



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

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269404

SENT VIA ELECTRONIC MAIL AND CERTIFIED MAIL RETURN RECEIPT REQUESTED

November 3, 2005

REPLY TO THE ATTENTION OF

**SR-6J**

Mr. Douglas A. McWilliams, Esq.  
Squire, Sanders, & Dempsey, L.L.P  
4900 Key Tower  
127 Public Square  
Cleveland, OH 44114-1304

**Re: Chemical Recovery Systems (CRS), Inc., Notice of Deficiencies for the Remedial Investigation/Feasibility Study Report, Revision 1 (July 2005)**

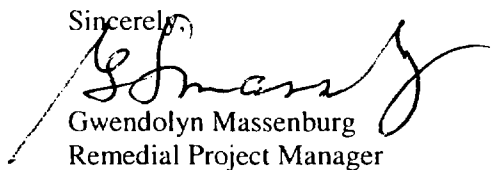
Dear Mr. McWilliams:

Enclosed are comments emailed to you on November 3, 2005 regarding the notice of deficiencies for the Remedial Investigation/Feasibility Study Report Revision 1, (July 2005). Pursuant to the AOC, Section VIII, Work to be Performed, Paragraph 64 (D) & Paragraph 64 (G) 2, "If U.S. EPA disapproves of or requires revisions to the Remedial Investigation Report (RI) and the Feasibility Study Report respectively, in whole or part, Respondents will amend and submit to U.S. EPA a revised RI/FS Report which is responsive to the directions in all U.S. EPA's comments. within thirty (30) days of receiving U.S. EPA's comments."

This notice of deficiency and the attached comments are being transmitted to you by electronic mail. Hard copies with enclosures will follow by certified mail. Please submit your revision of the RI/FS Report within thirty (30) days of receipt of this electronic transmission.

U.S. EPA will be more than happy to consider any request for extensions on any deliverable, however, the request must be provided in writing. The Agency is also willing, if needed, to meet with you and/or your contractors, either via a conference call, or in a face-to-face meeting, to address any questions or to provide additional clarification.

Sincerely,



Gwendolyn Massenburg  
Remedial Project Manager

U. S. EPA  
77 W. Jackson Blvd.  
Chicago, IL 60604  
312-886-0983 (v)  
312-886-4071 (f)

enclosures

cc: Thomas Nash, ORC  
Lawrence Antonelli, Ohio EPA



Gwendolyn  
Massenburg /R5/USEPA/US  
11/02/2005 06:19 PM

To  
Subject CRS Comments to RI/FS Revision 1 (July 2005)

**Sent Via Electronic Mail and Certified Mail Return Receipt Requested**

November 2, 2005

Mr. Douglas A. McWilliams, Esq.  
Squire, Sanders, & Dempsey, L.L.P  
4900 Key Tower  
127 Public Square  
Cleveland, OH 44114-1304

**Re: Chemical Recovery Systems (CRS), Inc., Notice of Deficiencies for the Remedial Investigation/Feasibility Study Report, Revision 1 (July 2005)**

Dear Mr. McWilliams:

Attached to this email and enclosed in the forthcoming certified letter are U.S. EPA's comments and notice of deficiencies for the Remedial Investigation/Feasibility Study Report Revision 1, (July 2005). Pursuant to the AOC, Section VIII, Work to be Performed, Paragraph 64 (D) & Paragraph 64 (G) 2, "If U.S. EPA disapproves of or requires revisions to the Remedial Investigation Report (RI) and the Feasibility Study Report respectively, in whole or part, Respondents will amend and submit to U.S. EPA a revised RI/FS Report which is responsive to the directions in all U.S. EPA's comments, within thirty (30) days of receiving U.S. EPA's comments."

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Sincerely,

Gwendolyn Massenburg  
Remedial Project Manager  
U. S. EPA  
77 W. Jackson Blvd.  
Chicago, IL 60604  
312-886-0983 (v)  
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Attachment

cc: Thomas Nash, ORC  
Lawrence Antonelli, Ohio EPA



Revision 1 comments Nov. 2 2005.pdf

**REVIEW COMMENTS TO REVISION 1 REMEDIAL INVESTIGATION  
REPORT (JULY 2005)  
CHEMICAL RECOVERY SYSTEMS INC.**

**General Comments**

1. In general, the comments that were submitted to the Respondents dated March 2005 have been addressed. Instances where a comment was not addressed have been identified. Please add an Executive Summary (ES), which summarizes the entire Remedial Investigation/Feasibility Study Report; do not forget to add it as an entry to the table of contents.
2. An evaluation of data usability, consistent with the requirements of Risk Assessment *Guidance for Superfund: Volume I, Human Health Evaluation Manual (Part D)* should be included in the RI report. Although the data are validated and the validation memoranda are presented in Appendix E, the usability of the data set as a whole is not discussed in the context of the project objectives.

