



Technical Review of Risk Assessment Report



Meridian Road Landfill, Fortville, IN

At the request of the Meridian United Citizens (MUC), the TOSC program and Institute for Environmental Toxicology at Michigan State University have reviewed the *Draft Screening Level Risk Assessment* for Meridian Road Landfill site in Fortville, Indiana. The report, dated December 15, 2000, was prepared by URS. Dr. Michael Kamrin, Professor Emeritus, is the author of this TOSC review.

Comments on Draft Screening Level Risk Assessment Report

The assessors did a thorough job of assessing all pathways for the populations under study. They also used very conservative assumptions so that it is unlikely that any significant risks to these populations would be missed. However, there are two major problems.

1. The risks to one population were not included in the risk assessment – that is the future risks to populations living near but not on-site. Even though it was agreed upon at the June 20, 2000 meeting that they would be addressed. The June 20 meeting held at the Indiana Department of Environmental Management (IDEM) offices included representatives from Lucent Technologies, Inc., Dames and Moore, Decision Quest, URS, IDEM, TOSC and MUC.
2. The second is that the Conclusions section omits key details. It should include:
 - Detailed information on the next steps necessary to move to a final risk assessment or towards remedial action decisions, and
 - A more complete explanation of how the risk calculations in the Report give rise to the conclusions the authors of the Report reached.

The problems outlined above are presented in greater detail in subsequent sections.

The TOSC program promotes effective citizen involvement in site cleanup projects by providing independent technical expertise to communities. Funded under a U.S. EPA grant, TOSC is housed in the Great Lakes and Mid-Atlantic Center (GLMAC) for Hazardous Substance Research. The GLMAC comprises three leading research universities: The University of Michigan, Michigan State University and Howard University. For more information, contact Kirk Riley at (800) 490-3890 or send e-mail to tosc@egr.msu.edu

Future Risks

It is clear that the contaminated groundwater plume currently at the Meridian Road Landfill extends beyond the boundaries of the site and will for some time to come. Therefore, people who build in these off-site areas — or utilize groundwater from these areas — are potentially at risk in the same way that those who might build or utilize groundwater on-site would be. The risks to this off-site group would probably be lower than those for on-site populations since groundwater concentrations are lower off-site, but the exact levels of risk should be assessed. Such calculations require determination of leaching potential (as the Conclusions section already indicates is necessary), in any case, and would also require further calculations of groundwater flow, degradation of contaminants, etc. The latter calculations would also be dependent on the parameters of the groundwater treatment system; e.g., duration and any future alterations to the operation of the current pump and treat system.

In the absence of further calculations, one way of addressing this deficiency is to say that the risks calculated for the on-site future population will be adequate to also address the off-site population since they are undoubtedly higher. However, it needs to be recognized that possible remedial actions based on these risks could be different for future on-site and off-site populations. For example, while restrictions on use of the site might be implemented fairly readily, similar restrictions on property in the area around the site might be much more difficult to implement. This additional difficulty could be both legal and logistic in nature; e.g., dealing with multiple property owners and restricting entry to a rather large area.

Consideration of this additional population might change the first issue identified in the Conclusions from “The release of the site for future unrestricted use” to “The release of the site and additional off-site areas for unrestricted use”. As indicated in the Conclusions, this issue reflects concerns about “how accurately the screening risk assessment reflects the potential for future human health risks in the event that the site was released for future use.” Consideration of off-site populations might broaden this to concerns about how accurately a screening risk assessment that includes these populations reflects the potential for future human health risks in the event that off-site areas are utilized in certain ways in the future.

The URS Risk Assessment Conclusions

In order to provide a more complete explanation, I recommend a number of supplements to the Conclusions section presented on pages 6-1 and 6-2 of the Report.

1. In addition to stating all of the pathways for which no further evaluation is necessary on p. 6-1, it would be useful to briefly state why nothing more needs to be done.
2. It would help to list all of the pathways for which further evaluation is needed.

3. For each pathway, there should be an indication of which chemical-pathway combinations are of most concern at present and why; for example, those groundwater contaminants that have, consistently over time, been at concentrations in significant excess of the screening levels should be listed.
4. There should also be an indication of which chemical-pathway combinations are unlikely to be of concern (and why) even though they might exceed acceptable levels in the screening assessment. This kind of rationale is buried in the discussions of risks from individual pathways but is never explicitly stated. Indeed, even the rationale for saying in the Conclusions that “The health of nearby residents is currently not affected as a result of release of constituents from the Former Meridian Road Landfill” is not provided in the summary despite the inclusion of *Tables 4.4-2, 4.4-3 and 4.4-4* that show risk exceedences for nearby residents.

These recommended additions lead to more specific conclusions and rationales that could then be linked to the three issues that are raised in the Conclusions; that is, “(1) The release of the site for future unrestricted use; (2) The origin of metals in groundwater; and (3) Groundwater protection from leaching of constituents in soil.” These specifics might also reveal some additional issues that could benefit from future examination. For example, consideration of risks due to the presence of PCBs and PAHs and other organics in some soil samples may suggest that soil contamination is a fourth issue of concern.

With this type of additional information, the summary could provide much better direction for future activities. For example, leaching of all VOCs and/or metals need not be addressed – only those that are of real concern. In addition, such an expanded summary would serve to communicate to the residents in the area the conservative nature of the screening risk assessment and what further actions may or may not be needed.

Other Issues

A few other issues that are of less importance, but still worth mentioning, are:

1. Samples were collected and analyzed in August, 2000 in response to concerns expressed at the June 20th meeting with regard to the limited data on surface soil contamination and on possible contamination of discharges to Rasch Drain. The results of the analyses of these samples could not be found in the text or appendices. It would be helpful to have these data, including reporting limits, when evaluating the strength of the conclusions drawn on the basis of these results.
2. The implications of the presence of contaminants in samples collected from the shallow soil (i.e., the cap) in some locations in August 2000 are not addressed. Might this suggest

that the cover was not evenly applied and that some of the landfill has little or no cover on it? Whatever the reason for the contamination, these data may imply that any current residents who access the site might be at risk due to exposure through contact with the soil and/or inhalation of soil contaminants and that this exposure should be addressed in the Report.

Summary

Through identification of pathways and in conjunction with analytical data and conservative assumptions, the risk to the populations defined in the study has been sufficiently assessed. However, the risk assessment could be improved with the following changes:

- 1) Evaluate the future risks to populations living near but not on the site. This will include calculations of leaching potential, off-site groundwater flow, and degradation of contaminants and will take into account properties of any groundwater treatment system.
- 2) Provide a rationale for no further evaluation for each of the pathways identified in the conclusion section of the draft risk assessment.
- 3) For each pathway for which further evaluation is necessary, indicate which chemical-pathway combinations are of most concern at present and those that are unlikely to be of concern and why. Include consideration of possible risks due to PCBs and PAHs in soil.
- 4) Add the results of the August 2000 sampling and analyses to the Report and include the reporting limits.
- 5) Address the soil cover on the landfill: Do the latest monitoring data suggest that current residents who access the site are at risk due to exposure through contact with the soil and/or inhalation of soil contaminants related to the cover?
- 6) Provide details about what the next steps will be in moving to a final risk assessment or towards remedial action decisions.

These additions will likely produce more specific conclusions and may reveal some additional issues that could benefit from future examination. The other outcome will be that the Report will provide much better guidance to future activities.