sup>5</sup> *Informational presentation on the Draft Waterfront Adaptation Strategies* (2022)

remediation, thus requiring planning for higher sea level rise as well as groundwater rise projections.

In addition, storm surge flooding is already negatively affecting communities and flooding contaminated sites all throughout California. Flooding of contaminated sites is not only a threat in the future, but is something that is happening now. Areas around the Hunters Point Shipyard Superfund Site experienced serious flooding for several weeks in the beginning of 2023, potentially spreading radioactive and toxic waste further into neighborhoods and waterways. Large puddles left from the storm flooding in Bayview were present well into March 2023.

The DTSC is relying on the February 2022 State Agency Sea-Level Rise Action Plan for California (CA SLR Action Plan) for the most recent projections, but the CA SLR Action Plan actually cites OPC's State Sea Level Rise Guidance from March 2018 as the best available science.<sup>6</sup> This data is over 5 years old and must be updated in a new report with the latest projections for SLR and GWR in order to strengthen the data needed for SLRVAs and other SLR assessments in order to maximize the protectiveness and success of revised remediation methods.

During the listening session in early September, the representative present from OPC said that they are actively working on an updated SLR report and that we can expect it by early 2024. It is essential that the projections outlined in that report are immediately included and implemented into this Guidance.

In the table on page 16 of the Guidance, the SLR 'limit for action' is 6ft of vertical distance yet that is the *minimum* SLR this Guidance says Project Managers (PMs) should prepare for. We do not agree that this is a sufficient distance. If PMs only have to prepare for up to 6 ft of SLR for sites within 6 feet of vertical distance, that will leave significant amounts of land vulnerable to flooding and inundation. Furthermore, how do these 6 ft of vertical distance account for sites that have been artificially *filled*, and are now artificially elevated? How are these sites, that are likely above 6 ft of vertical distance from the shoreline, going to be protected? For vague and unique limits for action, such as the 6 ft of vertical distance and 'contamination within 6 ft of GWR', there needs to be some type of map or visual outline of *what* exactly falls within these limits for action. Moreover, the parameters for sites that the Guidance defines as potentially vulnerable to SLR must be expanded to cover more inland areas, further than just 6 ft of vertical distance from the shoreline.

### **Groundwater Rise Projections**

We suggest the name of the regulatory guidance be changed to include the words "groundwater rise" in addition to "sea level rise".

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<sup>6</sup> *State Agency Sea-Level Rise Action Plan for California* (2022)  
[https://www.opc.ca.gov/webmaster/\\_media\\_library/2022/08/SLR-Action-Plan-2022-508.pdf](https://www.opc.ca.gov/webmaster/_media_library/2022/08/SLR-Action-Plan-2022-508.pdf)

The Guidance does mention groundwater rise, but doesn't specifically state the many ways groundwater rise can and is currently threatening shoreline communities. The Guidance states the importance of using the most recent projections multiple times but does not include any groundwater-specific projections, such as the "Rising Coastal Groundwater as a Result of Sea-Level Rise Will Influence Contaminated Coastal Sites and Underground Infrastructure" from 2023 or the "Shallow Groundwater Response to Sea-Level Rise" report from 2022.<sup>7</sup> Groundwater rise and SLR are related threats but must be addressed individually and together.

In The Guidance, groundwater rise is largely described as an effect or consequence of sea levels rising. And while that may be true, the "Shallow Groundwater Response to Sea-Level Rise" report opens with, "Low-lying inland areas could flood from below by emergent groundwater long before coastal flood waters overtop the shoreline," and goes on to explain that, "Groundwater rise will contribute to inland flooding in low-lying coastal communities, with impacts often occurring earlier, and farther inland, than coastal flooding from overtopping of the Bay shoreline"<sup>8</sup>. This threat cannot be reduced to a mere consequence of SLR. The other report, "Rising Coastal Groundwater as a Result of Sea-Level Rise Will Influence Contaminated Coastal Sites and Underground Infrastructure" from May 2023 states: "In the San Francisco Bay Area, we found that groundwater rise is predicted to impact twice as much land area as inundation from SLR, and 5,282 additional state-managed sites of contamination may be vulnerable to inundation from GWR in a 1.0 m SLR scenario"<sup>9</sup>. This report can act as a guide or starting point for how to provide site-specific groundwater rise projections and threats. Including explicit and site-specific GWR threats is essential for this Guidance to truly be protective against climate threats facing California.