**Specific Comments**

**1.0 INTRODUCTION**

1. **Section 1.2.2.3, last paragraph, 3<sup>rd</sup> sentence, Page 2 of 35:** Spills and releases are more than "alleged," having been "documented by photographs, witness statements, affidavits and local fire marshal reports." (page 8 of the AOC). In general, this entire discussion does not reference specific documentation of contaminant sources, making no mention of relevant information such as the number of aboveground storage tanks (nine), or their capacity (54,000 gallons) (see AOC), or of the amount of chemicals processed (250,000 gallons/month) (see AOC). Please add the pertinent information on specific contaminant sources to this section.

**3.0 PHYSICAL CHARACTERISTICS OF STUDY AREA**

1. **Section 3.6, general Page 15 of 35:** The presence, on and at the top of the riverbank, of several trees recently felled by beavers indicates that the area of the site is attractive to wildlife. These traces of beavers are not historical; as they were noted during an site visit in April of this year. This evidence should be included in the description of Terrestrial and Aquatic Wildlife.

**4.0 NATURE AND EXTENT OF IMPACT**

1. **Section 4.3, 1<sup>st</sup> bullet, last sentence, page 18 of 35:** "...thus the conditions are favorable for reductive dechlorination of volatile organic compounds." This

statement should be changed to read, "...thus the conditions are favorable for reductive dechlorination of chlorinated solvents."

## **5.0 FATE AND TRANSPORT**

- 1. Section 5.2, page 21 of 35:** EPA guidance (EPA/540/G-89/004) suggests that the Fate and Transport discussion analyze the rate of contaminant migration and the fate of the contaminants at the site "over the period between release and monitoring. Section 5.2, however is primarily a collection of general statements regarding the physical and chemical properties of the chemicals of concern, without site-specific analyses or estimates of these COCs' potential to migrate off-site. On Page 21 of 40 of the FS, it is stated that "Current sampling shows that soil to groundwater leaching is not a present concern..." If this is the case, it should be discussed in the Fate and Transport section of the RI report. Please include the discussion in this section.

## **6.0 RISK ASSESSMENT**

- 1. Section 6.1, paragraph 3, 5<sup>th</sup> sentence, page 26 of 35:** The sentence has been altered in the revised report by the substitution of "sediment dermal contact" for "groundwater dermal contact". Because groundwater ingestion and dermal contact, along with sediment dermal contact were all quantitatively evaluated in the risk assessment, it appears that all three pathways should be included in this summary sentence. Please revise this sentence to accurately reflect the exposure pathways quantitatively evaluated in the risk assessment.

## **APPENDIX D – ANALYTICAL RESULTS**

### **GENERAL COMMENTS**

- 1. Tables 1 and 4, Metals Methods:** The mercury method listed is for aqueous samples, however soil data is presented. The ICP-MS method 6020 is listed, however, there are only data validation presented for analysis of soils in this SDG by Method 6010. Please correct the table.

## **APPENDIX E – ANALYTICAL DATA VALIDATION REPORTS**

- 1. General:** Some of the data validation memoranda that indicate that the number of data qualifications were so numerous that they are not listed in the memoranda, but are presented on the "EDD." The "EDD" contains a number of files, most of which are not associated with the validated data. At a minimum, please clarify the reference made in the data validation memoranda so that the correct file name to which the document refers on the "EDD" is presented.
- 2. Organic Data Quality Review Report for PCBs SW-846 Method 8082 (First**

**memorandum presented):** The last SDG is identified as being validated was A3G150214, however there is not an SDG listed in the summary tables at the beginning of Appendix E. Since the validation of PCB data for SDG A3G150614 is missing from the appendix, and reference is made in the memo to this SDG, it appears this is a typo. Please correct.

3. **SDG Key:** There are three SDGs listed on the Key for which data validation memoranda are not included. These are A3K170186, A3K130247, and A3K140278. Please include these validation memoranda.
4. **PCB Data Validation Memoranda:** The validation memoranda for the PCB data indicate that an extremely large injection peak precludes evaluation of the peak patterns for Aroclors 1016, 1221, 1232, and 1242. Therefore, the presence or absence of these particular PCBs could not be determined. Please provide an explanation as to why the non-detect results for these Aroclors should not be rejected based on this information. This data limitation should be taken into consideration when using the PCB data, and should be further discussed in a section on data usability.
5. **SDG Key:** The list of samples includes CRS-SS-GP-35 (0-2), but Table I in appendix D indicates the sample is (0-4). Please correct.

