

**Comment Set CC6, cont.**

**San Luis Obispo Mothers for Peace, Sierra Club, Public Citizen, and Environment California  
(the "Joint Parties")**

**C. The DEIR's Refusal to Consider Future DCPD Operations Enabled  
by the Project is Inconsistent with its Treatment of the "Baseline"  
in the No Project Alternative.**

CC6-27

While refusing to consider future DCPD operation as an impact of the project approval, the DEIR inconsistently treats the cessation of future DCPD operation (and the resulting adverse and beneficial environmental effects) as an impact of the No Project alternative. See D.1-3. The DEIR considers, for example, the beneficial effects on the marine environment of the cessation of DCPD discharges (D.3-37), and the decrease in noise levels "because routine operations of DCPD would cease prior to the NRC license expiration dates" (D.9-10).

The DEIR considers not only the cessation of environmental damage but also the cessation of risk as an impact of the No Project Alternative. For example, the DEIR states:

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"The description of the environmental setting above demonstrates that the probability of a core-damaging accident for a facility like DCPD is greater than ten in one million per year ( $1 \times 10^{-5}$ /year). Should the Proposed Project not move forward, resulting in a cessation of DCPD operation before the end of the current licensing periods for both units, the baseline risk associated with routine DCPD operations would no longer be present." D.12-28.

Thus, the elimination of this risk of operations is considered to be an impact of the No Project alternative. This is inconsistent with the DEIR's refusal to consider the continued risks of operation as an impact of Project approval.

The review of the environmental effects of ceasing DCPD operations is required by CEQA as part of the No Project Alternative. But the inclusion of the effects of cessation in the No Project Alternative underscores the illegality of refusing to consider

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the corollary: the effects of future operations enabled by approval of the Project. CEQA does not allow this inconsistent approach.

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This inconsistency further makes it impossible for the CPUC to comply with CEQA's requirements that the DEIR "compare" the Project with the No Project Alternative. As stated in CEQA Guidelines § 15126.6(e)(1), "[t]he purpose of describing and analyzing a no project alternative is to allow decisionmakers to compare the impacts of approving the proposed project with the impacts of not approving the proposed project." In the DEIR, compliance with this requirement is rendered impossible because certain categories of impacts included within the No Project Alternative are artificially excluded from the consideration of the Project's impacts.<sup>12</sup>

**IV. THE IMPACT ANALYSIS IN THE DEIR IS INADEQUATE**

CC6-30

**A. The Impacts of Future Operation of DCPPE Enabled by the Project  
Should have been Considered.**

In the Joint Parties' Scoping Comments, they listed the following as some of the direct impacts of the Project that should be considered in the DEIR:

- the production of at least 11 or more years worth of additional radioactive wastes;
- the need to store the increased amount of such radioactive waste;
- the need to protect these increased amounts of radioactive wastes from possible terrorist attacks, which could well entail additional and/or different measures than those needed to provide equivalent protection from the scenario in which the plant stops operating in 2014;

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<sup>12</sup> In its scoping comments, PG&E tried to excuse this inconsistency by arguing that the No Project Alternative did not establish the "baseline" for determining whether the Project's impacts were significant. (p.8). While this is true, it only confuses the issue. As CEQA Guideline § 15126.6(e)(2) makes clear, the "baseline" is the same for both the No Project Alternative and the Project. It is the existing environmental condition and the evaluation of each is supposed to disclose the degree to which it would make things better or worse, and thus allow a meaningful comparison of the Project and the No Project Alternative. As discussed below, the No Project's discussion of its impacts is still inadequate.

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- the need to protect these increased amounts of radioactive wastes from possible seismic-related accidents, which could well entail additional and/or different measures than those needed to provide equivalent protection from the scenario in which the plant stops operating in 2014;
- risks associated with transporting the additional uranium fuel needed to extend the plant's operation by at least 11 or more years;
- the need to analyze potentially higher probabilities of catastrophic accidents associated with at least 11 or more additional years of plant operation;
- the need to analyze potentially higher probabilities and/or consequences of catastrophic accidents associated with seismic events that may exceed existing seismic protection safeguards;
- additional stress on the marine environment impacted by the future operation of the plant;
- the need to analyze potential impacts on any rare, threatened, or endangered species that may be associated with at least 11 or more years of future plant operation; and
- the need to analyze the adequacy and possible redevelopment of emergency evacuation planning in view of at least 11 or more years of future plant operation.

CC6-31

CC6-32

CC6-33

CC6-34

CC6-35

Unfortunately, none of these were considered in the DEIR. In what follows, we further review some of these inadequacies in the DEIR's impact analyses.

**1. The risks of accidents should have been evaluated.**

CC6-36

In the case of risks and impacts that are probabilistic in nature, such as accidental releases of radiation caused by seismic events, a longer future operating period translates into higher probabilities of occurrence and therefore a higher overall assessment of the applicable risks and consequences. This aspect of the Project should have been reviewed in the DEIR analysis.

The DEIR does contain a "reactor risk baseline," which concludes that "the probability of a core damaging accident for a facility like DCP" is a "significant risk," and that "the combined frequency and potentially severe consequences of a core-damaging accident at DCP represent a substantial public safety risk as defined by

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generally accepted standards." D.12-6. But the DEIR does not treat this as an impact of the future operations enabled by the SGR Project, and provides no risk assessment of the resulting extended life of DCPD.

CC6-36

The DEIR is inconsistent and confusing even in its discussion of the relationship between just the replacement of the steam generators and the probability of an accidental release. It states that "steam generator tube failures are a substantial contribution to overall facility risk and radioactive leak risk." D.12-6. However, elsewhere it states NRC regulation of steam generators has made this risk "relatively low," and "[t]herefore, replacement of the steam generators would not likely change long term risk..." D.12-29. It concludes that the "core damage frequency" would remain greater than  $1.0 \times 10^{-5}$ /reactor-year "with or without the Proposed Project." D. 12-29 (emphasis added). But this conclusion apparently assumes the continued operation of DCPD, even if the CPUC turns down PG&E's application. On the preceding page, the DEIR states the opposite: "Under the No Project Alternative...the DCPD would shut down and the risk of a reactor-related operation accident...would cease." D.12-28.

The DEIR also notes that scoping comments requested that the DEIR consider the issue of the "equipment and infrastructure aging" which will accompany future operations of DCPD enabled by the SGR Project. D.12-28. The DEIR acknowledges that "continued operation of the DCPD would result in an increased probability of component failure and an accidental release." D.12-29. Its "evaluation" of this impact is limited to this single sentence.

CC6-37

The risks and possible consequences associated with possible terrorist strikes on DCPD should also have been reviewed in the DEIR as a consequence of project approval,

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since both the probability and possible consequences of terrorist strikes have increased since September 11, 2001. In their scoping comments, the Joint Parties provided Dr. Gordon Thompson's testimony filed in A.04-01-009 addressing these issues, and also referenced a limited selection of sources that should be among those consulted in the course of preparing the sections of the EIR pertaining to terrorism risks and consequences<sup>13</sup>, but all of this information was ignored in the EIR.

