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DRAFT COMMENTS

BK6DPPR.CMT

June 26, 1995

0008  
General

MEMORANDUM

**SUBJECT:** Statistical Comparisons to Background: Part I  
(dated: March 28, 1995).

**FROM:** Maria Martinez *mm*  
Environmental Scientist  
Federal Facilities Section

**TO:** Barbara Driscoll  
Project Manager  
Federal Facilities Section

I have reviewed the above cited policy paper and my comments follow.

The policy paper sites a report referenced as Longmire et. al. 1994. The report is titled **Geomorphology, Pedogenesis, and Geochemistry of Background Bandelier Tuff and Selected Soil Profiles** (dated: 1994). The later draft of this same report dated January 1995 has been reviewed by EPA and substantive comments have been generated. Those comments should be referenced in our comments to this policy paper.

**Page 3. First full paragraph. Second sentence.**

It is important to note that although comparisons of detected concentrations to background concentrations is an accepted practice, constituents of concern should not be eliminated based on these comparisons. The CERCLA document referenced (**Guidance on Data Useability in Risk Assessment: Part A**) does not make mention of eliminating constituents of concern based exclusively on comparisons to background concentrations. Additionally, it is not clear what is meant by the selecting of number of background samples collected on the "minimum detectable difference" procedure. ~~LANL~~ references EPA's **Ecological Assessment of Hazardous Waste Sites: A Field and Laboratory Reference** as the source for this procedure. The specific procedure should be fully described in the LANL document to insure consistency.

**Page 4. Laboratory Background Data**

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The policy paper states that volcanic tuff is represented in the background soil concentrations. The question remains as to the appropriateness of including this soil origin in the soil data population.

TL/TO



**Bottom of page 4 and top of page 5**

After conducting the review of the Longmire et. al. 1995 background report and this policy paper, it is unclear whether the reported UTLs are calculated or future UTLs will be calculated using a combination of four different types of soil concentrations. That is, the Longmire 47 soil samples (A, B or C soil horizons) analyzed using EPA's SW 846 methods, 50 soil (A, B or C horizons) and 38 tuff samples analyzed by non-SW 846 methods, additional 1995 data, and site-specific background concentrations. The combining of any of these data and/or the selective use of any particular data set over the others could at the very least present confusion in the presentation of different numbers for different purposes. Additionally, the applicability of these numbers to a base-wide background data universe should also be questioned.

**Page 5.**

It appears that LANL is providing exceptions for addressing the variability of the background data only in instances where a background chemical is neither present in the laboratory-wide background chemical population and/or when LANL suspects that the concentration at a specific site location may be higher than the calculated UTL. The fact that LANL sees a need for addressing background in a different manner illustrates that perhaps the proposed approach does not adequately represent the specific conditions at the facility.

**Page 6. Proposed Statistical Methods.**

LANL proposes to use the Upper Tolerance Limit (UTL) statistical procedure as what is being termed a "hot measurement test". Changes to the proposed UTL calculation and application approach should be made prior to EPA concurrence. Essential information concerning the methodologies used to derive background concentrations as part of this policy paper should be incorporated into this document for completeness and clarity of presentation. At a minimum, all of the following criteria and/or requirements that apply to the calculation and use of background UTLs should be specifically listed in the document:

- The assumption of homogenous soil types should be verified.
- The data set must be comprised of an adequate sample size (at least 8 data points).
- Both ecological and human health relevance of the UTLs obtained should be addressed, i.e., comparison to ecological and human health screening values.
- The number of non-detects will be a determining factor in the application of the UTL procedure to a data set.
- LANL should submit all background data points for EPA's review.
- Variability within each data set should be addressed.
- A test for normality should be applied to the data set prior to