

US EPA ARCHIVE DOCUMENT



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION I
ONE CONGRESS STREET SUITE 1100
BOSTON, MASSACHUSETTS 02114-2023

Memorandum

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Subj: Comparison of Maximum Detected Concentrations Reported in Draft EE/CA Approval Memo for Centredale Manor to EPA's Risk Range

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To: Anna Krasko, RPM
RI Superfund Section

As you requested, I have compared the maximum concentrations reported in the 12/30/99 EE/CA Approval Memo, Section IIC, for soils on the Centredale Manor and Brooks Village properties, and sediments near Allendale dam, to the upper end of EPA's acceptable risk range. EPA's acceptable risk range is 10^{-4} to 10^{-6} , and generally action is taken if risks exceed 10^{-4} . The exact value at which a manager takes action (i.e. 1×10^{-4} , 2×10^{-4} , etc), is dependent on a number of factors such as confidence in exposure assumptions and a balancing with the nine criteria. For this evaluation, I have compared maximum concentrations to a cancer risk of 1×10^{-4} . This is a conservative approach since the exact exposure factors and risk management factors are unknown at this point. Likewise, for noncancer effects a hazard quotient of concern is undefined in Region 1 but is generally somewhere above one. I have conservatively compared maximum concentrations to a hazard quotient of one. If an unacceptable risk is triggered and RI DEM soil regulations are deemed ARARs, several additional chemicals in soils will exceed RIDEM standards for residential properties. If you have any questions, do not hesitate to call me at X1237.

Residential Properties located at Centredale Manor and Brooks Village

Maximum reported concentrations of chemicals were compared to EPA Region 9 PRGs for residential soils. Region 9 PRGs were first adjusted to account for differing default residential soil exposure frequencies between the regions by multiplying Region 9 values by 2.3 (Region 9 assumes 350dys/yr exposure, Region 1 assumes 150dy/yr exposure). Since PRGs are set at a 1×10^{-6} cancer risk level, values 100X the adjusted PRG were deemed above EPA's risk range for cancer endpoints. Of the 20 chemicals reported in the EE/CA, 8 exceed either a cancer risk of 1×10^{-4} or a hazard quotient of one. These chemicals are listed below, with "NC" denoting noncancer endpoints and "C" denoting cancer endpoints.

1,2-dichlorobenzene (NC)

5656

benzene (C)
chlorobenzene (NC)
tetrachloroethene (C)
trichloroethene (C)
cadmium (NC)
lead (NC)
manganese (NC) (note: Mn barely exceeds a HQ=1 at 1.2)

Sediment data located near Allendale Dam

Maximum reported concentrations of chemicals were compared to EPA Region 9 PRGs for residential soils. Region 9 PRGs were first adjusted to account for differing exposure frequencies between a residential and a recreational scenario. For a recreational scenario it was conservatively assumed that a small child would access sediments for 104 days/yr (equivalent to 3dys/wk during the 7 warmer months and 1 dy/wk during the five colder months). It is unclear whether maximum concentrations reported were in the surface sediment (i.e. top 0-6 inches). If maximum concentrations were deeper than 6 inches, this evaluation is overly conservative. The only compounds which exceeded acceptable risk ranges were PCBs at 9.1ppm and lead at 629ppm. Please note that if other dated are averaged in with 9.1ppm the upper confidence of the mean may not exceed a risk level of concern. For lead, the same applies.