State of California—Health and Human Services Agency
Department of Health Services

California Department of Health Services

SANDRA SHEWRY
Director

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Governor

February 22, 2007

Ms. Sayareh Amir, Chief
Southern California Cleanup Operations
Department of Toxic Substances Control
1011 North Grandview
Glendale, CA 91201

Dear Ms. Amir:

The Department of Toxic Substances Control (DTSC) Glendale office requested that California Department of Health Services/Radiologic Health Branch (CDHS/RHB) review environmental radiological survey data for the Centex Homes Dayton Canyon site and provide DTSC with CDHS/RHB's assessment of the survey data. Mr. Jose Diaz (DTSC Glendale office) forwarded for CDHS/RHB review the June 7, 2006 (Revised September 27, 2006) Radiological Investigation Report of the Centex Homes Dayton Canyon site prepared by Allwest Remediation. The CDHS/RHB role in the Centex Homes Dayton Canyon site radiological survey has been limited to assessment of the survey data provided by the DTSC Glendale office. CDHS/RHB was not involved in the design or implementation of the survey, and no confirmatory sampling was performed by CDHS/RHB.

The CDHS/RHB review of the Allwest Remediation report focused on assessment of the soil survey data for the man-made radionuclides Cesium-137, Strontium-90, Plutonium-238, and Plutonium 239/240. The soil survey data for the naturally occurring radionuclides (Actinium-228, Bismuth-212, Bismuth-214, Lead-212, Lead-214, and Potassium-40) were not rigorously assessed, because if the site has been radiologically impacted by the nearby Santa Susana Field Laboratory (SSFL) facility, the man-made radionuclide soil concentrations will be the primary indicators of such impact. The direct radiation survey data and the gross alpha and beta soil survey data also were not assessed, because at the concentrations of man-made radionuclides identified in the Centex Homes Dayton Canyon site survey, these survey data are reflective of naturally occurring radionuclides rather than man-made radionuclides.

The CDHS/RHB review further focused on the health and safety implications of the man-made radionuclide soil concentrations, rather than attempting to determine if small concentrations above local background may exist at the site. If DTSC decides it is

necessary to determine whether the survey data are consistent with local background radionuclide concentrations, including an attempt to determine if the approximate factor-of-two higher Cesiums-137 concentrations shown by the sampling in the west area compared to the north and south areas is due to natural concentration phenomena or an off-site contaminating source such as SSFL, significant additional sampling and analysis would likely be required. If DTSC is primarily concerned with whether the Centex Homes Dayton Canyon site does not contain radionuclides at levels that would be unsuitable for residential development, the survey data provided by Mr. Diaz are sufficient to make that determination.

The Environmental Protection Agency (EPA) cancer-incidence risk range of 1E-6 (one-in-a-million cancer incidence) to 1E-4 (one-in-ten-thousand cancer incidence) was utilized as a reference in the assessment of the health and safety significance of the soil survey data (with 1E-4 representing the highest risk normally acceptable in EPA CERCLA actions). Another reference pertinent to the assessment is the criterion used by almost all Agreement States and the Federal Nuclear Regulatory Commission for releasing licensed radioactive material use sites for non-regulated, general usage. This criterion equates to a maximum of approximately 5E-4 risk. CDHS regulations do not currently contain either of these release criteria (nor other quantitative release criteria), but both are widely recognized standards. The EPA generic Preliminary Remediation Goal (PRG) calculator for residential land usage was used to convert soil concentration to risk in the CDHS/RHB assessment.

The safety significance of the noted man-made radionuclide concentrations, based on CDHS/RHB's review of the survey results, is:

> Cesium-137: The cancer-incidence risks for local-background corrected, average soil concentrations for the four site sub-areas (west, north, south, and creek bed) range from less than 0 to ~1E-6, with an overall site average of ~5E-7. The average soil concentration of 0.087 pCi/g from the mid-1990's McLaren Hart background survey was assumed to represent local background in the calculations.
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> Strontium-90: The cancer-incidence risks for local-background corrected, average soil concentrations for the four site sub-areas (west, north, south, and creek bed) range from less than 0 to ~5E-7, with an overall site average of ~2E-7. The average soil concentration of 0.052 pCi/g from the mid-1990's McLaren Hart background survey was assumed to represent local background in the calculations.

Plutonium-238 and Plutonium-239/240: The cancer-incidence risks for non-background corrected, average soil concentrations for combined plutonium for the four site sub-areas (west, north, south, and creek bed) range from ~2E-9 to ~4E-9, with an overall site average of ~4E-9. Due to the very low risk of the reported combined plutonium soil concentrations, background concentrations were not subtracted.

The cancer incidence risk from the combined, site average concentrations of Cesium-137, Strontium-90, Plutonium-238, and Plutonium-239/240 (background corrected except for the plutonium nuclides) based on residential land usage is below 1E-6, with the highest combined cancer incidence risk for the four site sub-area averages (west area) being approximately twice the site average. These concentrations and risks are below those that would pose an undue health and safety concern for residential land usage.

If you require additional assistance from CDHS/RHB on this matter, please contact me at (916) 440-7942 or via e-mail: gbutner@dhs.ca.gov.

Sincerely,

Gary W. Butner
Acting Branch Chief
Radiologic Health Branch

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