CC6-38

**2. The additional stress on the marine environment impacted by the future operation of the plant should have been considered.**

CC6-39

The California Department of Fish and Game ("DFG") noted on February 29, 2000, that the effects of Diablo Canyon's discharge "include loss and degradation of habitat, decreases in several species' diversity and density, and loss of entire species," and that "the effects continue to expand beyond Diablo Cove and are greater than predicted."<sup>14</sup> Although the approval of the replacement of the steam generators will enable future discharges by DCP, the DEIR refuses to consider this as an impact of that

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<sup>13</sup> There are numerous sources of information and studies pertaining to this issue that should be consulted in the course of addressing this issue. The documents referenced by the Joint Parties in their scoping comments included (1) a National Academy of Sciences study on the robustness of dry cask storage systems, undertaken by the National Research Council's Board on Radioactive Waste Management at the request of the United States Congress and sponsored by the NRC and the Department of Homeland Security, which was expected to be issued in unclassified form after the release of a classified report; (2) the testimony from the U.S. Government Accountability Office relating to security risks and enhanced security needs at nuclear power plants, attached to the scoping comments; (3) testimony prepared by Dr. Gordon Thompson (along with a list of related literature references, prepared by Dr. Thompson) on behalf of the Joint Parties in this proceeding, and attached to the scoping comments, assessing terrorist-related risks and possible consequences associated with DCP, and (4) "A Call for Action to Protect the Nation Against Enemy Attack on Nuclear Power Plants and Spent Fuel," San Luis Obispo Mothers for Peace, April 2003, and the "Supporting Document" prepared by the Institute for Research and Security Studies, May 2003. None of these documents were considered in the DEIR.

<sup>14</sup> February 29, 2000 memorandum from Joseph Milton, Staff Counsel, California Department of Fish and Game, to California Regional Water Quality Control Board, Draft Cease and Desist Order for Pacific Gas and Electric National Pollution Discharge Elimination System Permit Order 90-09, p. 5.

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decision. DFG's conclusion is supported by 2003 testimony presented by RWQCB staff at a meeting concerning PG&E's renewal of its NPDES permit for DCPP.<sup>15</sup>

CC6-39

Nor does the DEIR take account of PG&E's ongoing violations of the permits for DCPP under the National Pollution Discharge Elimination System (NPDES). The ongoing violation of the NPDES permits is now the subject of a proposed consent judgment.<sup>16</sup> The World Wildlife Fund, the Ocean Conservancy, Surfrider Foundation, ECOSLO, and the Sierra Club have all urged rejection of this proposed consent judgment.<sup>17</sup> It is the position of these organizations that the proposed \$4 million worth of mitigation via restoration efforts in the consent judgment is not sufficient to mitigate adverse impacts on marine resources from plant operations, the settlement agreement should attempt to address only past impacts on public marine and coastal resources. Present and future impacts and violations of existing permits should be addressed separately in the future.

CC6-40

On August 7, 2000, the California Coastal Commission noted that "PG&E should be required to submit a plan for compliance with the terms of its NPDES permit, which does not exclude requirements for investment in technical or equipment modifications to the power plant," that in regard to PG&E's proposed \$4 million worth of mitigation via restoration efforts, "there appears to have been no scientific method or analysis used to determine the settlement amount of \$4 million," and "the amount of the proposed

<sup>15</sup> This testimony is cited in the DCPP DEIR starting at D.3-17.

<sup>16</sup> People v. Pacific Gas & Electric Company, Case No.: *Unassigned*, Consent Judgment. This consent judgment is also referenced in the DEIR at D.3-18.

<sup>17</sup> July 30, 2004 letter from World Wildlife Fund, The Ocean Conservancy, Surfrider Foundation, ECOSLO, and Sierra Club; to Jeffrey Young, Chairman, Central Coast Regional Water Quality Control Board.

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settlement is not sufficient...to mitigate adequately the adverse impacts on marine biological resources from plant operations.” All of these matters should have been considered in the context of a decision to enable DCP’s future operations with continued impacts to these marine resources.

CC6-40

**3. Seismic risks were not adequately evaluated.**

Attached to and incorporated into the Joint Parties’ scoping comments was the testimony, along with a list of related literature references, prepared by Dr. Jay Namson on behalf of the Joint Parties. This testimony was filed last year at the CPUC as part of the CPUC’s proceeding on PG&E’s DCP SGR Project Application (A.04-01-009).<sup>18</sup> This testimony is attached to these comments as Exhibit B. Dr. Namson is a professional seismologist whose doctoral dissertation focused on a type of fault in the DCP region that DCP has not been designed to withstand. As a result of this work, and based on his subsequent related studies and familiarity with the relevant scientific literature, Dr. Namson has concluded that:

CC6-41

“...the DCP’s underlying seismology is significantly different than was assumed by PG&E when it designed and installed the plant’s seismic mitigation measures and that as a consequence public health and safety risks may well be significantly greater than previously assumed. Installation of additional seismic mitigation measures, at a significant cost, may therefore be required in order to achieve the degree of seismic protection that was thought to have been achieved by the seismic mitigation measures that are presently in place at DCP.”<sup>19</sup>

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<sup>18</sup> Although the Administrative Law Judge hearing the Application declined to allow this testimony to be entered into the evidentiary record in the Application, it was still required to be considered in the EIR.

<sup>19</sup> Testimony Of Jay Namson, On Behalf Of The San Luis Obispo Mothers For Peace, Sierra Club, Public Citizen, Greenpeace And Environment California, filed before the CPUC in A.04-01-009, August 3, 2004.

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The DEIR entirely ignores the Namson testimony and otherwise pays only scant attention to the seismic hazards of the site of the Project. See D.5-2. No literature regarding earthquake or other seismic hazards was reviewed subsequent to PG&E's Long Term Seismic Program prepared in 1988. See D.5-12, 16. The DEIR only states cryptically that "[s]evere ground shaking could compromise the integrity of the OSG Storage Facility if the materials and design of the structure are *not based on all relevant earthquake data, including recent data on earthquake activity near the DCPP site.*" D.5-16, 17 (emphasis added). Without further analysis the DEIR simply asserts that updating the 1988 LTSP will reduce the impact to less than significant levels. D.5-17.

CC6-41

A review of the SGR Project DEIR related to seismic issues indicates that extremely little scientific literature or data was consulted. In fact, it appears that the DEIR consulted only PG&E's SGR Project Application to the CPUC and its 1988 Long Term Seismic Program. In contrast, San Luis Obispo County's FEIR for the Diablo Canyon Independent Spent Fuel Storage Installation, issued in January 2004, consulted more than 60 sources of applicable scientific information. There is no indication that the ISFSI FEIR was consulted in the preparation of the SGR Project DEIR seismic analysis.

