



# Department of Toxic Substances Control

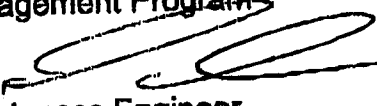


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**FROM:** Raymond Leclerc, P.E.  9/23/03  
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**DATE:** September 23, 2003

**SUBJECT:** HAPPY VALLEY INTERIM MEASURES WORK PLAN ADDENDUM AND  
AMENDMENT – SANTA SUSANA FIELD LABORATORY EPA ID CAD 093365435

## DOCUMENTS REVIEWED

*Happy Valley Interim Measures Work Plan Addendum and Amendment, Happy Valley and Building 359 Areas of Concern, Santa Susana Field Laboratory, dated August, 2003. Prepared by MWH.*

*Response to DTSC's Request for Additional Information for Happy Valley Interim Measure Work Plan Addendum and Amendment, Happy Valley and Building 359 Areas of Concern, Santa Susana Field Laboratory. Letter report dated September 17, 2003, from MWH to Mr. Art Lenox.*

*The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our Web-site at [www.dtsc.ca.gov](http://www.dtsc.ca.gov).*

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## **COMMENTS AND RECOMMENDATIONS**

The above documents have been reviewed to determine if they will address releases of perchlorate to surface water through Interim Measures (IM) as described in the DTSC letter to Mr. Steve Laffiam, dated May 21, 2003.

As documented in the above submittals, Boeing has been able to adequately characterize shallow perchlorate contamination in the Happy Valley and Building 359 Areas to support this Interim Measure. Boeing has proposed a combination of excavation and bioremediation actions that should address perchlorate discharges to surface water. In addition, the IM will prevent additional groundwater impact from rainwater infiltration by means of temporary covers over perchlorate contaminated soils in areas where material will remain in place over the winter for bioremediation.

While bioremediation appears to be a promising technology based on previous case studies and preliminary results from bench studies using contaminated site soils, it is possible that bioremediation will not perform adequately at this site. In that case, contaminated soils at the Building 359 Area may require additional characterization, risk assessment, and a review of more effective remedial methods. It is important that DTSC oversee this IM carefully to ensure that Boeing takes the necessary field measurements and modifies their approach in response to field conditions.

The IM as defined by Boeing does not specifically address perchlorate contamination in deeper soils. In recommendation six described below, we will require that Boeing apply the bioremediation techniques to deeper soils, and deep groundwater if it exists, if the techniques are successful in the more shallow soils as we expect they will. It is important that DTSC review the results from the field carefully and require that Boeing address deeper soils when it becomes clear that biotreatment is working effectively in shallow soils.

Although the above reports addressed many of DTSC comments described in our letter to Boeing dated July 28, 2003, some important issues remain and therefore I recommend that we approve the IM with the following conditions:

1. Boeing obtains the U. S. Army Corps of Engineers 404 Nationwide Permit required for work within the Happy Valley jurisdictional streambed.
2. Boeing obtains the Los Angeles Regional Water Quality Control Board (RWQCB) 401 Certification permit required for work within the Happy Valley drainage.

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3. Boeing obtains the RWQCB Waste Discharge Requirements required for biotreatment of perchlorate contaminated soils.
4. Boeing obtains the California Department of Fish and Game 1603 Streambed Alteration permit required for work within the Happy Valley drainage.
5. Boeing must submit for DTSC and RWQCB approval a schedule and a more specific scope of work to address the ongoing status reporting and biotreatment data collection described in Section 4.2 of the Workplan Amendment.
6. Boeing must submit a Six Month Report that will describe the status of the project. After six months of biotreatment, there should be significant reductions in perchlorate concentrations. If there are not significant reductions in perchlorate, Boeing shall make recommendations for improving the effectiveness of biotreatment or propose a plan for excavation and removal of perchlorate contaminated soils. If the biotreatment is successful in shallow soils, a plan to treat deeper soils in the Building 359 Area will be required. If groundwater is encountered above the bedrock aquifer, Boeing shall evaluate biotreatment of shallow groundwater.
7. Remediation must target all areas where surface soils in the biotreatment areas could impact surface water. Boeing shall submit for DTSC approval, revised maps that identify the extent of biotreatment, surface water diversions, and infiltration control.

In the Boeing reports cited above, a remediation goal of 4 parts per billion (ppb) (extractable perchlorate) is used for the soil removal action in the Happy Valley Area and 20 ppb is proposed for the biotreatment at Building 359 Area. The 4 ppb goal for Happy Valley is justifiable based on the surface water discharge goal used in the RWQCB NPDES permit. 4 ppb is also the practical quantitation limit using the extraction method. I believe that this is a protective interim remedial goal. The 20 ppb goal proposed by Boeing is not adequately justified in the reports. Without using risk assessment methodology or fate and transport analysis, any remedial goal that could result in a discharge to groundwater or surface water above 4ppb cannot be justified. Although 20 ppb may prove to be a reasonable remediation goal for perchlorate in soils at Building 359, it cannot be approved at this time with the rationale presented by Boeing. As this plan is implemented, DTSC must make sure that Boeing does address significant areas of perchlorate contaminated soils above 4 ppb, but below their proposed goal of 20 ppb in Building 359 Area.