



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
475 ALLENDALE ROAD
KING OF PRUSSIA, PENNSYLVANIA 19406-1415

February 1, 2008

Docket No. 04007455

License No. SMA-1018

Eric Lardiere
Vice President, General Counsel, & Secretary
Whittaker Corporation
1955 N. Surveyor Avenue
Simi Valley, CA 93063-3386

SUBJECT:

Dear Mr. Lardiere:

EnergySolutions has submitted a document titled, "Radiation Dose Assessment in Support of the Release of the Greenville Metals, Inc. Property, Report No. 2006016/G-4350" to the Nuclear Regulatory Commission in support of the Whittaker Site decommissioning project. After reviewing the document we have some technical concerns and comments regarding the document.

1. We have concerns regarding the characterization of the Greenville Metals, Inc. (GMI) site. It is difficult to evaluate the comprehensiveness and representativeness of survey/sample data collected. The maps provided are of poor quality. Page 2-2 of the Whittaker Site Decommissioning Plan (December 2006) indicates that Whittaker Corporation retains responsibility for source materials that remain on the current GMI property. A quality map should be provided which clearly shows the boundaries of the GMI property and its facilities, and the estimated/calculated contaminated areas for which the Whittaker Corporation retains responsibility. Please provide better maps showing borehole locations, the horizontal and vertical extent of contamination, the relationship of GMI contamination with contamination on the Whittaker site, and specifically discuss any issues associated with limited access and constraints on data collection efforts.
2. We have several concerns with the development of source concentrations used in RESRAD:
 - a. Technical justification is needed for the method of developing source concentrations based on average concentrations of material removed from the Whittaker site. No correlation has been established between the residual contamination on GMI property versus material shipments leaving the Whittaker site. The source was assumed to have little variability with regards to its configuration, spatial concentration, and chemical form, while there appears to be large variability in concentrations between slag samples (e.g., Table 1 of the dose assessment reveals very different concentrations for the slag samples).
 - b. Technical justification is needed regarding the approach used to determine contaminated volumes based on comparisons of survey results to assumed

background borehole measurements. Provide a more detailed explanation of how background levels were determined, provide correlations of gross measurements to activity soil concentrations, compare background values with the investigation levels identified in the characterization plan and derived concentration guideline levels (DCGLs), and explain other inconsistencies identified by Oak Ridge Institute for Science and Education (ORISE) between background levels subtracted from data in the survey results versus those used to determine the volume of contaminated material. Explain how assuming material half-way between impacted and non-impacted boreholes is contaminated is a conservative approach to calculating contaminated volumes for the purposes of dose modeling.

- c. Technical justification is needed for the approach used to calculate average concentrations over a large area without consideration of smaller areas of elevated concentrations. The approach used essentially dilutes elevated measurements in a much larger volume of uncontaminated soil. Demonstrate that smaller areas of higher concentrations will also meet License Termination Rule (LTR) criteria and that removal of surficial soil is not As Low As Reasonably Achievable (ALARA). DCGLs for smaller areas of elevated concentrations should be calculated and the total dose from the larger exposure area and smaller areas of elevated concentration considered to demonstrate compliance with LTR criteria.
 - d. Additional technical justification or support for the assumed ratios of parents and ratios of parents to daughters (determination of whether members are in secular equilibrium) within the U and Th decay chains needs to be provided.
3. We have several concerns with the documentation. For example, inconsistent information is provided regarding the area of contamination and resultant doses within text or tables. Inconsistencies have also been identified between the text or tables and the RESRAD input files. Technical bases were missing for parameter values left at RESRAD default values, while references were missing for the input values which were changed to site-specific values. In some cases, not enough information is provided to check key assumptions or calculations.
 4. We would like clarification regarding co-location of contaminated regions within the GMI and Whittaker sites and how the cumulative dose from GMI and the remediated Whittaker site will meet LTR criteria.
 5. Information is provided on solubility and leaching properties of the slag from NUREG-6632; however, it is not clear that this information was considered in the release model. It appears default Kds are used in the analysis which may not be realistic or conservative given water-independent pathways dominate the peak dose. Demonstrate that the source term model employed is either realistic or conservative.
 6. Clarify whether potential, less likely but plausible scenarios were evaluated consistent with guidance in NUREG-1757.

E. Lardiere
Whittaker Corporation

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7. Clarify whether the owners of GMI property concur with the no-action proposal put forward by Whittaker. If GMI has not been consulted, indicate whether you plan to discuss this proposal with them.

In general the dose assessment needs a significant amount of work and the proposal cannot be approved at this time. Please also refer to a letter from this office dated December 20, 2007, that was sent to Kevin Taylor of Energy Solutions with comments and questions related to the characterization plan and preliminary survey data for the GMI property boreholes. Please reply to my attention at the Region I Office. Since it is anticipated that Pennsylvania will achieve agreement state status and be the responsible licensing authority for the Whittaker license as of April 1, 2008, please also send a copy of your response to:

Robert Maiers
Pennsylvania Department of Environmental Protection
Bureau of Radiation Protection
Rachel Carson State Office Building
P.O. Box 8469
Harrisburg, PA 17105-8469

If you have any questions regarding this letter, please call me (610) 337-5236. Thank you for your cooperation.

Sincerely,

Original signed by John Nicholson

John Nicholson
Health Physicist
Decommissioning Branch
Division of Nuclear Materials Safety

cc:
Gerard Toumey, Project Manager
Robert C. Maiers, P.E., Commonwealth of PA

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 Health Physicist
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cc:
 Gerard Toumey, Project Manager
 Robert C. Maiers, P.E., Commonwealth of PA

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