64961

de maximis, inc.

186 Center Street
Suite 290
Clinton, NJ 08809
(908) 735-9315
Fax (908) 735-2132

August 23, 1994

Carolyn Kwan
U.S. Environmental Protection Agency
Region II
26 Federal Plaza, Room 737
New York, NY 10278

VIA U.S. MAIL

RE: PRP Comments of Pathway Exposure Report Draft

Dear Carolyn:

The following is a consolidation of comments received from IT Corporation for L'Henry, Inc. and Cooper Environmental on behalf of Ramsey Auto. No other comments were received from other PRPs.

TEIC will be providing separate comments in separate correspondence.

Very truly yours,

de maximis, inc.

John P. McBurney /mm

John P. McBurney

cc: TuTu PRP Consultants

FILE: 3088.03\a:\PRPCOM

TUT 007 1129

PAPER

GENERAL COMMENTS

(1) Historical samples of the supply wells should not be included in the present-use scenario evaluation of risk.

(2) Soil and groundwater samples collected as part of the RI into which this risk assessment will be incorporated should be included in the risk assessment. The Pathway Exposure Report (PER) fails to acknowledge that these samples exist and fails to explain how they will be incorporated.

(3) Although the subject document is brief, it provided sufficient detail in most sections to permit evaluation. An important exception, however, is Section 6.0. This discussion should be expanded to include the direction of bias imposed on the risk assessment by the various sources of uncertainty. The section states that a central tendency (CT) evaluation would be performed, where appropriate, but fails to define when CT evaluation is appropriate. In addition, Section 2.0 should describe estimation of exposure point concentrations for the CT evaluation, and Section 3.0 should present the intake variable values for the CT evaluation.

(4) Section 8.0 is too brief. This section should be expanded to identify its purpose in the risk assessment document and the nature of the discussion to be provided [e.g., comparison of risk results with National Contingency Plan (NCP) target risk levels and implications for remedial action].

(5) It is unclear what data will be used in the present use and future use scenarios for exposure to groundwater discussed in Section 3 and Table 8. Groundwater has been sampled extensively beginning in mid-1987 and continuing to the present in the ongoing Phase II field work. It is not clear that all early sampling and analytical work provided data of sufficient quality for risk assessment. However, when the Phase II field work is completed, the data should be sufficient to locate the contaminant plumes fairly precisely in space and time. The current Phase II data would be the most appropriate basis for the risk assessment for the present use scenario. All the groundwater data should be evaluated, along with the results of groundwater modeling based on subsurface soil data, to identify the worst case future groundwater contamination conditions, which should be used in the risk assessment of the future use scenario.

(6) The ecological risk assessment probably should be de-emphasized to a qualitative assessment because primary concern centers on the risk to human receptors.

(7) RAMSEY is legally permitted to use its supply well for purposes other than drinking and does so. Please note that ingestion of this water is not a realistic concern.

SPECIFIC COMMENTS

(1) PAGE 1, SECTION 1.1, BOTTOM PARAGRAPH:

The second sentence appears to contradict the statement in Table 8 (Present Use, Groundwater, Justification), which states, "Currently, an order *against* drinking and bathing in groundwater..." Please reconcile.

(2) PAGE 4, LAST SENTENCE CONTINUED ON PAGE 5:

As written, it appears that background soil evaluation is limited to three surface soil samples and that there are no background subsurface soil samples. Background soil sampling needs to be more adequately described. Specifically the number and location of background samples should be presented. Will one set of background samples be taken that will serve as background for all the individual sites, or will each site have its own background samples?

(3) SECTION 2.1.1, PAGES 4 TO 6:

The evaluation should also include soil samples which have been collected as PRPs for their individual sites. Split samples collected by various PRPs should also be included. The Pathway Exposure Report should explain how split samples from these sources will be incorporated into the risk assessment and should evaluate how analyses using protocols other than CLP with data validation packages will be handled.

(4) SECTION 2.1.2, PAGES 6 TO 15:

PAGE 6, the first paragraph. The evaluation should also include samples from monitoring wells which have been collected as part of the RI and samples collected by PRPs (in addition to O'Henry) for their individual sites. Split samples collected by various PRPs should also be included. The Pathway Exposure Report should explain how split samples from these sources will be incorporated into the risk assessment and should evaluate how analyses using protocols other than CLP with data validation packages will be handled.

This paragraph includes a statement that "In addition to these reports, Geraghty and Miller has produced the Technical Memorandum II..., O'Henry dry cleaners has independently installed and sampled four monitoring wells ....These data ...will be validated by EPA so that they can be incorporated into the endangerment assessment." The Technical Memorandum II was issued to the EPA, if the validation was not acceptable to EPA then the opportunity existed for the EPA to comment at the time.

