



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 1
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BOSTON, MASSACHUSETTS 02114-2023

October 30, 2001

Mr John Burleson
BRAC Environmental Coordinator
Stratford Army Engine Plant
550 Main Street
Stratford, CT 06497

Re Draft Indoor Air Modeling Work Plan
Stratford Army Engine Plant
Stratford, Connecticut

Dear Mr Burleson

The United States Environmental Protection has reviewed the draft version of the document entitled "Indoor Air Modeling Work Plan, Stratford Army Engine Plant" The above-referenced document is dated October 2, 2001

EPA's comments on this document are provided in Attachment I to this letter

If you have any questions regarding this matter, please contact me at (617)918-1387

Sincerely,

A handwritten signature in cursive script that reads "Meghan F. Cassidy".

Meghan F Cassidy
Remedial Project Manager

Enclosure

cc Michelle Brock/Army Corps of Engineers
Ken Feathers/CT DEP
Nelson Walters/Harding ESE
Peter Golonka/Gannett-Fleming
RAB Members

ATTACHMENT I

The following are EPA's comments on the document entitled "Indoor Air Modeling Work Plan, Stratford Army Engine Plant" The above-referenced document is dated October 2, 2001

GENERAL COMMENTS

- 1 - The Revised Johnson and Ettinger Model (December 2000) is not designed to properly account for the presence of free product in the subsurface and, in fact, the discussion of the Model in Section 2.0 of the User's Guide for the Johnson and Ettinger Model (User's Guide) suggests that the NAPLSCREEN or NAPLADV models be used for situations where free product is an issue. While it is understood that the entire subsurface area beneath the building floors does not contain free product, in some instances, such as for Building 2, the likely presence of free product may be great enough to cause inappropriate results if this is not properly considered. Also, it appears that this may be a consideration in the floor area of the chrome plating facility in Building 2 as well. Please describe in greater detail the rationale for the exclusive use of the Revised Johnson and Ettinger Model.
- 2 - The User's Guide includes the addition of two new soil gas models, SOILSCREEN and SOILADV, that use empirical soil gas data rather than theoretically determined soil gas concentrations. Please clarify in the work plan why the SOILADV model should not also be used to add credence to the results obtained with the Revised Johnson and Ettinger Model.
- 3 - The Revised Johnson and Ettinger Model uses a large number of parameters to make the calculations for the model. The value used for several of the parameters is not a default value and is not intuitively obvious from the data set for the site. Consequently, assumptions or calculations will have to be made to derive a value for these parameters. A few examples are the number and character of the soil layers beneath each building, the effective concentration of the contaminants in the zone of contamination, the pressure difference between the building environments and atmospheric pressure, and the ventilation rate for the buildings. The value used for one or more of these parameters may have a significant impact on the model conclusions. Consequently, the value of the parameters used in the model may be a point of contention when the modeling results are reviewed. Therefore, it is strongly recommended that a preliminary submittal of proposed model parameters be made for review and comment prior to initiation of the actual modeling work.
- 4 - The work plan should discuss the rationale used to select Buildings 2, 10, and 12 as the subjects for indoor air modeling.
- 5 - The work plan should include a discussion of the rationale used to limit the use of the Johnson and Ettinger Model to only contamination dissolved in groundwater rather than also evaluating contamination in soil beneath the buildings.

SPECIFIC COMMENTS

1. **Section 2.1, Page 1, Paragraph 1:** The last sentence in this paragraph references an emphasis on short-term exposures for rationale for using a constant source model option. While this is appropriate, it should also be noted that the possible presence of free product in the subsurface makes it imperative to use a constant source model option and consider long-term exposure to the contaminants of concern. Provide additional justification to support addressing short-term exposure only.
2. **Section 2.1, Page 2, Paragraph 1:** This paragraph states that the model computes only an average concentration for the contaminant in the building space. This is correct but it is also a significant deficiency in the model for buildings in which the air is not well mixed, which we believe is the case for the three buildings that are the subject of the modeling. Because the model does not account for the expected stagnancy of the air in the buildings, the model results will need to be assessed and adjusted to account for that situation. The contaminants of concern are heavier than air and, in the absence of convective forces, will preferentially settle near the floor of the buildings. This should be incorporated into the work plan discussion and into the report of findings for the modeling.
3. **Section 2.1, Page 2, Paragraph 3:** This paragraph discusses the runs that will be completed for the modeling effort, suggesting, we believe, that one run for each of the five contaminants for each of the three buildings will be completed, in addition to an unspecified number of sensitivity runs for one contaminant. EPA recommends that sensitivity runs be conducted for each of the three buildings, especially if there are significant differences in the input parameters for the buildings. This should include, for each building, sensitivity runs for several of the more sensitive parameters and include a minimum of two contaminants, which may not be the same contaminants for each building. Concurrence on the details of the sensitivity runs could be achieved after a preliminary review of the initial runs by the regulatory agencies and a meeting or teleconference to discuss and select appropriate sensitivity run parameters. It may not be appropriate to identify the details of the sensitivity runs prior to review of the initial model runs.
4. **Section 2.1, Page 2, Paragraph 4:** The report should also include documentation of the derivation of input parameter values where calculations were required.