## **APPENDIX F – HUMAN HEALTH RISK ASSESSMENT**

### **SIGNIFICANT TECHNICAL COMMENTS**

1. **General:** Please indicate whether soil samples HA-6 and HA-7 and the April 2005 water sample were quantitatively evaluated in the human health and ecological risk assessments. The soil data are presented in Table 2 of Appendix F (Human Health Risk Assessment) but do not appear to have been carried through the quantitative evaluation as a separate exposure point, as indicated in a footnote to this table. Please add a quantitative evaluation of this soil and water samples if they have not been quantitatively included in the revised risk assessment reports.
2. **Page 12 of 41, Section 3.3:** Region 9 soil and groundwater PRGs are not protective of indoor air exposures. All VOCs detected in soil and groundwater needs to be included in the modeling effort. Indoor air concentrations, once estimated by modeling, may then be compared to Region 9 ambient air PRGs to select COPCs for the air pathways.
3. **Page 12 of 41, Section 3.3.1:** For groundwater, compounds with maximum detected concentrations below the MCL were not selected as COPCs even though the Region 9 PRG was exceeded. A compound should be selected as a groundwater COPC if its maximum detected concentration exceeds either the MCL or the risk-based PRG.

Please revise the groundwater COPC selection process to include compounds that exceed either criteria (e.g., chloroform, trans-1,2-dichloroethene, and thallium for shallow groundwater). Using the PRG for chromium VI, chromium should also be selected as a shallow groundwater COPC. In addition, ambient water quality criteria (AWQCs) were not used as screening criteria, contrary to what is indicated in the response. The use of AWQCs as surface water screening criteria would cause the selection of surface water COPCs and the quantitative evaluation of this medium. Also note that Region 9 PRGs were not adjusted to a Hazard Quotient of 0.1 prior to screening for surface water (as noted in the text on page 14 of 41), also resulting in the omission of some surface water compounds from selection as COPCs. Please respond. Also indicate whether the surface water sample collected from the 12-inch clay pipe outfall adjacent to the river in April 2005 was included in the surface water grouping. Because exposure may occur to this water, include it as an eighth surface water sample in the grouping.

4. **Page 17 of 41, Section 4.1.4:** The report should be revised to include surface water dermal contact for surface water COPCs selected based on comparison to AWQCs and adjusted PRGs. In addition, it is reasonable to assume that incidental
5. **Page 19 of 41, Section 4.2:** Section 4.2 has not been expanded to include a discussion of the exposure assumptions. Justification needs to be added to the report to support the selection of site-specific exposure frequency values. Please address by editing Section 4.2 to include additional discussion and justification of the selected exposure assumptions. In particular, the exposure frequencies for the trespasser and construction worker (12 days/year and 90 days/year, respectively) require further justification.
6. **Page 21 of 41, Section 4.3.2:** The list of volatiles should be expanded to include some semi-volatile compounds with Henry's Law Constants greater than  $1E-05$  atm-L/mol-K and molecular weights less than 200 g/mol. Please expand the list.
7. **Page 21 of 41, Section 4.3.3:** The revisions to the report appropriately utilize the most recent version of the Johnson & Ettinger (J&E) model for calculating indoor air concentrations based on groundwater. The revisions made are acceptable for the groundwater to air pathways. However, the documentation for the contribution from volatiles in soil appears to have been eliminated from the report. Please provide the modeling back up for this pathway. It is recommended that air impacts be assessed for the combined contributions of soil and groundwater volatiles from indoor and outdoor air. Revise the air models to include the incremental contribution from soil volatiles too.
8. **Tables 14 and 15, oral absorption efficiencies:** References for the oral absorption

efficiencies provided for aluminum, copper, and zinc needs to be provided. Oral absorption efficiencies for all organics have not been revised to a value of 100%. Provide a justification for the values presented for the following organics bis(2-ethylhexyl)phthalate, chloroform, and trichloroethene. Further note that an oral RfD is available for trichloroethene from the STSC of 3E-04 mg/kg-day which should be used in the assessment. Furthermore, the draft re-assessment for trichloroethene provides an oral slope factor and an inhalation units risk of  $0.4 \text{ (mg/kg-day)}^{-1}$  and  $1.1\text{E-}04 \text{ (ug/m}^3\text{)}^{-1}$ , respectively, which should also be used in the assessment. Note further that RfCs are available for cis-1,2-dichloroethene ( $200 \text{ ug/m}^3$  – IRIS) and trans-1,2-dichloroethene ( $60 \text{ ug/m}^3$  – STSC) which may be used.