### **Accountability**

We support DTSC's commitment to update the SLR Guidance annually to reflect needed changes but these updates must use the latest science and projections on sea level and groundwater rise. This Guidance must be aligned with the OPC and other agencies producing the scientific data to *proactively* implement the latest data. This again highlights the importance and need for updated scientific reports by the OPC and others to update current SLR and groundwater rise projections. Annually updating The Guidance is important, but if the report keeps using projections based on a report from 2018 and excluding specific groundwater rise data, the updates may not be accurate or as useful.

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<sup>7</sup> *Shallow Groundwater Response to Sea-Level Rise* (2022)

[https://www.sfei.org/sites/default/files/biblio\\_files/Shallow%20Groundwater\\_Sea%20Level%20Rise\\_Pathways\\_SF\\_EI\\_2022\\_v2.pdf](https://www.sfei.org/sites/default/files/biblio_files/Shallow%20Groundwater_Sea%20Level%20Rise_Pathways_SF_EI_2022_v2.pdf)

<sup>8</sup> Ibid, pg. 3

<sup>9</sup> *Rising Coastal Groundwater as a Result of Sea-Level Rise Will Influence Contaminated Coastal Sites and Underground Infrastructure* (2023)

<https://essopenarchive.org/users/621729/articles/645176-rising-coastal-groundwater-as-a-result-of-sea-level-rise-will-influence-contaminated-coastal-sites-and-underground-infrastructure>

The Guidance must also expand the guidelines and accountability measures for SLRVAs and other assessment reports. The Guidance states, “The SLRVA may be a standalone document or be incorporated into other submittals, as determined by the DTSC Project Manager”<sup>10</sup>. The determination factors must be made clear in an outlined process. Having SLR and GWR assessments embedded into other documents makes finding this information less accessible and may also lead to less detailed reporting or analysis. SLRVAs and other assessment documents must be made extremely clear on EnviroStor and cannot be hidden within other documents. Also, the Guidance outlines a ‘Protectiveness Determination’ for contaminated sites and states, “When new information arises that appears to affect the protectiveness of the remedy due to SLR, regardless of whether five years have elapsed since remediation began or since the prior FYR, a Protectiveness Determination should be initiated which includes an updated SLRVA. The Protectiveness Determination is equivalent to a FYR”<sup>11</sup>. This Protectiveness Determination cannot replace the FYR process and must be treated as a separate document. Effective SLR planning includes the involvement of multiple agencies, governing bodies, researchers, and communities.

### **Enforcement**

The Guidance does not outline or mention how DTSC plans to enforce these new rules for PMs. What will oversight for PMs look like? Who at DTSC is responsible for full and proper implementation of this regulatory guidance?

There needs to be an additional section dedicated to enforcement in the Guidance for transparency and accountability. With so many contaminated sites vulnerable to sea level and groundwater rise, mostly with remedies in place that will not be protective of health or the environment, there is urgency in going through the current remediation plans and redesigning them in order to truly be protective of human health and the environment.

Does the DTSC know exactly how many sites fall under their criteria for ‘action’, and if so, are they ordered by priority? The Guidance currently does not address these issues and must do so in the revised version.

We suggest and request that DTSC publish a summary of what has been done to date to implement the Guidance at sites around the state. To our knowledge, DTSC has not yet reviewed or approved any SLRVAs and this Guidance has been public since February 2023, eight months ago. The Guidance should have already made Project Managers (PMs) start to actively work on reassessing and revising non-protective remediation plans. As of now, there are no public SLRVAs on EnviroStor. These assessments should be made known far before completion and communities should be alerted of in-progress SLRVAs and other assessments.

