August 23 1991

Toxic and Hazardous Waste Management Branch

Ms Hattie Thomas
U S Environmental Protection Agency
726 Minnesota Avenue
Kansas City Kansas 66101

Dear Ms Thomas

The purpose of this correspondence is to submit comments on two Proposed Plans documents for the North Landfill and Colorado Avenue subsites of the Hastings Ground Water Contamination NPL site.

Enclosures 1, 2 and 3 constitute our review comments in accordance with provisions of CERCLA as amended by SARA. The NCP and EPA current guidance we understand that these comments will be addressed in the Responsiveness Summary portions of the Record of Decision for each subsite.

If you have any questions please contact Mr Clif Rope of my staff at 816-426-7601.

Sincerely,

Paul D Barber
Chief Engineering Division

Enclosures
Corps of Engineers Technical Comments


The following technical comments are based solely upon the content of the proposed plan. Technical documents upon which this plan is based were unavailable for review.

Page 2, Last Paragraph and Page 4, 2nd, Paragraph

Limited technical data are available about the landfill. Absent from the plan are landfill depth, thickness of debris and refuse, and the final (second) cap. It is clear that the initial 10-foot fill/cap was clearly an ineffective cap. Attempts to correct subsidence were made in the 1970s including adding a 2-foot clay cap. Apparently, the subsidence problem remains, the document reports ponded water due to poor drainage exists. Provided below is a brief discussion of site conditions which indicate that the current landfill cap system remains ineffective, and, in fact, enhances surface water infiltration. Based upon the surface expression of the poor performance of the existing cap system and the documented vadose zone and aquifer contamination, EPA should closely monitor landfill cap evaluation with respect to long-term effectiveness.

The initial 10-foot fill is reported to have been a heterogenic mix of clay and silt, wood and brick. Its composition and performance are compelling evidence that the cap was not an effective barrier against surface water infiltration.

Based upon its performance, the second, 2-foot clay cap placed to correct subsidence of the underlying 10-foot layer has failed to perform as an effective barrier against surface water infiltration. Because the problem of subsidence remains unresolved, ponded water on the landfill surface suggests settlement and clearly documents poor drainage.

The closed landfill has been converted to cultivation. The crop cultivated at the site is unknown, but if the assumption is made that the root system extends many feet, then it follows that minute channels created by the root zone greatly increases vertical permeabilities through the cap. Infiltrating surface water will exacerbate both subsidence and leachate formation. Vegetation added to the landfill cover should be limited to shallow-rooted plants which are hardy in this climate.

The nature of a plant's root system is to extract soil moisture. And given the semi-arid climate of the region, one can assume that the clay cap has been subjected to episodic...
saturating and desiccating during the growing season. Vertical desiccation features in clays provide open conduits for rapid surface water infiltration during precipitation events and irrigation seasons.

Although the crop cultivated at the landfill is unknown, it is assumed that annual cultivation and harvesting activities have occurred. Such activities disrupt surface soils, and it follows that such disruption to a 2-foot clay cap will violate its integrity.

Differential settlement and subsequent poor drainage results in the ponding of surface water on the landfill cap. Pools of water will provide a driving force for infiltration surface water into and through the landfilled material. Leachate generated by the introduction of surface water into the body of the unlined landfill will migrate through the underlying vadose zone and into the Pleistocene aquifer.

2. Page 4, Paragraph 1 Will the full extent of the ground water contaminant plume be determined as an integral part of this subsite remediation? If so, has a schedule been developed to accomplish this work? An area-wide ground water remediation effort has been recently discussed between area Potentially Responsible Parties (PRPs) and EPA. Will aquifer contamination migrating from this subsite be evaluated within that proposed program?

3. Page 4, Paragraph 3 What is the soil beneath the landfill cover to which this paragraph refers? Does this refer to the vadose zone beneath the landfill or to another interval of soil below the cap but above the landfilled waste?

4. Page 4, Paragraph 8 The primary goal of this interim action appears to be reduction of contaminant concentrations to achieve a 10 E-4 excess cancer risk. This interim action is addressing "hot spot" pumping and containment over 30 years. How will the contaminant plume be addressed at the end of 30 years when pumping is terminated? What risk levels will be considered to determine subsequent clean up levels should additional aquifer remediation be required at the subsite? Containment addresses only the part of the plume exhibiting the highest contaminant concentrations. Have residual concentrations been estimated? What is the fate of the uncontained contaminant plume?

4. Page 4, Paragraph 8 What impact, if any, will 30-year containment pumping have on other subsites? Have containment zones been tentatively identified? Should "hot spot" pumping for containment occur at other subsites, will independent and concurrent negatively impact the individual efforts?

5. Page 5, Paragraph 1 Elimination of further leaching is not possible with a leaky landfill cap. At best, leaching can only be inhibited. It should be understood that without preventing infiltration, leachate formation cannot be prevented.
can be controlled by the proper installation and maintenance of a multilayer cap

6 Page 5, Paragraph 7 The sanitary landfill cap suggested in this document is a two-foot compacted clay cap, in accordance with NDEC's Title 132, Chapter 132, Paragraph 022 criteria. As discussed above, a thin clay cap will require regular maintenance to protect the integrity of the cap. If the thin clay cap is selected by EPA, provisions should be included in operation and maintenance schedules and budgets to ensure that the cap is carefully inspected and maintained.

7 Page 6, Table 1 Absent from the list of alternatives is long-term monitoring. Costs for sampling and analysis over time represent a very real cost and should be included among all alternatives.

8 Page 8, "Summary of Preferred Alternative", Paragraph 4 Will Soil Vapor Extraction capture VOCs from the entire contaminated area beneath the landfill? Will the recovery wells be placed around the landfill perimeter or through the interior of the landfill? Were these design concepts developed during the Feasibility Study stage to be confident that the vadose zone can be remediated with SVE?