CC6-42

The DEIR is also inadequate in its specification of mitigation measures for seismic risks. The DEIR concludes that PG&E's 1988 DCPP Long Term Seismic Program shall be updated to incorporate new earthquake data since its publication, and that based on this update a new Design Earthquake will be developed for the proposed OSG Storage Facility. DEIR at D.5-17. As noted above the DEIR's conclusion is based on its finding that "Severe ground shaking could compromise the integrity of the OSG Storage Facility if the materials and design of the structure are not based on all relevant

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earthquake data, including recent data on earthquake activity near the DCPD site.” DEIR starting at D.5-16,17. No comparable attention—in fact, no attention at all—is paid to the analogous risk that the *existing* DCPD facilities might also be damaged by an earthquake. The DEIR’s artificially narrow project definition means that the OSG Storage Facility is to be designed to withstand earthquakes known to be possible in the DCPD vicinity but that existing DCPD facilities, including its nuclear reactors, not only will not be so designed, but there is not even a finding in the DEIR that this poses a potential significant environmental impact. The DEIR should be revised to correct this deficiency.

CC6-43

The DEIR’s deficiency in this respect is compounded by the fact that in analyzing the earthquake-related risks to SGR Project workers, it completely ignores the potential for release of radioactive materials and the resulting potential health impacts on these workers during such an event. Instead, the DEIR identifies only the risks to workers associated with such things as loose rocks, landslides, and the toppling of construction equipment. D.5-15. Here, the DEIR goes beyond its refusal to consider the potential environmental impacts associated with the continued operation of DCNPP made possible by the SGR Project, to ignoring the risks of radiation-related health effects that are directly associated with the SGR Project construction. Even under the inappropriately narrow project definition assumed by the DEIR this is improper under CEQA.

CC6-44

The DEIR also fails to recognize that the California Coastal Commission (“CCC”) is in the process of reviewing PG&E’s seismic study for a proposed nuclear fuel waste storage facility at DCPD. In April 2004, PG&E was granted a permit to construct the waste storage facility at Diablo Canyon by San Luis Obispo County. One condition of

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the permit is that PG&E must update its Long Term Seismic Plan ("LTSP") to incorporate earthquake data developed since the 1988 date of the LTSP and adjust the structural design of the facility as necessary based on the "new" data.<sup>20</sup> In a July 14, 2004 CCC decision on an appeal of the County permit, the CCC found that,

CC6-45

The County's review and approval of the proposed project is based primarily on analyses of seismic data from before 1986. Since that time, new geologic interpretations and new seismic data have been generated from several area earthquakes; however, these new data have not yet been incorporated into the design analyses. Without those data from the past eighteen years, the site's seismic characteristics are not adequately understood, and it cannot be determined that the design adequately reflects seismic hazards, as required by the [Land Use Plan].<sup>21</sup>

Thus, two regulatory agencies in California have already found that PG&E's study of seismic hazards at the DCPD site is inadequate. These deficiencies should have been reviewed in the DEIR.

**4. The DEIR's analysis of terrorism risks is deficient.**

CC6-46

On page D.12-12 the DEIR wholly dismisses the risk of a large-scale radiological release resulting from a successful terrorist attack against a nuclear reactor facility. This position is based on three arguments. The first is that in response to the September 11, 2001 attacks the NRC and commercial air industry have "implemented a variety of measures aimed at reducing the likelihood of a successful terrorist attack on nuclear facilities." The second is that the DCPD has been designed to withstand "potential hazards associated with natural events" that are analogous to terrorist attacks. The third

<sup>20</sup> Exh. MFP-1, Exh. 2, pg. 8, Condition 18.

<sup>21</sup> Id., pg. 9; see also, RT (9/21/04), pg. 241, 20-22 (The "existing report vintage is 1991 to 1992.")

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argument is that a report issued by EPRI in 2002 indicates that the containment structure of the reactor would not be breached by the impact of a widebody commercial aircraft.

D.12-12.

The first argument implies that the DEIR need not consider the risks posed by potential terrorist attacks against nuclear facilities because the NRC mandates are assumed to sufficiently mitigate increased risks. However, this position is not supported by any discussion of what sorts of attacks could be orchestrated against DCPD nor the types of security measures that the NRC is likely to have required. The DEIR states that because such measures (specifically the Design Basis Threat ("DBT") issued in April 2003 by the NRC) and PG&E's associated security plans are not publicly available, no attempt was made to evaluate them. D.12-12. The classified nature of security plans does not preclude the DEIR from evaluating ongoing security risks associated with operating a nuclear facility. In their comments on the NOP Joint Parties submitted testimony prepared by Dr. Gordon Thompson in the DCPD SGR Project proceeding (A.04-01-009) contemplating this very issue. This testimony is included in these comments as Exhibit C. In his testimony, Dr. Thompson, an expert on nuclear security issues, explores various types of attacks against nuclear facilities and evaluates the effectiveness of existing and probable security measures required by the NRC in thwarting and/or mitigating the effects of such attacks. Dr. Thompson concludes that the current NRC guidelines (including the new DBT) are insufficient to address the full range of threats that must be considered. (Testimony of Gordon Thompson pg. 18 lines 12-14). In failing to consider the potential limitations of NRC security mandates in the face of a concerted terrorist threat the DEIR's treatment of this issue is deficient.

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The DEIR suggests that because a reactor is designed to withstand a variety of natural hazards it would be able to withstand a terrorist attack that employs fire or explosion, methods that it views as analogous to the various natural events the reactor is designed to survive. D.12-12. There is no reason *a priori* that protection against contemplated natural events, even assuming such protection would in fact be adequate, equates to adequate protection from the full range of reasonably foreseeable terrorist attacks. Dr. Thompson's testimony indicates that it would not be adequate. For example, on page 23 of his testimony Dr. Thompson identifies shaped-charge warheads as a potential weapon that could be used to great effect in breaching a containment structure. (Testimony of Gordon Thompson pg. 23 lines 3-13.) He further notes that such warheads are commercially available to licensed civilian operators.

CC6-46

The DEIR also should have analyzed whether or not an attack designed to release a large amount of radioactive material would necessarily involve external strikes against the facility, or might also occur from a vantage point inside the facility (i.e., if attackers were able to infiltrate the plant). The DEIR acknowledges none of these possibilities, and in so doing, significantly understates the vulnerability of DCNPP to a terrorist strike.

CC6-47

The DEIR further discounts the potential threats posed by terrorist attacks on the basis of a report issued by EPRI indicating that the containment structure of a reactor would not be breached by the impact of a widebody commercial aircraft. D.12-12. The DEIR fails to consider that such an aircraft is but one of many different means that could be used in acts of terrorism against a nuclear power plant.

Although the DEIR does characterize the risk to public safety from the ISFSI and the spent fuel pools due to terrorist attack as substantial, this assessment suffers from the

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same overly narrow focus described above with respect to the assessment of terrorist attacks against the reactor facility. In the case of the ISFSI, the DEIR only refers to the ISFSI EIR's consideration of a "willful aircraft strike" and an "attack utilizing an anti-armor missile". Other modes and instruments of attack are also possible and should be thoroughly explored in the EIR to more accurately evaluate the risks associated with terrorist attacks. Similarly, the mode of attack assumed with respect to the spent fuel pools is confined to an aircraft strike, again without any consideration of any other forms of attack that could occur. D.12-13 and D.12-14. These deficiencies should be remedied.

