

# **Explanation of Significant Differences**

*From the Remedial Action Plan, Dated 10/25/95  
Cal Compact Landfill Site  
Upper Operable Unit*

Department of Toxic Substances Control  
California Environmental Protection Agency

July 31, 2009

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## ATTACHMENT

Tetra Tech Letter, Request for Approval of Geosynthetic Landfill Cap Design and Request for Issuance of Explanation of Significant Differences (ESD), The Boulevard at South Bay Project, Carson, California, Former Cal Compact Landfill, dated May 11, 2009

## 1. Introduction

**Site Name:** CAL COMPACT LANDFILL: Upper Operable Unit – Surface soils through the Bellflower Aquitard

**Location:** Carson, California

**Lead Agency:** California Department of Toxic Substances Control (DTSC)

**Citation:** Health and Safety Code Section 25356.1; Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 117(c); and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) Section 300.435 (c)(2)(i).

### Statement of Purpose for Explanation of Significant Differences (ESD)

In October 1995, The California Environmental Protection Agency, Department of Toxic Substances Control (DTSC) approved a Remedial Action Plan (RAP) for the Upper Operable Unit at the Cal Compact Landfill ("the Site"). The 1995 Upper Operable Unit RAP addressed hazardous substances found in the top soils, landfill waste, subsurface landfill gases and groundwater down to the top of the Gage Aquifer beneath the Site. The RAP addressed potential human exposure to the landfill contaminants within the Upper Operable Unit. The remedial alternatives selected in the RAP once constructed will mitigate and prevent potential exposure to future Site users and contain migration of hazardous substances from the waste and surrounding soil to the groundwater.

The RAP identified three remedial technologies to be constructed: a clay landfill cap, a groundwater extraction and treatment system, and a landfill gas extraction and treatment system. The remedial systems are described in more detail in the following sections. When the RAP for the Upper Operable Unit was prepared the Site owner had proposed the future use of the Site as a commercial/retail shopping center. Therefore, residential use was not evaluated as part of preparation of the RAP for the Upper Operable Unit. Subsequently, a new developer purchased the Site and has proposed a portion of the Site for residential use. This ESD will discuss changes to the clay landfill cap and changes required in regards to a residential use component for the Site.

## 2. Site History, Contamination, Selected Remedy, and Land Use

The Cal Compact Landfill is a closed 157 acre Class II landfill that operated from 1959 to 1965 when it was covered with soil and closed. During its operation, the landfill accepted more than 6 million cubic yards of material including municipal rubbish and construction debris accounting for about 94% of all of the waste at the Site. According to disposal records, the Cal Compact Landfill also accepted approximately 540,000 cubic yards (volume equivalent) of liquid and semi-liquid wastes consisting of drilling muds, brines, oil, organic wastes as polar and non-polar solvents, sludges, esters, ethers, and alcohols. Of this total, approximately 250,000 cubic yards of these liquid and semi-liquid wastes are considered hazardous wastes by today's standards.



The Remedial Investigation of the Site revealed the presence of landfill gases (methane and carbon dioxide) as well as volatile organic compounds (VOCs) and metals in the Site soil and groundwater. Findings of these previous Upper Operable Unit investigations have indicated that the primary contaminants of concern in groundwater were dissolved chlorinated and aromatic VOCs, primarily trichloroethylene, cis-1,2-dichloroethylene, 1,2-dichloroethane, vinyl chloride, benzene, toluene, ethylbenzene, and xylenes. These VOCs had been detected in localized areas within the Bellflower aquitard at concentrations above their respective drinking water maximum contaminant limits. Based upon the October 1995 RAP, the following remedial actions have been proposed to mitigate threats posed by the contaminants detected in the Upper Operable Unit: (1) containment of impacted soil and buried waste by installation of an engineered landfill cap; (2) extraction and treatment of contaminated groundwater; (3) collection and treatment of landfill gasses; and (4) long-term environmental monitoring of groundwater and landfill gas. Remedial measures for the Upper Operable Unit have not yet been implemented.

At the time that the 1995 Upper Operable Unit RAP was prepared, the proposed land use was for the commercial/retail shopping center, LA MetroMall 2000, development and did not include any residential development. The land use currently proposed includes a residential development on a podium deck with open air parking below the residential spaces.

