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MCAS EL TORO  
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Southwest Division  
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LOCATION: MCAS El Toro

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Operable Unit 2C - Site 5 - DTD 25 October 1996

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**RESPONSE TO COMMENTS  
POTENTIAL REUSE ISSUES ASSOCIATED  
WITH OPERABLE UNIT 2C - SITE 5  
MCAS EL TORO, CALIFORNIA**

<p><b>Originator:</b> Peter M. Janicki Cal/EPA</p> <p><b>To:</b> Tayseer Mahmoud DTSC</p> <p><b>Date:</b> 25 October 1996</p>	<p style="text-align: right;"><b>CLEAN II Program</b> Contract No. N68-711-92-D-4670 CTO-0076 File Code: 0214</p>
<p><b><u>COMMENTS</u></b></p> <p>During a telephone conversation on October 21, 1996, California Integrated Waste Management Board (Board) staff were informed that an irrigated postclosure land use (golf course extension) had been proposed as the final land use for the Site 5 landfill. In addition to the verbal information we have also received a facsimile copy of excerpts from the draft of MCAS El Toro Community Reuse Plan, originated by MCAS El Toro Local Redevelopment Authority and Dated August 1996.</p> <p>In Board staff letter of June 3, 1996, it was stated that the extent of our review and the subsequent approval of the investigation program was limited by the assumption that the site will be closed under presumptive remedy method and final postclosure land use of the site will be a non-irrigated open space. It was also indicated that both the site investigation and design of the final cover may have to be upgraded in an event when the final site use would involve irrigation (e.g., a park or golf course).</p> <p>In order for Board staff to consider Site 5 suitable for the proposed golf course expansion, a more rigorous site investigation and/or analyses of appropriate existing data are required. The site investigation (or existing site information) should address the following:</p>	<p><b><u>RESPONSES COMMENTS</u></b></p>
<p>1. Comprehensive landfill extent delineation survey for both the vertical and lateral limits of the waste fill.</p>	<p><b>RESPONSE 1:</b> The lateral limits of the wastes are well documented by geophysical surveys and aerial photographs. Backhoe trenching, soil borings, monitoring well borings, and lysimeter borings were also used to document the lateral extent of the landfill. No borings or backhoe trenches were conducted through the landfill, as agreed to in the Phase II RI/FS Work Plan. Therefore, the vertical extent is not known with certainty. The FS report presents several alternatives for capping the landfill based on the lateral extent which will prevent direct infiltration of surface water into the landfill.</p>

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<p><b>2. Waste characterization study including types of waste, age of waste, moisture content and saturation capacity.</b></p>	<p><b>RESPONSE 2:</b> Interviews with personnel (conducted on May 26, 1994) involved with the Site 5 landfill have described disposal activities beginning in the early 1950s (confirmed in aerial photographs) and ceasing in 1975. Scrap metal was recycled from the landfill. Solid and liquid wastes were reported to be disposed of in the landfill and burning was conducted to reduce the volume of wastes. Because no samples were collected from landfill wastes, moisture content and saturation capacity were not measured. However, capping is planned to be used to minimize infiltration from the surface and a sufficient cap design will be proposed to minimize infiltration in accordance with reuse.</p>
<p><b>3. Comprehensive landfill gas survey with samples collected from the fill area at several representative depths. The laboratory analyses would have to include both fixed gases and organic compounds analyses.</b></p>	<p><b>RESPONSE 3:</b> Existing landfill gas sampling consisted of five samples collected at 8-foot bgs in the Air SWAT and 21 samples from 8 to 15 feet collected during the Phase II RI. The Air SWAT samples were analyzed for EPA TO-14 VOCs and the Phase II RI samples were analyzed for EPA 8010/8020 VOCs. The Phase II RI samples were collected along the perimeter of the landfill. TCE and PCE were reported at low concentrations in the Air SWAT samples and no VOCs were reported in the Phase II RI samples along the landfill trench. In addition to shallow soil gas sampling, perimeter soil gas samples were collected at three Air SWAT and three Phase II RI locations. No methane was detected in the Air SWAT samples and low concentrations of methane (1 to 25 ppm,) were found in the Phase II RI samples. Deep soil gas samples were also collected from soil gas probes attached to the lysimeters installed under the landfill trench in the Phase II RI. TCE and toluene were detected at low concentrations (5 to 15 µg/L) in these deep probes. Therefore, a comprehensive soil gas survey has been conducted at Site 5 and has found low concentrations of VOCs and methane at the site.</p>
<p><b>4. Landfill gas generation potential study based on gas monitoring results collected over a period of one year from perimeter probes constructed in accordance with 14 CCR 17783.5.</b></p>	<p><b>RESPONSE 4:</b> In the proposed monitoring plan presented in the FS report, dedicated perimeter soil gas probes would be placed around the perimeter of the cap for the site and would be monitored quarterly for VOCs and fixed gases until landfill gas production stabilizes.</p>