CC6-47

**B. Even Accepting the EIR's Narrow Project Construction Focus,  
There are Deficiencies in the Impact Analysis.**

CC6-48

**1. The DEIR fails to consider de-commissioning of the OSG's.**

Decommissioning of the OSG's should figure in the EIR's analysis in two respects. *First*, if the proposed onsite storage is approved, that means that there will be 16 steam generators (including the RSG's) that will ultimately require de-commissioning rather than just the original eight. *See* B-37. *Second*, the DEIR is considering as an alternative offsite disposal of the OSG's, which means that de-commissioning of the OSG's would occur only if the proposal to store them onsite is accepted in lieu of the alternative.

The DEIR states that OSG onsite storage will be for the remainder of the life of the DCP. C-25. It notes that both the OSG's and RSG's will have to be decommissioned (B-37), but does not otherwise evaluate the environmental impacts of their decommissioning. *See* also D.12-16, E-6.

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**2. The relationship of the Project to refueling and spent fuel storage is not adequately addressed.**

CC6-49

The DEIR states that the RSGR Project will be done during a “scheduled refueling outage” (B-2) and that these refueling outages happen approximately every 18 to 21 months and last for 30 to 40 days. However, the outage will last 75 to 80 days to accommodate the SGR Project. B.10. Thus, the Project will prolong that refueling event.

However, it is unclear from the DEIR whether the SGR Project will require more of the fuel assemblies to be removed to the spent fuel pools than in an ordinary refueling event. The DEIR states that “[d]uring the Proposed Project, all fuel from the reactor would be placed in the spent fuel pools,” but asserts that [t]emporarily relocating the fuel is considered part of the baseline because this normally occurs during refueling outages.” D.12-27. Quite apart from the fact that future refueling cannot be considered part of the CEQA “baseline” (as discussed, supra, in section III.A.1), the DEIR elsewhere speaks of “one normal refueling” as involving only “76 assemblies” – not the “full care of 193 assemblies” required to be removed for the SGR Project. D.12-7. Thus, even under the DEIR’s incorrect baseline theory, it appears their removal and storage would not qualify as the “baseline.”

CC6-50

The full core of 193 assemblies required to be removed for the SGR Project will be placed in dense spent fuel storage pools. The DEIR states that “[i]n 1987, the Applicant received approval from the NRC to re-rack the spent fuel storage pools, increasing the density of spent fuel storage from 270 to 1,324 fuel assemblies per pool.” D.12-7.

The DEIR notes that there is a relationship between the potential for catastrophe and the amount of spent fuel present. It states that “loss of water in densely packed spent

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fuel pools” could lead to radioactive releases. D.12-13. It states that “[t]he time it would take for the water in the spent fuels to boil down enough to expose the spent fuel rod assemblies would depend on how much recently discharged spent fuel was in the pool.” *Id.* Although this is a direct risk caused by the Project, it is not evaluated in the DEIR.

CC6-50

**3. Air quality impacts are not adequately addressed.**

The DEIR concludes that construction air quality impacts would be reduced to a less than significant level (D.2-9) by implementing four mitigation measures (D.2-10). However, the DEIR did not evaluate all of the emissions from the project. Further, the proposed mitigation program relies on future plans and fails to require all feasible mitigation.

CC6-51

**Construction emissions are underestimated.** Emissions would occur in four regions from four sources: (1) along the California coast from marine vessels importing the RSGs from overseas; (2) at the port of entry in Southern California from marine vessels and tug boats; (3) along the California coast from barge transport of RSGs from Southern California to Port San Luis; and (4) locally, in San Luis Obispo County.

CC6-52

Regional emissions are not evaluated. The DEIR only estimated local emissions, and as discussed below, significantly underestimated them. The DEIR did not estimate, or even acknowledge, the first three sources of emissions. These emissions are likely higher than the local Port San Luis emissions that were calculated because of their source (large marine vessels that are high emitters) and their duration (transport up the California coast in barges that are high emitters). The DEIR did not identify the port of entry. However, absent a prohibition, it could be Los Angeles or another port located in the South Coast Air Quality Management District (SCAQMD), which has the worst air

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quality in California. The CEQA construction significance thresholds in the SCAQMD are much lower than in SLOAPCD. Thus, emissions from offloading the RSGs may be significant. The DEIR therefore has failed to disclose the nature and extent of air quality impacts of constructing the project.

**CC6-52**

Local emissions are underestimated. Project construction involves six separate local activities (in San Luis Obispo County) that release air emissions: (1) replacement steam generator transport (D.2.3.2); (2) replacement steam generator staging and preparation (D.2.3.3); (3) construction of a staging facility (Id); (4) original steam generator removal, transport, and storage (D.2.3.4); (5) construction of an OSG storage facility; and (6) installing new RSGs (D.2.3.5). The DEIR underestimates air quality impacts by excluding many sources of emissions, by only evaluating daily emissions, and by assuming the activities would not overlap, essentially piecemealing them.

**CC6-53**

Local activities are excluded. The DEIR only includes emission estimates for two of these activities -- RGU transport (Table D.2-7) and OSG removal and transport (Table D.2-10) – and does not estimate emissions from the other activities. The emissions from the other activities are potentially very large, especially the emissions from the cranes that would be used to install the RSGs and remove the OSGs and from constructing the staging area and OSG storage facility. These emissions must be included as part of the project's emissions, or, in the alternative, as cumulative emissions.

**CC6-54**

The DEIR, for example, states that constructing the OSG storage facility would involve the excavation and relocation of about 2,300 cubic yards of material. (p. D.2-12.)



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Emission factors in the SLOAPCD CEQA Guidelines (SLOAPCD 4/03,<sup>22</sup> Table 6-2) relied on by the DEIR indicate that this would release about 215 pounds of NOx, about 47 pounds of VOC, and about 11 pounds of PM10. If these emissions occurred on a single day, the NOx emissions alone would exceed the significance threshold of 185 lb/day for NOx. These emissions would contribute to the total daily and quarterly construction emissions from the project and must be quantified, added to emissions from other activities, and the total mitigated.

CC6-54

The DEIR admits that NOx emissions during construction could be significant, stating: “[d]uring construction of the temporary facilities, temporary emissions from the construction equipment and commuter vehicles would likely exceed the 185 pounds per day significance criteria for daily NOx emissions..” (p. D.2-11.) Yet the DEIR does not estimate these emissions or include them in the totals.