### **3. Basis for the Document**

This ESD is based on proposed changes to the remedy described in the approved RAP for the Upper Operable Unit. The changes pertain to the construction material for the landfill cap and the addition of a residential component to the redevelopment of the Site.

#### Cap

The October 1995 RAP for the Upper Operable Unit calls for an engineered low-permeability clay cover or cap to be installed over the entire site as part of the remedial/containment systems for the Site. This cap serves two purposes; one is to minimize the infiltration of precipitation and other sources of water through the refuse further exacerbating the groundwater quality and the other is to minimize the migration of landfill gasses vertically into the ambient air thus exacerbating the air quality and potentially causing a fire or explosion hazard. Since the 1995 RAP was approved, advances have been made in the materials used for construction of landfill caps. These materials include various geosynthetic liners and geosynthetic-clay composite liners. A material change from clay to geosynthetic liner with linear low density polyethylene (LLDPE) for the landfill cap has been proposed for the Site by the current owner of the Site. DTSC has approved the change to a LLDPE for cap construction, except for the landfill cap overlying the perimeter slopes (approximately nine acres). Such liners have been in use at numerous landfill sites throughout the country over the last two decades



and have been shown to be superior to their clay counterparts. Some of the enhanced features of the LLDPE include extreme flexibility and elongation properties, longer expected useful life, chemical resistance, and suitable compensation for the anticipated landfill settlement in the future.

#### Residential Use Component

The 1995 RAP for the Upper Operable Unit was prepared with a commercial/retail shopping center as the proposed end use. The current owner has proposed a residential use component for a portion of the Site. The proposed change requires an evaluation of whether or not a residential use component could be approved by DTSC provided engineering and institutional controls are implemented that would assure protection of human health and safety. The current owner has proposed to construct a Building Protection System (BPS) that will provide additional protection beyond the remediation systems described in the RAP. The proposed BPS includes a second vapor barrier in the form of a polyethylene liner, secondary venting system, twenty-four hour a day real time vapor monitoring, and an option to convert passive venting to active. Residential structures will be constructed using an elevated podium deck with open air parking below living spaces. DTSC has, on a conceptual basis, concluded that the BPS is feasible and would be protective of human health and safety. DTSC will require detailed plans be submitted for review and a post-construction human health assessment prior to approval of residential use of any portion of the Site.

#### **4. Description of Significant Differences**

The approved RAP for the Site calls for a landfill cap containing of a barrier layer of clay material with hydraulic permeability of  $1 \times 10^{-6}$  cm/sec or less. As discussed above, it was proposed that an improved landfill cap can be constructed by utilizing geosynthetic materials. Therefore, an LLDPE will be used for the majority of this project instead of a clay cap, except for the landfill cap overlying the perimeter slopes (approximately nine acres). Additionally, the October 1995 RAP was prepared for a commercial/retail development end use. The current development proposal calls for the addition of a residential use component. DTSC has conceptually agreed to the addition of a residential use component for a portion of the Site based on additional evaluation and the approval and implementation of additional engineering and institutional controls to ensure the protection of human health and safety.

#### **5. Statutory Determinations**

The remedy as changed pursuant to this ESD complies with the Health and Safety Code, CERCLA, and the NCP. The remedy remains protective of human health and the environment, complies with federal and State requirements that are applicable or are relevant and appropriate to the remedial action, is cost effective, and utilizes permanent solutions and resource recovery technologies to the maximum extent possible. An

Operation and Maintenance Plan will be developed and ongoing operation and maintenance activities will be conducted throughout the Site. Five year reviews of the remedy will be conducted to ensure that the remedy is protective of human health and the environment.

## **6. Public Participation**

This ESD will become part of the administrative record for the site pursuant to the NCP section 300.825 (a)(2)). A notice of public availability and a brief description of the ESD will be published in a major local newspaper on August 1, 2009. The ESD will be available for public review at the following locations:

### **Carson Regional Library**

151 East Carson Street, Carson, California 90745  
(310) 830-0901

For hours of operation, interested parties may call the libraries at the numbers listed above.

