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Pete Wilson
Governor

Castro Cove
RZ

Date:
File No. 2119.1044G(EAC)

Marty A. Gilles, Manager
Environmental and Safety Division
Chevron Products Co.
P.O. Box 1272
Richmond, CA 94802-0272

Attention: Mr. Don Kinkela

SUBJECT: Conditional Approval of *Sediment Characterization and Ecological Risk Assessment Workplan for Castro Cove*

Dear Ms. Gilles:

Based on our review of the subject document, the meeting on September 8, 1998 with your staff and consultants, and in the interest of completing fieldwork before the onset of the wet season, we conditionally approve the workplan. We appreciate Chevron's efforts in meeting with us and presenting the rationale for its approach to sediment characterization in Castro Cove. The following table summarizes the information requested in our June 10, 1998 letter, Chevron's response in the workplan, and the conditions necessary for approval of the workplan.

Requested Tasks	Chevron's Response in Workplan	Conditions Necessary for Approval
1. Delineation of sediment contaminant gradients from refinery-related sources	Collection of 9 surficial sediment samples along Castro Creek channel and perimeter of cove	For lateral delineation, staff will accept no less than 4 additional surface samples located approximately as follows: one sample bisecting a transect between sample locations DM-2 and DM-8, one sample bisecting a transect between DM-3 and DM-7, one sample bisecting a transect between DM-6 and DM-7, and one sample bisecting a transect between DM-7 and DM-8.

Requested Tasks	Chevron's Response in Workplan	Conditions Necessary for Approval
<p>2. Evaluation of effects of sediment on aquatic organisms using concurrent toxicity and chemistry testing</p>	<p><u>Tier 1:</u> Collection of 9 surficial sediment samples for chemical analysis</p> <p><u>Tier 2:</u> Toxicity testing may be performed based on results of Tier 1 (exceedance of ecological benchmarks)</p> <p>* TPH was omitted from the list of requested analytes</p>	<p>Staff will accept the phased approach to chemical and toxicity testing, but may require toxicity testing in the spring based on physical evidence of contamination (presence of oily residue, sludge, or tar) in addition to measurements of individual chemicals taken this fall. The intent is to detect toxicity resulting from the physical properties of the oily material itself or chemical mixtures contained in it for which there are no screening-level ecological benchmarks.</p> <p>* TPH analysis must be performed on all samples as originally requested (Chevron may elect to compare duplicate samples with and without silica gel cleanup)</p>
<p>3. Characterization of the vertical extent of contamination, including sediment deposition/erosion potentials</p>	<p><u>Tier 1:</u> 1989 and new bathymetric surveys and use of existing vertical sediment data</p> <p><u>Tier 2:</u> Additional collection of sediment chemistry at depth, as needed</p> <p>* existing vertical sediment data (Enrix, 1988) is extremely limited- only 4 locations sampled and reporting limits for PAHs were generally higher than ecological benchmarks indicating frequently observed adverse effects (ERMs)</p>	<p>Staff will accept the workplan on the condition that 6-ft core samples are taken at no less than four locations including the following: DM-1 and DM-9 where high levels of PAHs have been detected in the past, at the center of the transect between DM-2 and DM-8, and in the vicinity of DM-7. One set of cores from each location should be chemically analyzed at 1ft intervals and another set should be physically logged in the field for lithology, stratigraphy, and visual evidence of contamination by a certified geologist. Another condition for approval of the workplan is that Chevron perform additional core sampling and either radioisotope dating or some other method of estimating sediment deposition/erosion rates this coming spring in addition to collecting bathymetric data this fall. Results from just two bathymetric sampling events alone will not provide enough data to assess the rate of sediment deposition/erosion and potential for vertical mixing and resuspension of contaminants in Castro Cove.</p>
<p>4. Field evaluation of potential for bioaccumulation/ biomagnification in sediments</p>	<p><u>Tier 1:</u> Qualitative evaluation of bioaccumulation potential</p> <p><u>Tier 2:</u> Field data collection, as appropriate</p>	<p>The condition for approval is that Chevron perform a field evaluation in the spring</p>

One of staff's major concerns in this investigation is determining whether contaminant hot spots are located in erosional or depositional areas and whether contamination below the top 5 cm could be a continuing source of toxicity due to vertical mixing and resuspension. I must emphasize that staff cannot make decisions on the extent of cleanup necessary until Chevron provides information that relates patterns of sediment deposition and erosion in the cove with the vertical contaminant profile.

Please contact Ms. Elizabeth Christian of my staff at (510) 622-2335 if you have questions concerning this letter.

Sincerely,

Richard K. McMurtry, Chief
Groundwater Protection and
Waste Containment Division