**Batch concrete plant emissions are not evaluated.** The project requires that a batch concrete plant be setup and operated on site to supply concrete for the OSG storage facility. (p. D.2-13.) The setup and operation of a batch concrete plant could emit large amounts of PM10, NOx, VOCs, SOx, and CO. See AP-42, Section 11.6. The DEIR does not estimate the emissions from the setup and operation of this facility, instead arguing that it would comply with SLOAPCD Rule 220 for portable equipment registration. The reliance on a statewide registration program administered by the local APCD does not assure that emissions from this facility would be mitigated to a less than significant level at the local level, consistent with CEQA. Further, it does not satisfy the DEIR’s

CC6-55

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<sup>22</sup> San Luis Obispo Air Pollution Control District (SLOAPCD), CEQA Air Quality Handbook. A Guide for Assessing the Air Quality Impacts for Projects Subject to CEQA Review, April 2003.

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obligation to disclose the nature and magnitude of all impacts and assure that they are mitigated.

The Courts have held that agencies may not rely on standards created by other agencies to declare impacts insignificant for CEQA purposes. For example, in *Oro Fino Gold v. El Dorado*, 225 Cal. App. 3d 872, 882 (1990), the court held that an agency could not rely on the fact that noise impacts of a project would not exceed the significance threshold set by a different agency to declare those impacts insignificant. The court found the impacts to be potentially significant, requiring an EIR, despite the fact that they did not exceed the other agency's noise thresholds. See also, *Eller Media v. Comm. Redev. Agency*, 108 Cal. App. 4th 25, 38 (2003) (lead agency could not rely on project's conformity with general plan and local ordinances to determine that project would not have significant impacts within meaning of CEQA). In fact, in *Communities for a Better Environment v. Calif. Resources Agency*, 103 Cal. App. 4th 98, 112 (2002), the court struck down a 1998 attempt by the Resources Agency to allow CEQA lead agencies to rely on standards set by other agencies.

**Quarterly emissions are not evaluated.** The SLOAPCD has two significance thresholds for construction emissions, expressed in pounds per day and tons per quarter. The DEIR acknowledges these two thresholds (Table D.2-5), but appears to primarily rely on daily emission significance thresholds, arguing that emissions from the six activities do not occur on the same day. The total daily and quarterly emissions must be separately calculated and compared to significance thresholds, not just a portion of the transport emissions, as done in the DEIR (Tables D.2-7, D.2-8, D.2-10).

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Overlapping daily emissions are irrelevant for quarterly emissions, which must include all daily emissions that occur in any quarter. The worst-case quarter must be used. The DEIR does not contain a complete inventory of quarterly emissions. The only quarterly inventory is for "transport," which appears to be limited to 5 days of transport and 90 days of worker trips. (p. D.2-7 and Table D.2-8). The emissions from constructing the temporary staging area, installing the RSGs, removing the OSGs, and constructing the OSG storage area do not appear to be included, e.g., no crane emissions are shown and several large cranes would be required to install the RSGs and OSGs. Thus, the quarterly emissions from the project have not been evaluated. The quarterly emissions of both NOx and PM10 are likely significant and must be mitigated.

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**Daily emissions are piecemealed.** The DEIR evaluated the daily emissions from only two activities individually, RSG transport (Table D.2-7) and OSG removal and transport (Table D.2-10). However, absent a prohibition in the DEIR, daily emissions from other activities could occur on the same days, as admitted by the DEIR. (pp. D.2-11, D.2-12, D.2-13.) Thus, total daily emissions are higher than disclosed, requiring more mitigation than proposed, e.g., more than 1.5 tons of NOx offsets. The DEIR should evaluate the sum of daily emissions from all activities, rather than one activity at a time. This would likely result in also exceeding the VOC significance threshold.

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**Fugitive dust PM10 emissions are not evaluated.** Fugitive dust emissions are emissions of particulate matter from surfaces (as opposed to point sources, like stacks or individual pieces of construction equipment) that arise when soils are disturbed or dust on paved surfaces is entrained. Project activities would generate fugitive dusts from two

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sources, transport of RSGs and OSGs and construction. These PM10 sources were not evaluated in the DEIR.

Transport fugitive dust PM10 emissions. Transport would generate PM10 by entraining dust on the surface of paved areas (unloading apron, parking lots, roads) that originates from atmospheric fallout and windblown dust, and loose materials along the shoulders of the road that is entrained by mechanical turbulence.<sup>23</sup> The DEIR did not estimate entrained road dust from transport, instead arguing that it would be eliminated by very slow transport speeds. (p. D.2-7.)

However, entrained road dust emissions are not a function of vehicle speed, only the surface loading of particulate matter and the weight of the vehicles. See, e.g., the California Air Resources Board (CARB 10/97, p. 7.9-2;<sup>24</sup> Appx. D-1) and the U.S. EPA (AP-42, pp. 13.2.1-1 to 13.2.1-3; Appx. D-2). In fact, measured data suggest the opposite, higher emissions for heavier, slower equipment. (MRI 3/29/96,<sup>25</sup> Table 9.) The DEIR pointed to no evidence that slow speeds eliminate dust. Thus, the DEIR should be revised to include entrained road dust PM10 emissions during transport of the RSGs and OSGs.

Construction fugitive dust PM10 emissions. The project includes the construction of the staging area and the OSG storage facility. Construction activities generate a substantial amount of fugitive PM10 emissions, ranging from about 0.74

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<sup>23</sup> H. Moosmuller and others, Particulate Emission Rates for Unpaved Shoulders Along a Paved Road, Journal of the Air & Waste Management Association, v. 48, 1998, pp. 398-407.

<sup>24</sup> California Air Resources Board ("CARB"), Emission Inventory Procedural Manual, Volume III, Methods for Assessing Area Source Emissions, October 1997. (Appendix D-1.)

<sup>25</sup> Midwest Research Institute, Improvement of Specific Emission Factors (BACM Project No. 1), Final Report, Prepared for South Coast Air Quality Management District, March 29, 1996.

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pounds to 712 pounds per hour uncontrolled. (MRI 3/29/96, Table ES-1.) Thus, depending upon dust control measures, the construction of the staging area and the OSG storage facility alone could generate enough fugitive PM10 dust to exceed the PM10 quarterly significance threshold of 2.5 tons per quarter.

The DEIR concluded that constructing the staging area by itself was not significant "because the amount of land disturbed would be minimal (less than four acres)," based on SLOAPCD guidance. (p. D.2-11.) However, the SLOAPCD guidance only applies to grading of a construction site taken by itself. The guidance notes that combustion emissions must also be calculated. (SLOAPCD 4/03, Table 6-3.) The project includes six sources of combustion emissions that should have been included in this evaluation.

The emission significance thresholds adopted by the DEIR are for the project as a whole, not small pieces of the project, taken one at a time. (Table D.2-5 and p. D.2-5) See also SLOAPCD 4/03, Sec. 3.0. The total PM10 emissions from all construction activities must be compared to the significance thresholds in the DEIR, not a piece at a time, e.g., fugitive dust from constructing the staging area, as advocated on page. D.2-11.

**Ozone and PM10 air quality impacts are significant.** San Luis Obispo County currently violates the state ambient air quality standards ("AAQs") on ozone and PM10. (Table D.2-4.) The project would emit large amounts of NOx, VOCs, and PM10. Tables D.2-7 and D.2-10. The NOx and VOCs are converted into ozone and particulate matter in the atmosphere through a series of very complex chemical reactions between sunlight, VOCs, NOx, and other pollutants. The regulated pollutants are ozone and particulate matter (PM10).