### **The Department of Toxic Substances Control**

5796 Corporate Avenue  
Cypress, California 90630  
(714) 484-5337  
Call for an appointment.

The Administrative Record can also be downloaded at the following web address:

[www.Envirostor.dtsc.ca.gov](http://www.Envirostor.dtsc.ca.gov)

## **7. List of References**

Brown & Root Environment, Final Remedial Action Plan, Cal Compact Landfill (Upper Operable Unit), Carson, California, October 1995.

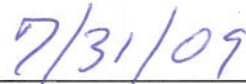
California Environmental Protection Agency, Department of Toxic Substances Control (DTSC), Consent Decree, Civil Action No. 95-8773: The California Hazardous Waste Control Account; and the California Hazardous Substance Account (Plaintiffs) v. Commercial Realty Project, Inc; and L.A. Metromall LLC (Defendants), May 25, 1995. [Count signed and entered on December 13, 1996.]

Carson Marketplace LLC, Carson Marketplace Specific Plan, February 8, 2006. [ Adopted by the Carson City Council, Ordinance No. 06-1341.]

Tetra Tech Letter, Request for Approval of Geosynthetic Landfill Cap Design and Request for Issuance of Explanation of Significant Differences (ESD), The Boulevard at South Bay Project, Carson, California, Former Cal Compact Landfill, dated May 11, 2009 (see attachment)



Thomas M. Cota  
Performance Manager  
Brownfield and Environmental Restoration Program




Date

## FIGURES






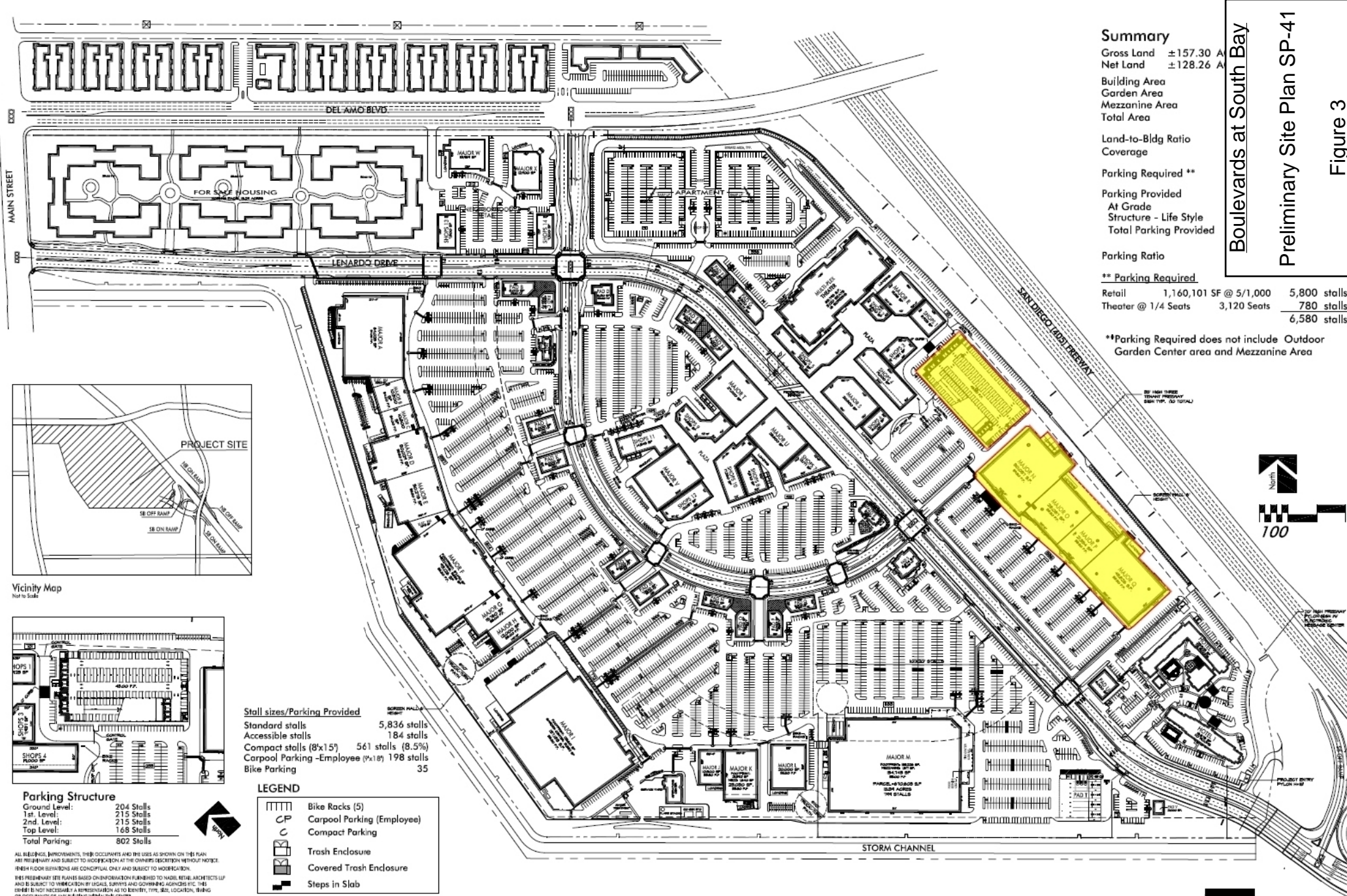
Boulevards at South Bay		
Vicinity Map		
Jan. 2008	 TETRA TECH	Figure <b>1</b>





