UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5

EPA Region 5 Records Ctr.
269278

DATE: November 10, 2004

SUBJECT: Screening Level Ecological Risk Assessment for Chemical Recovery System, Inc. site, Elyria, Ohio

FROM: David Brauner, Ecologist

TO: Gwen Massenburg, RPM

I have reviewed the aforementioned Screening Level Ecological Risk Assessment (SLERA) for the Chemical Recovery Systems, Inc., (CRS) site. There are the following issues that need to be addressed.

The primary issue is that the PRP is making the claim that there is no wildlife because the habitat is unsuitable (i.e., an absence of evidence is evidence of absence). This is not an argument that can be safely made during a Screening Level Ecological Risk Assessment, especially without adequate characterization of the site. The effects of anthropogenic physical stressors (dams, industrialization) are less-well characterized, and potentially less-pronounced, for the aquatic community than the terrestrial community. While dams, industrial land-use, and poor riverbank habitat MAY indeed reduce the potential for both aquatic and terrestrial wildlife use of the site (and hence exposure), it is not necessarily the case. The adverse effects on wildlife may be the result of high levels of chemical contamination, in addition to physical stressors; or the chemicals may be the primary stressor at the site.

Dams may define and limit the source area for benthic invertebrates; however, the CRS SLERA does not specifically describe the distance from the site at which the dams are located. They may be sufficiently far away from the CRS site potentially to allow for an upstream source of benthic invertebrates, which may subsequently migrate to the CRS site.

In addition, there are a number of inorganic and organic Contaminants of Potential Ecological Concern (COPECs) whose maximum concentrations exceed screening benchmark values (thus suggesting the possibility of ecological risk). These exceedences contribute to the uncertainty over the claim that nearby dams are the limiting factors for viable and sustained benthic invertebrate communities.

Evidence needs to be presented that supports the claim that it is the dams, and other physical stressors, and not chemical stressors that are impacting the benthic communities.

Second, the Soil Preliminary Remediation Goals (PRGs) that were used to screen out Contaminants of Potential Ecological Concern (COPECs) should be replaced with the Ecological Soil Screening Levels (Eco-SSLs; EPA 2003a), where available, and the revised Region 5 Region 5 RCRA Ecological Screening Levels (ESLs; EPA 2003b). PRGs are generally not used at this stage in the SLERA process. While in some cases the PRGs are lower than the Eco-SSLs or Region 5 ESLs, it is still more appropriate to use the values from those two sources instead of

the PRGs. Assuming complete exposure pathways exist for all receptors for which there are Eco-SSLs, the lowest of several values should be used for a particular COPEC. For example, assuming that both soil invertebrates and small mammals may be exposed to chemical contamination in the soil, the mammal Eco-SSL should be used for antimony and the soil invertebrate Eco-SSL should be used for barium.

Table 1. Comparison of PRGs and Eco-SSLs (where available); units for all values: mg/kg

COPEC	PRG	Eco-SSL (soil invertebrates)	Eco-SSL (plants)	Eco-SSL (birds)	Eco-SSL (mammals)
Antimony	5 (plant)	78			0.29
Barium	283 (woodcock)	330			1000
Beryllium	10 (plant)	40			36
Cadmium	4 (plant, woodcock)	140	32	1.0	0.38
Cobalt	20 (plant)			190	240
Lead	40.5 (woodcock)	1700	110	16	59
Dieldrin	n.a.			0.0016	0.00028

It should be noted that aluminum toxicity is associated with soil pH and not total aluminum (EPA 2003a). A soil pH of less than 5.5 indicates toxicity associated with aluminum. This information should be collected and presented.

Third, the document incorrectly states that minimizing human health risk "should be adequately protective for the ecological receptors that might inhabit such an urbanized environment". However, because effects levels are different between ecological and human receptors, it does not necessarily follow that ecological receptors will be protected at contaminant levels that are protective of human health. Contaminant levels should be screened against the appropriate ecological screening values. If there are levels of COPECs that exceed no-effects levels (the level of contamination below which no adverse effects are expected), then ecological receptors are potentially at risk, regardless if the contaminant levels are below levels protective of human receptors.

Fourth, is there evidence that fish are only transient users of the site and not long-term users of the site? If fish are absent, is it because of a lack of habitat or because of chemical stressors? Evidence to support the claim that it is a lack of suitable habitat should be provided.

I may be contacted at 6-1526 if you have questions or comments. Please fill out the attached evaluation form and return it to Tom Short, SR-6J. The information is used to assess and improve our services.

cc: Tom Short, Section Chief, RRS #1

References:

U.S. EPA. 2003a. Guidance for Developing Ecological Soil Screening Levels. OSWER Directive 92857-55. http://www.epa.gov/ecotox/ecossl/

U.S. EPA 2003b. Region 5 RCRC Ecological Screening Levels. http://www.epa.gov/reg5rcra/ca/edql.htm

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