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The DEIR admits that project construction would "contribute to the existing violations of ozone and particulate matter in the region during the short-term duration of the work" and could impede attainment of ambient air quality standards. (p. D.2-7, D.2-11.) This is a significant impact apart from the fact that NOx emissions exceed emission significance thresholds. Any increase in ozone precursor or PM10 emissions in an area where ozone and PM10 standards are currently exceeded should be considered to be significant unless analyses demonstrate otherwise.

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The DEIR does not contain any analysis whatsoever on the impact of project emissions on violations of the state and federal AAQs on ozone and PM10. Instead, it concludes, with no analysis, that all impacts are less than significant if certain future plans are implemented. However, any increase is significant. The mitigation measures do not assure that emissions are reduced to zero. Therefore, air quality impacts are significant after mitigation, requiring all feasible mitigation, which the DEIR does not require.

**The significance of some pollutants was not evaluated.** The project would emit large amounts of carbon monoxide (CO) and sulfur oxides (SOx). See (incomplete) emission estimates for some of project activities in Tables D.2-7, D.2-8, and D.2-10. The SOx emissions would be converted into particulate sulfate in the atmosphere, contributing to existing violations of the PM10 ambient air quality standards. Some of the CO would be converted into ozone in the atmosphere, contributing to existing violations of the ozone ambient air quality standards. The DEIR does not evaluate the significance of these emissions.

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**All air quality impacts were not evaluated.** The DEIR set out five significance criteria: (1) conflict with or obstruct implementation of applicable air quality plans; (2) violate any air quality standard or contribute substantially to an existing or projected air quality violation; (3) result in a cumulatively considerable net increase of any nonattainment criteria pollutant; (4) expose sensitive receptors to substantial pollutant concentrations; and (5) create objectionable odors affecting a substantial number of people. (p. D.2-5.) The DEIR does not evaluate any of these potential impacts.

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Instead, the entire air quality analysis is based on the exceedance of certain emission significance thresholds in Table D.2-5. As discussed above, this analysis is flawed because it failed to include all emission activities. Further, the evaluation of these criteria does not excuse the DEIR from determining whether the project would cause other distinct air quality impacts, such as health impacts, odor impacts, and cumulative air quality impacts.

**Health impacts are not adequately addressed.** The project would use large amounts of diesel-fueled equipment that would emit diesel exhaust. Diesel exhaust is a serious public health concern. It has been linked to a range of serious health problems including an increase in respiratory disease, lung damage, cancer, and premature death. Fine diesel particles are deposited deep in the lungs and can result in increased hospital admissions and emergency room visits; increased respiratory symptoms and disease; decreased lung function, particularly in children and individuals with asthma; alterations in lung tissue and respiratory tract defense mechanisms; and premature death. (CARB

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6/98.<sup>26</sup>) On August 27, 1998, after extensive scientific review and public hearing, CARB formally identified particulate emissions from diesel-fueled engines as a toxic air contaminant.

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Many health impacts are cumulative, increasing in probability and magnitude as the length of exposure is increased. The surrounding communities have already suffered high exposures to diesel exhaust and other carcinogens from tearing down the town of Avila Beach, remediating subsurface petroleum contamination, and rebuilding the town. The remediation phase alone of this massive project caused an increase in cancer risk of nine in one million, compared to a significance threshold of ten in one million.<sup>27</sup> The project would increase the cancer risk of local residents from exposure to diesel exhaust, contributing to their existing cancer risk. This impact is likely cumulatively significant and should have been evaluated in the DEIR. The DEIR should mitigate this impact by requiring a specific reduction target for diesel exhaust emissions and by offering potentially affected residents the option of relocating at the Applicant's cost during project activities. The relocation option was offered by Unocal for the Avila Remediation Project.

CC6-64

**Odor impacts are not addressed.** Diesel exhaust is also odorous and frequently causes odor complaints in the vicinity of construction projects. The DEIR is silent on odor impacts.

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<sup>26</sup> California Air Resources Board (CARB), Initial Statement of Reasons for Rulemaking, Proposed Identification of Diesel Exhaust as a Toxic Air Contaminant, Staff Report, June 1998. (Exhibit 1.)

<sup>27</sup> SOMA Corp., Risk Assessment, Remediation Phase, Avila Beach, California, Prepared for San Luis Obispo Air Pollution Control district, July 2000.



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**Cumulative impacts are not adequately addressed.** The DEIR stated that project emissions are significant if they result in a cumulatively considerable net increase of any nonattainment criteria pollutant. D.2-5. The DEIR does not contain any cumulative air quality impact analysis, let alone one responsive to its own significance criterion. Instead, it points to a list of future projects and concludes, with no analysis whatsoever, that cumulative impacts would be less than significant if five measures required to mitigate the project's individual emissions are adopted. F-5. However, even if these five measures mitigated the project's emissions (which they do not), this would not satisfy the DEIR's obligation to analyze and mitigate cumulative impacts for at least two reasons.

First, a cumulative impact analysis must include all past, present, and future projects. The DEIR's list only includes future projects. (Table F-1 and Sec. F.4.1.) The project, for example, would take place during a refueling outage. Up to 1,100 support personnel may be added during a refueling outage (B-9) plus vehicle trips from support equipment. The air emissions from refueling operations must be considered in the cumulative impact analysis.

Second, the project's five mitigation measures are designed to reduce project emissions only to below the construction significance threshold of 185 lb/day for NOx. However, other pollutants may be significant in a cumulative analysis, e.g., PM10, VOCs. Further, in a cumulative analysis, the total cumulative emissions must be reduced to below the threshold of 185 lb/day. This often requires more emission reductions, up to 100% of the project's emissions, because the total emissions are higher. It is not possible to determine how much additional mitigation would be required to mitigate cumulative

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impacts to a less than significant level because the DEIR failed to quantify both the total project emissions and the cumulative emissions.

CC6-67

**4. Air quality mitigation measures are inadequate.**

The DEIR concludes that air quality impacts would be reduced to a less than significant level by implementing a series of mitigation measures for engine exhaust emissions (p. D.2-10) and fugitive dust emissions (p. D.2-11). This conclusion is incorrect.

CC6-68

The lead agency may deem a particular impact to be insignificant only if it produces rigorous analysis and concrete substantial evidence justifying the finding. (*Kings County Farm Bureau v. City of Hanford*, 221 Cal. App. 3d 692, 1990.) A lead agency is precluded from making the required CEQA findings unless the record shows that all uncertainties regarding the efficacy of mitigation measures have been resolved; an agency may not rely on mitigation measures of uncertain efficacy or feasibility. (*Kings County Farm Bureau v. City of Hanford* 221 Cal. App. 3d 692, 727, 1990.) This approach helps "insure the integrity of the process of decisionmaking by precluding stubborn problems or serious criticism from being swept under the rug." (*Concerned Citizens of Costa Mesa, Inc. v. 32nd Dist. Agricultural Assn.* 42 Cal. 3d 929, 935, 1986.)