9 Page 9, Paragraph 1 While the concept of reinjection of treated water is a viable one, problems with injection wells have been documented at sites using this approach. We strongly recommend that a detailed study of water quality parameters and site-specific geochemical considerations be included early in design to avoid delays due to fouling of injection wells during the life of the project.
MEMORANDUM FOR ED-TD (C Rope)

SUBJECT Review of Proposed Interim Remedy for North Landfill Subsite in Hastings, Nebraska

1. We reviewed the proposed plan summarized in EPA Region VII June 1991 public announcement. Although termed an "interim remedy", the proposed capping of the landfill does not meet design ARARs being applied at other Superfund sites. According to NDEC Title 132 requirements which are proposed to be apply, only "two (2) feet of earth shall be placed over the entire surface of the landfill" on a slope not to exceed 3 horizontal on 1 vertical.

2. Why aren't RCRA minimum technology guidelines which include multiple layers of material providing stringent infiltration, runoff, and vegetative zone requirements being applied (i.e., two foot vegetation root zone layer, one foot infiltration drainage layer, and two foot clay layer meeting $1 \times 10^7$ cm/s permeability and/or equivalent geomembrane)? In addition, has the need for a gas collection layer below the impermeable layer been evaluated? Other uncontrolled hazardous waste sites being capped as part of remedial measures pursuant to CERCLA/SARA usually meet these design requirements.

3. Has subsidence been evaluated for the North Landfill cover? The noted ponding of precipitation is partly due to the ten feet of uncontrolled fill which was placed on the landfill. Subsidence of landfill contents and the cover fill should be evaluated through a test fill to evaluate the rate of settlement, differential settlement, and total long term subsidence. We recommend compaction of the landfill prior to cap construction.

4. What is the permeability requirement of the clay layer? If not $1 \times 10^7$ cm/s as required by 40 CFR Parts 264 310/265 310, why not? Isn't this an ARAR to be applied in the closure of landfills?

5. Will a test fill of the proposed cap be built and studied in conjunction with a geotechnical laboratory testing program? Important aspects of cap design including optimum compaction requirements, insitu permeability of the clay, assessment of desiccation, as well as construction methods are determined through a test fill program.

6. What vegetation is proposed for the cap? Is it suitable for the semi arid environment? Will sufficient root zone be provided by the proposed cover? Has a monitoring and maintenance program of the of the cap been defined?
If a cap not meeting RCRA ARARs is built, what will stop the downward migration of volatile organic contaminants when the proposed vapor extraction system is not operated? Furthermore, by not providing a cover meeting RCRA requirements, continued migration of contaminants via groundwater from the North Landfill may pass downgradient into the HEIP and NAD areas. Such could result in an increased effort by the DOD in any future groundwater remediation at the HEIP, NAD, and surrounding areas. Will the added migration of contaminants from the North Landfill via groundwater due to constructing the proposed cover versus a RCRA cover be evaluated quantitatively through use of a model?
Corps of Engineers Technical Comments

SUBJECT Proposed Plan for Interim Action, Colorado Avenue Subsite, Hastings Ground Water Contamination Site, Hastings, Nebraska, June 1991

The following comments are made based upon the limited information provided in the proposed plan. The "Feasibility Study for the Ground Water Action Operable Unit at the Colorado Avenue Subsite, dated June 1991, was utilized during the review.

Proposed Plan

1. Page 1, Paragraph 4 EPA plans to review remedial efforts in five years because hazardous materials will remain on site. Does this mean that source control will not occur or will be delayed? Clearly, if source areas remain on-site and untreated, contamination will continue to be released to the underlying vadose zone and aquifer. If a source control is to be implemented, will it be a long term effort? What is the nature of the hazardous substances remaining on site?

2. The proximity of the Second Avenue Subsite suggests that contaminants from the Second Avenue area will be intercepted by pumping well(s) at the Colorado Avenue Subsite. Ground water treatment design should include those contaminants. Will the Second Avenue contaminants negatively impact the treatment plant at Colorado Avenue? The site investigation has just begun at the Second Avenue Subsite. Has the source and plume been characterized to the point that the impacts on the Colorado Avenue Subsite can be determined?

3. Page 2, Figure 2 The full extent of the contaminant plume appears to be unknown. Are there any monitoring wells downgradient which show no contamination? If the full extent is undetermined, what is the ultimate fate of the downgradient part of the plume beyond the capture zone of the proposed pumping well(s)?

4. Page 4, Last Paragraph Are interim clean up goals for this site based upon a excess cancer risk of 10 E-4? What will be the human health risk number utilized to evaluate the site at the end of the interim period of 10 years?

5. Page 5, Last Paragraph The last sentence states that after 10 years of pumping, ground water contamination levels will be such that risks will be at an acceptable level. What is that level? At the end of the 10-year interim pumping, will the efficacy of the pumping and containment system be evaluated? Are there provisions to continue pumping if data show that additional pumping and treating are necessary? If, at the end of the 10-year containment period, pumping is ceased, what impact will individual...
contamination at or below the unspecified risk level have on downgradient receptors?

6 Page 7, Paragraph 2 The "No Action" alternative contains no provision for long-term ground water monitoring. Shouldn't long term monitoring be considered to permit evaluation of aquifer conditions over time even with "no action"?

7 Page 8, Last Paragraph The recommended alternative addresses contaminant removal from the aquifer. It is assumed that this is "hot spot" pumping. What concentrations of contaminants will escape the capture zone? If source control is not an integral part of the subsite clean up, then the long-term effectiveness of this interim remedy is questionable. Has predictive modeling been used to evaluate the impact of the cessation of pumping at the end of the specified ten years?