Boulevards at South Bay		
Site Map		
Jan. 2008	 TETRA TECH	Figure 2





Boulevards at South Bay

Preliminary Site Plan SP-41

Figure 3

## PRELIMINARY SITE PLAN- SP-41

THE BOULEVARDS AT SOUTH BAY  
CARSON, CALIFORNIA



DATE: 10.01.08  
NADEL JOB#: 04247.00

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## ATTACHMENT



11 May 2009

Ning-Wu Chang, Ph.D., P.E.  
Department of Toxic Substances Control  
California EPA  
5796 Corporate Avenue  
Cypress, California 90630

**Subject: Request for Approval of Geosynthetic Landfill Cap Design and  
Request for Issuance of Explanation of Significant Differences (ESD),  
The Boulevards at South Bay Project, Carson, California  
Former Cal Compact Landfill**

Dear Dr. Chang:

This letter addresses a final step needed to start construction of the landfill cap using a geosynthetic instead of the a clay layer at the former Cal Compact Landfill for The Boulevards at South Bay Project in Carson, California. Tetra Tech, Inc. requests actions #1 and #2 below by the Department of Toxic Substances Control (DTSC) so that the revised project schedule can be maintained.

The approved October 1995 Final Remedial Action Plan (RAP) for the site calls for a landfill cap containing of a barrier layer of clay material with hydraulic permeability of  $1 \times 10^{-6}$  cm/sec or less. For several reasons, it was proposed by Tetra Tech, Inc. and generally agreed to by all parties, that an improved landfill cap can be constructed by utilizing geosynthetic materials instead. An impermeable geosynthetic material would be used for majority of this project instead, except for the landfill cap overlying the perimeter slopes.(approximately nine acres). We outlined that the following steps would be required to implement this change:

1. Conditional approval by the DTSC of the geosynthetic landfill cap design. The “conditional” approval status is intended to recognize that minor design changes are likely to take place right up the time of construction, and that DTSC will review and approve the final design immediately before construction.
2. Issuance of an Explanation of Significant Differences (ESD) that formally documents and explains the change of design from the cover design using a clay barrier in the RAP to the cap that utilizes the geosynthetic cap approach, and provides for the required notifications.
3. Final field approval by DTSC of each area/subarea of landfill cap design just prior to construction.

**Basis of Request for Conditional Approval of Design:** Our request for conditional approval of the geosynthetic landfill cap design is based on the following:

- (a) Information meetings and presentations with DTSC in 2004, 2005, 2006, and 2007 on the development of design concepts for the geosynthetic landfill cap.
- (b) Submittal by Tetra Tech of the 27 December 2004 report entitled “Preliminary Remedial Design Refinements.”
- (c) Letter from DTSC dated 9 February 2005 stating that the proposed design refinements for the landfill cap are appropriate for remedial design at the site and requested additional details.
- (d) Submittal by Tetra Tech of the 11 October 2007 letter report entitled “Landfill Cap Remedial Design Refinement and Response to Request for Additional Information.”
- (e) Letter from DTSC dated 29 November 2007 with the subject of “Landfill Cap Remedial Design Refinements and Response to Request for Additional Information” stating that the proposed landfill cap details are likely to meet the protective performance objectives and pointed out that DTSC final approval is contingent upon more refined design details.
- (f) Submittal by Tetra Tech of the 19 December 2007 report entitled “Landfill Cap Geomembrane Liner Grade Design – 75% submittal.”
- (g) Regular design review meetings with DTSC throughout 2008 and 2009 during which each design refinement was presented and discussed and the design process explained.
- (h) Submittal by Tetra Tech of the 15 February 2008 report entitled “Landfill Cap Geomembrane Liner Grade Design – 95% submittal.”
- (i) Submittal by Tetra Tech of the June 2008 “Landfill Cap Design-Build Drawings – Buildings NOPQ” for a representative portion of the site that correlated with building and utility designs then being considered.
- (j) Submittal by Tetra Tech of the 15 August 2008 report entitled “Design Report for Settlement-Compensating Connection of Geomembrane to Pile Caps”, which included videos of full-scale testing of prototypes of the pile cap boots developed for this project.
- (k) Submittal by Tetra Tech of the 28 August 2008 report entitled “Design Report for Landfill Cap Exterior Slopes.”



- (l) Submittal by Tetra Tech of a letter dated 15 September 2008 with the subject of “Request for Approval for Geosynthetic Materials for Landfill Cap.”
- (m) Letter from DTSC dated 26 September 2008 with the subject of “Request for Approval for Geosynthetic Materials for Landfill Cap” providing conditional approval of the specific geosynthetic materials proposed for use in the landfill cap.
- (n) Submittal by Tetra Tech of the December 2008 report entitled “Geosynthetic Confirmation Tests for Slope Stability Design of Landfill Cap Exterior Slopes.”
- (o) Submittal by Tetra Tech of the February 2009 report entitled “Building Protection System Geomembrane and Primary Geomembrane Mock-Up Demonstration Test Report”, which included videos of full-scale testing of the landfill cap durability during construction activities.
- (p) Submittal by Tetra Tech of the February 2009 report entitled “Technical Specifications for Geosynthetic Landfill Cap.”
- (q) Submittal by Tetra Tech of the February 2009 report entitled “Construction Quality Assurance Plan for Geosynthetic Landfill Cap.”
- (r) Submittal by Tetra Tech of the February 2009 report entitled “Test Standards Accompanying Specifications and CQA Plan for Geosynthetic Landfill Cap.”
- (s) Submittal by Tetra Tech of the March 2009 “Landfill Cap Design-Build Drawings – Buildings NOPQ and Parking Structure” for a representative portion of the site that correlated with the latest building and utility designs available, and which replaced the design drawings submitted to DTSC in June 2008.
- (t) Submittal by Tetra Tech of the March 2009 “Landfill Cap Design-Build Drawings – Torrance Lateral Slope” for the geosynthetic landfill cap design in that area.

**Basis of Request for Issuance of ESD:** As a result of the extensive process of design development, testing, design review meetings, and submittals outlined above, we believe that DTSC now has sufficient information to represent the details of the design change from the clay landfill cap to the geosynthetic landfill cap for the purposes of preparing and issuing the required ESD.

**Request:** Tetra Tech requests that DTSC provide a conditional approval of the geosynthetic landfill cap design and issue the ESD. These actions are required to maintain the revised project schedule and milestones. It is recognized that final field approval must be issued by DTSC for the final design of the landfill cap in each area/subarea just prior to construction.



We look forward to any discussion you may need to enhance your timely review and approval of this request.

Sincerely,  
**Tetra Tech, Inc.**

A handwritten signature in black ink that reads 'Javier Weckmann'.

Javier Weckmann, P.E.  
Program Manager/Vice President

cc: Tom Cota, DTSC  
Dan Zogaib, DTSC  
Steve Hariri, DTSC  
Ryan Jones, Carson Marketplace  
Seelye Arms, Carson Marketplace  
Gary Boettcher, Carson Marketplace  
Gary Keyes, Tetra Tech  
Marty Czerniak, BAS