In addition, all data collected as part of the RI has been validated and should be acceptable for the risk assessment. Some of the O'Henry data has been validated and this validation has been supplied to the EPA. There is no need to validate data which has previously been validated. This is a waste of effort.

Please note that the data from O'Henry for the two rounds of sampling which took place in 1993 includes four groundwater samples and one sample taken from the purge water. The purge water sample should not be included in the analysis as a discrete sample.

PAGE 10, Description of background sampling for groundwater was not located, although the last paragraph on page 10 identifies some clean downgradient wells. Please clarify how background groundwater data will be obtained, including the location and identification of the individual wells that are considered to be background.

(5) SECTION 2.2, PAGE 15:

FIRST PARAGRAPH, what will be the fate of data that was rejected by the validation process but not resampled?

Split samples collected by various PRPs should also be included. This section should explain how this data will be treated in the risk assessment.

LAST PARAGRAPH, the criteria used to identify chemicals of potential concern (COPCs), i.e., to distinguish site-related from non-site-related chemicals should be presented in more detail.

(6) SECTION 3.0:

The fate and transport models and the site-specific and default variable values used in these models should be presented in this section.

(7) PAGE 16, SECOND BULLET:

Should the second bullet be "Retention or transport medium," to correspond to RAGS Part A?

(8) PAGE 16, NEXT TO LAST PARAGRAPH:

Please describe how non-detects will be treated in estimating the 95 percent UCL on the arithmetic mean.

(9) TABLE 8, PRESENT USE, SURFACE SOIL, SITE WORKERS:

The site workers should be divided into two categories; those that work in the commercial or service establishments at the site, and those that work as groundskeepers. The only plausible exposure route for these workers is inhalation of VOCs. Exposure time (ET in Table 9) for these workers should be reduced to one hour/day. Exposure frequency (EF in Table 9) should be reduced from 250 days/year to a more realistic value to reflect days when weather or the conduct of personal business during lunch hour precludes eating lunch outdoors.

(10) TABLE 8, PRESENT USE, GROUNDWATER, SITE RESIDENTS:

It should be noted that drinking water is trucked in from an outside source and that there is an order against drinking and bathing in groundwater.

(11) TABLE 8, PRESENT USE, GROUNDWATER, SITE WORKERS:

It should be noted that drinking water is trucked in from an outside source and that there is an order against drinking groundwater.

(12) TABLE 8, FUTURE USE, SURFACE SOIL, SITE WORKERS:

See comments for Present Use, Surface Soil (Specific Comment No. 10) above.

(13) TABLE 8, FUTURE USE, SUBSURFACE SOIL, SITE RESIDENTS (also SITE WORKERS):

Retaining dermal contact as an exposure route for quantification does not appear to be plausible. Most construction sites in residential areas are barricaded to prevent the far greater risk of physical danger, which would also preclude physical contact with contaminants. Inhalation of VOCs and dust particulates are plausible exposure pathways.

(14) TABLE 8, FUTURE USE, SURFACE AND SUBSURFACE SOIL, CONSTRUCTION WORKERS:

It is unclear how the areas would be selected for quantifying risk for exposure to surface and subsurface soil. The area with the most highly contaminated surface soil may not be the area with the most highly contaminated subsurface soil. As Table 8 is constructed, construction worker exposure to surface and subsurface soil would be quantified separately. In reality, exposure would probably occur simultaneously, requiring development of source-term and exposure-point concentrations for surface and subsurface soil combined.

(15) TABLE 8 FOOTNOTE *:

It seems unnecessary to quantify dermal exposure to the metals, because dermal uptake of metals is minimal (RAGS Part A).

(16) TABLE 9:

Please present the intake equations in which these exposure variables are used, or at least include them by reference.

Please note the changes to Table 9 hidden in previous comments on Table 8.

(17) TABLE 9 SURFACE SOIL, RESIDENTS:

It seems unnecessary to quantify risks for adults and children separately; U.S. EPA (1991) provides a model for the residential receptor by adjusting for the greater soil ingestion rate of young children.

(18) TABLE 9 GROUNDWATER, SITE RESIDENTS, CHILDREN:

The appropriateness of the 2 L/day water ingestion rate for children is doubtful; several tables in the Exposure Factors Handbook (U.S. EPA, 1990) suggest that 1 L/day is a more realistic upper-bound estimate. The need for a separate groundwater evaluation for the child is questionable; the adult receptor estimate yields the larger cancer risk. The child estimate yields a slightly higher non-cancer risk, but only by a factor of 2.3, which is insignificant when considered in the context of the uncertainty of a risk assessment.

(19) TABLE 9 FOOTNOTES:

Footnote (4): The models for volatilization of VOCs to air and estimation of exposure point concentrations in air (transport and dispersion) should be presented.

Footnote (6): The model for volatilization of VOCs to air should be presented.