**Future plans are not adequate mitigation.** The DEIR proposes four measures to mitigate significant air quality impacts arising from diesel exhaust: (1) trip reduction plan; (2) diesel combustion emission control plan; (3) offsite mitigation program; and (4) screening analysis for acrolein. (p. D.2-10.) These plans and analysis would be conducted years in the future, after the EIR is certified, thus precluding public review and comment. The description in the DEIR is inadequate to determine what measures would

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be implemented, whether they have any adverse impacts that should be evaluated, and the emission reductions that would be achieved. Thus, there is no evidence that they would reduce emissions to a less than significant level.

CC6-69

**The basis for concluding mitigation would reduce impacts to a less than significant level is not disclosed.** The DEIR concludes that the proposed mitigation measures would reduce air quality impacts to a less than significant level. However, this conclusion is not supported by any calculations. The effectiveness of an air quality mitigation program is normally determined by estimating the increase in emissions from the project (and only a small portion of the increase was estimated in the DEIR), determining the percent reduction in emissions achieved by each mitigation measure, and comparing the reduced emissions to the significance thresholds used in the original analysis. If the reduced emissions are less than the significance thresholds, then one can conclude impacts are reduced to a less than significant level. Otherwise, the impacts remain significant and all feasible mitigation is required. This critical analysis is not in evidence in the DEIR.

CC6-70

In fact, it is not possible to draw this conclusion without a complete emission inventory, which is lacking. In this case, 100% of the project emissions would have to be mitigated to reduce impacts to a less than significant level because ozone impacts are cumulatively significant. See discussion above in Section --. The proposed mitigation program does not reduce 100% of the project's emissions.

**NOx offsets are not adequate CEQA mitigation.** The DEIR proposes to mitigate significant NOx emissions from tugboats by providing emission reductions (or offsets) at non-project sources in Avila Beach and Port San Luis. (pp. D.2-9, D.2-10.)

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However, CEQA mitigation must be similar in nature and occur at the same time and location as the project's impacts. There is no guarantee that the proposed offsets would reduce the impacts of the project in time and place. Thus, one-for-one offsets are not generally allowed as CEQA mitigation. We recommend that a much higher offset ratio, at least two to one, be used if offsets are retained as part of the mitigation program.

CC6-71

**Fugitive dust control methods are not adequate.** The DEIR does not estimate fugitive dust emissions, or require any CEQA mitigation to reduce these emissions. As discussed above, these emissions are likely to be both individually and cumulatively significant. Instead, the DEIR states that the Applicant has committed to implementing measures for dust control for all "construction-type activities" and lists five measures that are considered to be part of the project. (p. D.2-11.) These are not included as mandatory mitigation anywhere in the DEIR, but instead left to the discretion of the Applicant. It is impossible to evaluate the adequacy of these five measures because the DEIR did not estimate either fugitive dust emission estimates or control efficiencies. It is not believable that these five measures alone would reduce fugitive dust impacts to a less than significant level.

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There are many additional potential fugitive dust mitigation measures that are routinely required and would be required here to reduce fugitive dust PM10 emissions to a less than significant level, if a proper analysis had been done. These include:

- For backfilling during earthmoving operations, water backfill material or apply dust palliative to maintain material moisture or to form crust when not actively handling; cover or enclose backfill material when not actively handling; mix backfill soil with water prior to moving; dedicate water truck or large hose to backfilling equipment and apply water as needed; water to form crust on soil immediately following backfilling; and empty loader bucket slowly; minimize drop height from loader bucket.

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- During clearing and grubbing, prewet surface soils where equipment will be operated; for areas without continuing construction, maintain live perennial vegetation and desert pavement; stabilize surface soil with dust palliative unless immediate construction is to continue; and use water or dust palliative to form crust on soil immediately following clearing/grubbing.
- While clearing forms, use single stage pours where allowed; use water spray to clear forms; use sweeping and water spray to clear forms; use industrial shop vacuum to clear forms; and avoid use of high pressure air to blow soil and debris from the form.
- During cut and fill activities, prewater with sprinklers or wobblers to allow time for penetration; prewater with water trucks or water pulls to allow time for penetration; dig a test hole to depth of cut to determine if soils are moist at depth and continue to prewater if not moist to depth of cut; use water truck/pull to water soils to depth of cut prior to subsequent cuts; and apply water or dust palliative to form crust on soil following fill and compaction.
- For large tracts of disturbed land, prevent access by fencing, ditches, vegetation, berms, or other barrier; install perimeter wind barriers 3 to 5 feet high with low porosity; plant perimeter vegetation early; and for long-term stabilization, stabilize disturbed soil with dust palliative or vegetation or pave or apply surface rock.
- In staging areas, limit size of area; apply water to surface soils where support equipment and vehicles are operated; limit vehicle speeds to 15 mph; and limit ingress and egress points.
- For stockpiles, maintain at optimum moisture content; remove material from downwind side; avoid steep sides or faces; and stabilize material following stockpile-related activity.
- To prevent trackout, pave construction roadways as early as possible; install gravel pads; install wheel shakers or wheel washers, and limit site access.
- When materials are transported off-site, all material shall be covered, effectively wetted to limit visible dust emissions, or at least six inches of freeboard space from the top of the container shall be maintained.
- Where feasible, use bedliners in bottom-dumping haul vehicles.
- Grade each phase separately, timed to coincide with construction phase or grade entire project, but apply chemical stabilizers or ground cover to graded areas where construction phase begins more than 60 days after grading phase ends.
- All operations shall limit or expeditiously remove the accumulation of mud or dirt from adjacent public streets at least once every 24 hours when operations are occurring. (BAAQMD) *(The use of dry rotary brushes is expressly prohibited except where preceded or accompanied by sufficient wetting to*

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*limit the visible dust emissions.) (Use of blower devices is expressly forbidden.)*

- Following the addition of materials to, or the removal of materials from, the surface of outdoor storage piles, said piles shall be effectively stabilized of fugitive dust emissions utilizing sufficient water or chemical stabilizer/suppressant.
- During initial grading, earth moving, or site preparation, projects 5 acres or greater may be required to construct a paved (or dust palliative treated) apron, at least 100 ft in length, onto the project site from the adjacent site if applicable.
- Post a publicly visible sign with the telephone number and person to contact regarding dust complaints. This person shall respond and take corrective action within 24 hrs.
- Prior to final occupancy, the applicant demonstrates that all ground surfaces are covered or treated sufficiently to minimize fugitive dust emissions.
- Gravel pads must be installed at all access points to prevent tracking of mud on to public roads.
- The contractor or builder shall designate a person or persons to monitor the dust control program and to order increased watering, as necessary, to prevent transport of dust offsite.
- Prior to land use clearance, the applicant shall include, as a note on a separate informational sheet to be recorded with map, these dust control requirements. All requirements shall be shown on grading and building plans.
- All roadways, driveways, sidewalks, etc. to be paved should be completed as soon as possible. In addition, building pads should be laid as soon as possible after grading unless seeding or soil binders are used.
- Barriers with 50% or less porosity located adjacent to roadways to reduce windblown material leaving a site.
- Limit fugitive dust sources to 20% opacity.
- Require a dust control plan for earthmoving operations.

