



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS, TX 75202-2733

January 25, 1995

Tracy Glatzmaier
Environmental Restoration Project
Los Alamos National Laboratory
Los Alamos, NM 87545

Re: Guidance on Background Comparisons

Dear Tracy:

Enclosed are comments on the background comparison position paper provided by one of our risk assessment persons, Maria Martinez. In your letter you indicated that you could send me a copy of the Gilbert (1987) book. I would like a copy of the Gilbert (1987) book, and a copy of the background conceptual model which is being used at the Hanford Site if available.

An additional comment which was not included in Maria's Memorandum concerns the use of box plots. Box plots may be useful for evaluation of data; however, they should not be used as the only tool in making a decision concerning the use of the data.

I will only be sending you a fax with no letter to follow. Should you have any questions, please contact me at (214) 665-7441.

Sincerely,

A handwritten signature in cursive script that reads "Barbara Driscoll".

Barbara Driscoll
NM/FF Section



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January 25, 1995

MEMORANDUM

SUBJECT: Guidance on Making Comparisons to Natural Background Concentrations of Metals for the Los Alamos National Laboratory Environmental Restoration Project (dated: January 9, 1995).

FROM: Maria Martinez
Environmental Scientist
Federal Facilities Section

TO: Barbara Driscoll
Project Manager
Federal Facilities Section

I have reviewed the above cited report and my comments follow.

It is proposed that this approach could also be used to compare background to certain anthropogenic compounds. In general, the procedures outlined are applicable, however, the specific sampling procedures, definitions of different background samples and multiple comparison procedures would have to be detailed before this guidance could be considered comprehensive enough to encompass anthropogenic background.

The paper mentions but does not define No Further Action (NFA) criteria. It would be beneficial to list these criteria since they are considered in determining whether to establish "site-specific" background data. Site-specific is being interpreted as being unit by unit, or SWMU by SWMU, background as opposed to complete area background. Furthermore, the paper does not outline the conditions that would have to exist before results were considered inconclusive. Additionally, the criteria used in setting the different "sites" for establishing background should be outlined under the "site-specific" scenario. Some criteria to consider would be the geologic soil type or soil chemistry but caution should be taken in defining "sites" solely based on the magnitude of the results since there is natural variation in most environmental constituents.

The EPA document number for CERCLA guidance titled, "Guidance on Data Useability in Risk Assessment (Part A)" is 9285.7-09A.

LANL may consider including how outliers will be identified in this process.

In the determination of whether a data set should be log-transformed, LANL proposes to use the criterion of "median not roughly equal to the mean". This criterion is subjective. A more objective approach would be to evaluate the normality of the distributions in their original data sets prior to log-transforming the data.

Calculated UTLs should be compared to maximum concentrations in the data sets. If the calculated UTLs are higher than the maximum concentrations then the maximum concentration should be used. Calculated UTLs exceed maximum concentrations in small data sets or for data sets with extreme variability in the measured data. This approach is recommended in EPA's guidance bulletin titled; **"Supplemental Guidance to RAGS: Calculating the Concentration Term"** which has publication number 9285.7-081 (May 1992). Additionally, calculated UTLs will be compared to risk based concentrations or "screening action levels". Where the calculated UTLs are higher than its respective risk based concentration two options are available. One is to use the maximum concentration (which is in line with the above mentioned guidance) or second option would be to utilize the risk based concentration. The maximum concentration could be used if there exists technically defensible rationale supporting the use of the maximum concentration. The risk based concentration could be used if the maximum concentration itself approaches or exceeds the magnitude of the risk based concentration. In either case a close evaluation of the sampling, data values and other technical factors would have to be conducted before a final determination could be made. In all instances a comparison of the generated data will be conducted against risk based concentrations in order to insure protection of human health and the environment.