Footnote (7): PC values for organic chemicals are easily estimated from log Kow, using a model provided in the Dermal Exposure guidelines (U.S. EPA, 1992); PC values are not needed for inorganics because dermal intake of inorganics is insignificant. Using the PC for water as a default is not justifiable, according to U.S. EPA (1992).

(20) TABLE 9, OTHER:

The origin and use of CA/SSC in the "Concentrations" column is unclear; if this variable is used in some wind erosion or dust suspension model, the model should be provided.

The surface area (SA) values appear to be unreasonably large. Physiologically, SA is related directly to body weight. In an RME evaluation, average values are chosen for body weight and other physiological variables (U.S. EPA, 1991); therefore, average values rather than upper-bounds should be chosen for SA. U.S. EPA (1991) guidance for RME evaluation states that upper-bounds should be chosen for intake or contact rate, exposure frequency and exposure duration. The contact rate for dermal exposure is the absorption factor (ABS) or PC, not SA.

The adherence factor (AF) value appears to be unreasonably large. U.S. EPA (1991) guidance for RME evaluation states that upper-bounds should be chosen for intake or contact rate, exposure frequency and exposure duration. The contact rate for dermal exposure is ABS or PC, not AF. An average value for AF is 0.2 mg/cm^2 (U.S. EPA, 1992).

(21) PAGE 24, FIRST TWO AND LAST PARAGRAPHS:

These paragraphs should be consistent with the changes to Table 8 recommended in Specific Comments.

(22) PAGE 25, SECOND PARAGRAPH:

The derivation of dermal RfDs and Sfs should be described.

(23) PAGE 25, THIRD PARAGRAPH:

The role of dermal RfDs in non-cancer evaluation should be mentioned.

(24) PAGE 25, LAST PARAGRAPH:

Use of "upper-bound of the tolerance range" to describe the maximum empirical subthreshold level is potentially misleading, because it implies that the NOAEL or LOAEL is statistically derived, which is generally not the case. In the same paragraph, the maximum subthreshold level is described as being protective for sensitive individuals in a population. This is also potentially misleading, because the maximum subthreshold level is ordinarily selected from the empirical data and subsequently adjusted, by the application of an uncertainty factor, to provide additional protection for sensitive subpopulations.

(25) PAGE 26, 4TH LINE, AND ELSEWHERE:

Expressing a dose in terms of mg/kg/day, although quite common, is mathematically incorrect; the correct expression is mg/kg-day.

(26) PAGE 26, SECTION 4.1.2:

The exposure route-specific target organ for each chemical probably should be included in the non-cancer toxicity information presented in the toxicity evaluation; this information will be important in the risk characterization if a hazard index is found to exceed one (1).

(27) PAGE 27, LAST PARAGRAPH OF SECTION 4.2.1:

Uncertainty factors are not applied in the derivation of cancer slope factors. The uncertainty about the slope factor is reflected in the 95 percent upper confidence limit on the extra risk associated with exposure.

(28) PAGE 27, LAST SENTENCE:

There are no EPA slope factors for inhalation exposure to any of the PAHs.

(29) PAGE 28, SECOND PARAGRAPH:

The incremental cancer risk is the risk of dying from cancer, not the risk of developing cancer. Cancer risk is generally the 95 percent upper confidence limit, not the upper 95th percentile confidence limit. Please explain when it is appropriate to sum cancer risks within and across pathways for a given receptor.

(30) PAGE 28, THIRD PARAGRAPH:

Please explain derivation of a hazard index; i.e., discuss summing Hqs within and His across pathways.

(31) PAGE 28, FOURTH PARAGRAPH:

The use of "threshold values" in the first sentence is potentially misleading. An alternative may be, "Generally, the EPA considers a total cancer risk of 10^{-6} to 10^{-4} and a total HI of one (1) as points of departure from acceptable to unacceptable risk." In the second sentence, please change "spreadsheet calculations" to "risk summary table(s)."

(32) PAGE 28, SECTION 6.0:

Please see General Comment (1).

(33) PAGE 31, SECTION 8.0:

Please see General Comment (2).

REFERENCES:

U.S. EPA, 1986, *"Guidelines for Carcinogen Risk Assessment,"* ***Federal Register*** 51(185): 33992-34003.

U.S. EPA, 1990, *"Exposure Factors Handbook,"* Office of Health and Environmental Assessment, Washington, DC, EPA/600/8-89/043.

U.S. EPA, 1991, *"Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual Supplemental Guidance Standard Default Exposure Factors, Interim Final,"* Office of Solid Waste and Emergency Response, OSWER Directive: 9285.6-03.

U.S. EPA, 1992, *"Dermal Exposure Assessment: Principles and Applications,"* Interim Report, Office of Research and Development, Washington, DC, EPA/600/8-91/011B, including Supplemental Guidance dated August 18, 1992.