CC6-72

**5. Water quality impacts are not adequately addressed.**

**Steam generator transport would result in significant water quality impacts from leaching of tributyltin into port and coastal waters.** The project includes transport of the RSGs from overseas to a Southern California port, offloading onto a barge, barge transport north to Port San Luis, and offloading to land at Port San Luis.

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The DEIR discusses some marine impacts, including disturbing marine sediments and spills. (p. D.7-6.) However, it does not discuss the leaching of chemicals from boat paints, a widely recognized significant impact of shipping.

Anti-fouling chemicals are used to remove unwanted growth of biological material from the water-immersed surface of a vessel. Tributyltins are the most toxic and most widely used of these chemicals. Tributyltin is banned for use on small boats, under 65 feet in length, but still is widely used in paints used on marine vessels, barges, and tugboats.<sup>28</sup> These compounds readily leach out of the paint and into surrounding waters, resulting in adverse aquatic impacts.

Tributyltins are one of the most toxic substances ever deliberately introduced into the marine environment. (Fent 1996.<sup>29</sup>) The early developmental stages of aquatic organisms are particularly sensitive to tributyltin compounds.<sup>30</sup> These compounds are endocrine disruptors, causing, for example, imposex, *i.e.* a pseudo-hermaphroditic condition in female gastropods (snails) caused by TBT and manifested by the development of a false penis.<sup>31</sup> Endocrine effects have been observed at levels of about 1

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<sup>28</sup> Wayne K. Talley, Environmental Impacts Of Shipping, <http://www.oduport.org/EnvironmentalImpactOfShipping.htm>. See also: D. Bailey and others, Harboring Pollution, August 2004. <http://www.coalitionforcleanair.org/pdf/reports/cca-reports-harboring-pollution-strategies-to-clean-up-US-ports.pdf>.

<sup>29</sup> Karl Fent, Ecotoxicology of Organotin Compounds, Critical Reviews in Toxicology, v. 26, n. 1, 1996, pp. 1-117.

<sup>30</sup> R. Eisler, Tin Hazards to Fish, Wildlife, and Invertebrates: A Synoptic Review, Contaminant Hazard Reviews, Biological Report 85 (1.15), January 1989.

<sup>31</sup> See, e.g., Y. Shimasaki, T. Kitano, Y. Oshima, S. Inoue, N. Imada, and T. Honjo, Tributyltin Causes Masculinization in Fish, Environmental Toxicology and Chemistry, v. 22, n. 1, 2003, pp. 141-4.

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ng/L TBT (0.001 µg /L).<sup>32</sup> Tributyltin also causes adverse reproductive and developmental effects in aquatic organisms and a wide range of adverse impacts in fish.<sup>33</sup>

<sup>34</sup> Further, it persists in the marine environment and bioaccumulates in the foodchain.<sup>35</sup> The compounds have been found in the tissue of marine mammals and implicated in the decline of sea otters in California.<sup>36</sup>

The project would contribute to an existing impairment of coastal and harbor waters and contribute to or cause new impairments. Tributyltin leached from marine and port vessel hulls would degrade waters quality, contrary to federal and state antidegradation policies. The federal Policy, for example, states in part that, "[e]xisting instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected." 40 C.F.R. § 131.12(a)(1). Further, when a water body is impaired, the antidegradation policies prohibit additional discharges that will further impair that water body. Ports, harbors, and coastal waters<sup>37</sup> throughout California

<sup>32</sup> P.E. Gibbs and G.W. Bryan, TBT-induced Imposex in Neogastropod Snails: Masculinization to Mass Extinction. In: S.J. de Mora (Ed.), Tributyltin: Case Study of An Environmental Contaminant, Cambridge University Press, Cambridge, 1996, pp. 212-236.

<sup>33</sup> T. Braunbeck, D.E. Hinton, and B. Streit (Eds.), *Effects of Organotin Compounds in Fish: from the Molecular to the Population Level*, Fish Ecotoxicology, 1998, pp. 259-302.

<sup>34</sup> Heinz Rüdel, Case Study: Bioavailability of Tin and Tin Compounds, Ecotoxicology and Environmental Safety, v. 56, 2003, pp. 180-189.

<sup>35</sup> See, e.g., C. Alzieu, Biological Effects of Tributyltin on Marine Organisms, In: De Mora, S.J. (ed.), Tributyltin: Case Study of an Environmental Contaminant, Cambridge, University Press, 1996, pp. 167-211; K. Fent, Ecotoxicology of Organotin Compounds, Critical Reviews in Toxicology, v. 26, 1996, pp. 1-117; W. Kalbfus, A. Zellner, and E. Stanner, Gewässergefährdung durch Organozinnhaltige Antifouling-Anstriche, Umweltbundesamt Berlin, UBA-Texte 44-91, 1991; all in: Arbeitsgemeinschaft für die Reinhaltung der Elbe, Herkunft und Verteilung von Organozinnverbindungen in der Elbe und Elbenebenflüssen, 1999.

<sup>36</sup> <http://www.defenders.org/wildlife/new/marine/otters/ca/disease.html>

<sup>37</sup> M. Stallard, V. Hodge and E.D. Goldberg, TBT in California Coastal Waters: Monitoring and Assessment, Environmental Monitoring and Assessment, v. 9, 1987, pp. 195-220.



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have elevated levels of TBT in waters and sediments from boat paints.<sup>38</sup> Thus, the project would contribute to existing impairments of waters of the State. These are significant water quality impacts that were not evaluated in the DEIR and which can and should be mitigated. Environmentally safe alternatives are available. See, e.g., Bailey et al. August 2004, pp. 10-11.

CC6-73

**6. The noise impact analysis underestimates impacts.**

**The DEIR claims that noise from all on-site activities would be attenuated to background levels within 400 feet of the site.** (pp. D.9-7, D.9-8.) This analysis is based on a single piece of construction equipment, continuously emitting noise at 82 dBA at 50 feet from the project site. (p. D.9-7.) This is unrealistic and substantially underestimates noise impacts.

CC6-74

**All construction equipment should be considered together.** The project activities involve a large number of pieces of equipment operating simultaneously, e.g., see list in Table D.2-11 for just offloading. The DEIR's noise analysis is based on a single piece of "typical" construction equipment operating at partial load. Noise impacts from multiple pieces of equipment are logarithmically additive. Further, the loads are constantly fluctuating, which, itself causes significant noise impacts.

CC6-75

**Dropping noises are not considered.** The project involves banging and dropping noises that are very loud, sudden, and intermittent. These noises are not included among those considered in Table D.9-2 and could significantly contribute to nuisance and irritation, causing significant noise impacts.

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<sup>38</sup> State Water Resources Control Board (SWRCB), Tributyltin. A California Water Quality Assessment, December 1988.