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<p><b>5. Modified HELP model infiltration analyses based on the proposed irrigation and approved final cover design.</b></p>	<p><b>RESPONSE 5:</b> The draft final FS report presents a HELP model result which simulates the use of the site as an irrigated golf course (30.6 inches of water application over the year). Under this scenario, a GCL or FML barrier layer is required to minimize infiltration.</p>
<p><b>In addition to the site investigation requirements and based on its results, modifications to the design of the final cover may be required as well. The modifications may include the following elements:</b></p>	
<p><b>6. Modified final cover design which would include a synthetic impermeable membrane along with a subsurface drainage layer connected to the runoff collection system.</b></p>	<p><b>RESPONSE 6:</b> Based on the HELP model results for an irrigated golf course, a GCL or FML barrier layer is needed to minimize infiltration.</p>
<p><b>7. In addition to the final cover design modification or in lieu of, a subsurface moisture sensing system synchronized with the onsite irrigation system may be required.</b></p>	<p><b>RESPONSE 7:</b> As part of the final design, a soil moisture sensing system, especially in the area of the landfill, is a design element which would be useful for minimizing irrigation.</p>
<p><b>8. Landfill gas monitoring and collection systems and audible gas detection devices (for onsite enclosed structures) may be required, based on the results of the landfill gas survey.</b></p>	<p><b>RESPONSE 8:</b> All results of the landfill gas surveys have shown that low concentrations of VOCs and methane are present and would be monitored through the perimeter soil gas probes on a quarterly basis. Onsite enclosed structures are not considered as part of the irrigated golf course reuse but this will be negotiated at the time of BRAC transfer.</p>
<p><b>9. Special design consideration should be given to allow ease of all monitoring and control systems related to the landfill postclosure maintenance.</b></p>	<p><b>RESPONSE 9:</b> Access will be included in the final design and will be negotiated as part of the BRAC transfer process.</p>
<p><b>As an alternative to constructing actual irrigated golf course areas over the fill, the project proponent may consider designating the landfill for golf course related functions such as parking lot, restrooms, etc. By eliminating site irrigation, the site investigation and closure requirements may be then reduced.</b></p>	<p>For the FS report, the irrigated golf course presents the most severe problems with reuse and will be considered in the report. Actual reuse activities will be decided by the reuse agency.</p>

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<p><b>It should be pointed out that the extent of site investigation may have a direct effect on the final cover and other closure related requirements for this project. Should the site investigation supply sufficient information about the landfill's low environmental threat potential, the extent of the closure and, subsequently, construction and postclosure maintenance costs may be greatly reduced.</b></p> <p><b>Conversely, should the proposed design address all potential public health and safety and environmental impacts (worst case scenario), the necessity for a comprehensive site investigation will be reduced.</b></p>	<p>Based on the results from the Air SWAT, Phase I RI, and Phase II RI, the assessed risks to human health and the environment from Site 5 are minimal. The FS report for the site presents several alternatives that eliminate direct contact with wastes, control run on/run off, and minimize infiltration. These alternatives also include long-term monitoring plans for visual inspection of the site, perimeter and deep soil gas monitoring, and groundwater monitoring designed to protect human health and the environment.</p>