

**FIGURE 3**

(EPA R8, 12/99)

(G Henningsen)

**CONTINGENCIES FOR EPA R8's EVALUATION AND RESPONSE FOR VARIOUS LEVELS OF DIOXINS MEASURED IN DENVER'S FRONT RANGE REFERENCE SURFACE SOILS**

Toxicity Guidelines and Recommendations	Measured TEQ (ppt)	Response by EPA
<p><i>Expected low range of background values for Denver Metro soils: ~2-20 ppt</i></p>	<p>Log Scale Below 5 10</p>	<p>No response needed; level is far below EPA (and ATSDR) screening level for residential health concerns</p>
<p>ATSDR draft policy recommendation for beginning to evaluate residential soil</p> <p>Range for residential exposure evaluation</p> <div style="border: 1px solid blue; padding: 2px; width: fit-content;"> <p><b>Equivalent Daily Food Intake RANGE</b> ~ 50 to 200 pg per day, dose ~ 1-3 pg/kg/d (FDA has recommended TEQ &lt; 60 pg/day)</p> </div>	<p>50 100 500 <b>1000</b></p>	<p>If sample is located near a residential area, <u>evaluate</u> the likelihood that <b>long-term</b> (chronic) exposure to levels in the residential area might approach or exceed 1,000 ppt (a)</p>
<p><b>EPA and ATSDR interim residential soil screening level (1000 ppt), below which is currently deemed "safe"</b></p> <p>EPA interim occupational soil screening levels, evaluate workers above this range</p>	<p>5000 10000 20000</p>	<p>If sample is located near a residential area, conclude probable <b>chronic</b> residential risk and <u>follow up</u> as appropriate (b), including evaluation (a)</p> <p>If sample is located near work areas, <u>evaluate</u> likelihood that <b>chronic</b> levels in work areas might exceed 5000 to 20000 ppt (a)</p>
<p>EPA interim cancer risk likely to exceed the <math>1 \times 10^{-4}</math> standard; future non-cancer or cancer risk estimate may lower soil level of concern</p>	<p>&gt;20000</p>	<p>Conclude probable <b>chronic</b> risk to worker and/or shorter-term (acute) risk to residents, <u>follow up</u> as appropriate (b)</p>

**(a) Evaluation Approach:** assess which congeners are present, whether spatial patterns are apparent, and if higher chronic exposures are likely; consider further sampling to resolve uncertainties in spatial scales, completed exposure pathways, ingestion rates, and bioavailability

**(b) Follow-up Actions:** Immediately provide results of evaluation to property owners and discuss potential follow-up actions. Follow-up actions are not limited to Superfund authorities and may include: RCRA, Clean Water Act, State or local laws and ordinances, voluntary cleanups, orphan site cleanups, sourcewater protection, and other cleanups. Follow-up under EPA's Superfund program is likely to include collecting additional samples to further define nature and extent; identifying probable source and PRP; planning remedial action, including surveillance and education; if needed, performing time-critical removal of soils if risk is severe.