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<sup>10</sup> *Sea Level Rise Guidance to DTSC Project Managers for Cleanup Activities* (2023) pg. 6

<sup>11</sup> *Ibid*, pg. 8

Communities and other concerned members of the public should have an opportunity to review and comment on draft plans being developed pursuant to this Guidance.

DTSC and other government agencies must use and increase the development and deployment of safe on site remediation methods that do not include the burning of contamination or waste either on site or at a disposal or treatment site. We need solutions that do not add more pollution, and that do not exacerbate the impacts and causes of climate change and environmental injustice. Other unsafe methods of remediation on the shoreline include capping and sea walls.

### **Capping and Sea Walls Are Not Part of a Solution**

As discussed above, capping of waste in areas threatened by rising sea levels and rising groundwater is not a solution, and in fact may lead to an environmental disaster. Sea walls cannot be relied on to prevent flooding of contaminated sites as they are not an effective or comprehensive remedy to this climate change-induced threat. Sea walls can actually exacerbate inland flooding by trapping the floodwaters on the ‘land side’ of the wall. “Failing to account for groundwater rise on the landward side of some flood risk reduction structures (e.g., levees and seawalls) could result in maladaptation if the community continues to flood from below”<sup>12</sup>. In addition, sea walls will do nothing to prevent groundwater intrusion into capped sites.

In both the listening sessions hosted by DTSC staff about this Guidance, Dom Forrester said that, “The approach we are taking to address sea level rise is nothing new by the way. In fact, many sites including Mare Island Naval Shipyard, Selby Slag, Hunter’s Point and Treasure Island, to name a few, have been addressing sea level rise for years.” This statement’s accuracy is questionable at best, as the latest science has never been considered in developing the remediation plans. Furthermore, the government regulatory agencies have not yet properly or scientifically addressed sea level rise in any of these sites to our knowledge. In fact, DTSC never even commented on this issue in the last Five Year Statutory Review for the Hunters Point Naval Shipyard Superfund Site despite being challenged to do so by Greenaction and community members.

### **We also fully support and agree completely with Dr. Kristina Hill’s comments below:**

- The phenomenon of rising coastal groundwater should be mentioned, along with its known and likely impacts, at the outset of the Guidance so that managers of contaminated sites will be immediately aware that a knowledge of projected sea levels alone is not sufficient for their role.

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<sup>12</sup> *Shallow Groundwater Response to Sea-Level Rise: Alameda, Marin, San Francisco, and San Mateo Counties* (2022) pg. 3

- Most contaminated sites over rising groundwater in the SF Bay Area are managed by the Water Board. DTSC should develop coordinated guidance with the Water Board, in the next iteration if not in this one.
- The Guidance should clearly state that if site managers become aware of new risks to public health and the environment, the re-examination of existing and proposed remedies should be timed to when they receive information about new risks (as is provided in this Guidance) rather than limited by the 5-year review (FYR) cycle.
- A reasonable Sea Level Rise Vulnerability Assessment (SLRVA) must include rainfall impacts on groundwater elevation as well as tidal and other marine influences, and consider erosion and inundation impacts from rising tributary water levels during storm events. It would be impossible for site managers to effectively conduct a SLRVA site-by-site. Either DTSC or the Water Board (or perhaps the USGS) should provide site managers with a watershed-scale initial projection of groundwater elevation under various SLR scenarios, which covers the Operational Landscape Unit (OLU) as well as the phreatic watershed boundaries of a coastal watershed. OLU's have been defined for the San Francisco Bay that are already proving invaluable for considering coastal adaptation strategies and are needed for the rest of the California coast for reasonable SLRVA's to be prepared. It would be both more scientifically reasonable, less arbitrary and more cost-effective to study groundwater dynamics at the watershed and OLU scales, and would include many DTSC sites per watershed, than to model groundwater dynamics for each site as the basis for an initial SLRVA.
- The types of adaptation measures that are likely to be adopted around DTSC sites include mounding of soil, tide gates, seawalls, cut-off walls, levees, sealing storm and sanitary sewer lines, and pumping. Some of these activities will change groundwater elevations, flow rates and flow directions. These should be described in the Guidance so that site managers know what to expect and can anticipate the likely site-scale impacts of these activities on surrounding parcels.
- If an impact is projected by a supporting watershed-scale study or a SLRVA, an Adaptation Plan should simply be required. The Guidance currently says such a Plan "may" be required, without clarifying the circumstances. Site managers should be required to file one so that they become accustomed to this as a normal part of their work, rather than an exceptional complication to be avoided if possible.
- The section on SLR evaluation should identify or create a science-based body for appeals of site managers' decisions by Responsible Parties (RP's) and by the members of the public. Otherwise, there is a risk that site managers' decisions to conduct a SLRVA or not, and their preparation of an Adaptation Plan, may be seen as arbitrary and leave DTSC open to lawsuits from RP's or other advocacy or civic organizations. This applies to the definition of "anticipated future changes" in the Financial Assurance section of the Guidance as well.



- DTSC's review of SLRVA's should emphasize the important public health risk of VOC mobilization, since VOC's can travel upwards to enter the indoor air of buildings after they penetrate underground utility trenches and sewer pipes. The public is generally not aware of this exposure pathway, and it is likely to occur more frequently in districts with older buildings where children or pregnant people who are experiencing particularly sensitive developmental phases may be indoors for work, school or non-school activities as well as in residential buildings.
- Public engagement and transparency can be well served if DTSC site managers provide the locations of wastes, monitoring wells, and existing structural remedies, as well as the likely flow directions of any potential plumes, on Google MyMaps or as layers that can be displayed in Google Earth. Maps that show concentrations, monitoring wells, and groundwater contours are currently often located deep in very long pdf documents where this spatial and temporal information is not currently accessible to a member of the public with a high school or college education. In addition, tribal organizations are only mentioned once in this Guidance yet they clearly have a higher-than-average stake in the health of nearshore ecosystems as well as human health. They should be consulted frequently with regard to future resource use and prioritization, along with all low-income communities of color who live in low-lying areas as a result of historical housing covenants and other restrictions that have profoundly affected their health, safety and welfare in this State.
- Equity can be better addressed if the Guidance would state what source the site managers should use to determine social vulnerability, as opposed to just physical vulnerability. CalEnviroScreen is available as a State mapping tool that will be updated over time, and will function as a reasonable characterization of social vulnerability in the absence of more detailed local information. Ideally, better characterizations will be available that consider the history of exposure to all forms of contamination, not just current exposures, and the cumulative health / disability status of the local population.
- Application of best available science, as well as OPC's lead role, requires DTSC to update this Guidance to follow the draft OPC Guidance for 2023 that has recently been shared with DTSC. In addition, more monitoring wells and more frequent (hourly) monitoring of groundwater elevations and tidal effects is necessary to apply best available science in low-lying and high-risk coastal areas with contaminated sites.
- Sensitivity of contaminated sites is mentioned in the definition of other terms but is not defined in the Guidance although the term "high risk" is used repeatedly in different ways. When "high risk" is used in the flowchart at the end of this Guidance, it seems to refer to sites where contaminant concentrations are at or exceed residential land use thresholds. However, erosion and mobilization of contaminants at DTSC sites could also have significant long-term effects on intertidal and subtidal ecosystems and bioaccumulate in food webs. A lower threshold of concentrations needs to be considered for fish and other organisms that spend their entire lives in the sediment where chemicals

would accumulate, or species that eat organisms that spend their entire lives in that sediment.

We sincerely hope DTSC will improve and properly implement the Guidance promptly and in good faith.

For environmental justice,

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