### GENERAL COMMENTS

1. Based on information provided in RAGS Part D Tables 7 through 10 (provided at the end of the tables section of the report), a reasonable job was done calculating risk and including most of the appropriate pathways except as noted above. The risk assessment summary text in the RI (Section 6.1) for the most part accurately reflects the risk/hazard estimates to date. However, the remainder of the risk assessment text, tables, and appendices has to be revised to document the changes that were performed regarding the calculations. Hence, there are a large number of inconsistencies between text, tables, and appendices that should be corrected, along with some additional deficiencies that should be added to the report (e.g., a surface water evaluation and an evaluation of HA-6 and HA-7).
2. **Page 4 of 41, Section 2.1, (April 2005 comment):** Please provide additional details regarding the East Branch of the Black River that borders the site. Is it used for recreational purposes such as boating or fishing? Is it deep enough to accommodate swimming? Or would wading be the primary type of exposures expected? Does surface water depth increase rapidly with distance from the shore? Or is there a gradual increase in surface water depth typically noted? Is the surface water rapidly moving or slowly meandering? In addition, please add the distance to the nearest residences and describe whether schools or day care facilities are present in the vicinity of the site. This information would provide valuable context for the exposure assessment portion of the risk assessment.
3. **Page 10 of 41, Section 3.1, 4<sup>th</sup> bullet (April 2005 comment):** Please provide the depth of standing surface water at each sediment collection point. Also indicate the distance from the shore for each of the sediment collection points. Sediment samples used in a human health risk assessment should be accessible to humans, considering depth of overlying water and distance from shore.
4. **Page 12 of 41, Section 3.2:** This section fails to discuss data quality; it only mentions that data were reviewed. Please discuss in this section of the report, the findings of

the data quality review and the suitability of the data for the purpose of the risk assessment. It is further recommended that the Risk Assessment Guidance for Superfund (RAGS) Part D Data Usability Worksheet be completed and included as part of the risk assessment.

5. **Page 19 of 41, Section 4.2:** The evaluation of future residential groundwater use pathway is acceptable except for the following items: (1) clarify the method used to evaluate the inhalation of VOCs during showering; (2) correct the drinking water ingestion rate for the adult on Table 13 to read : 2 L/day (currently listed as 200 L/day); and (3) correct the chronic daily intake formula for the drinking water ingestion pathway on Table 13 by removing the 1E-06 kg/mg conversion factor which is not necessary. The risk/hazard estimate calculations appear to be correct even though these errors were noted in Table 13.
6. **Page 20 of 41, Section 4.2, last paragraph (April 2005 comment):** The report has not been revised to include the central tendency risk/hazard estimates for those pathways exceeding regulatory criteria. Please address.
7. **Page 21 of 41, Section 4.3.2, last paragraph:** The referenced supplemental guidance document was finalized in December 2002 and should be incorporated as such. The PEF value presented and used in calculations is from an outdated guidance document. Furthermore, outdoor air calculations no longer have backup showing how VF and PEF are calculated. Please include the calculations.

## Tables

1. **Table 3, Summary Groundwater Analytical Results:** Modify Table 3 to include a data qualifier to note that the detection limit exceeds the PRG.
2. **Tables 6 through 9:** COPC selection for sediment and soil is acceptable, except for the COPCs sampling locations HA-6 and HA-7, which do not appear to have been selected. Please include an evaluation of these locations. As previously noted (see above page 16 of 40, specific comment 9), AWQCs and adjusted Region 9 tap water PRGs were not used for surface water COPC screening. Groundwater COPCs tables should be revised to include compounds that exceed the MCL or a risk-based PRG.
3. **Tables 6 through 9:** Revise Tables 6 through 9 to include the samples applied to each data grouping. It appears that the deep groundwater samples have been eliminated from the evaluation, rather than combined with the shallow groundwater samples. Please revise the report to include an evaluation of all groundwater data collected for the site.
4. **Table 12:** Exposure Point Concentration (EPC): Tables have not been provided for sediment and the air pathways. Please address by adding the appropriate tables. In

addition, EPC tables will be necessary for soil samples HA-6 and HA-7, if they are being evaluated as a separate exposure point, and for surface water, once COPCs are revised

5. **Table 3.1.RME:** Change the exposure medium to “Air” and define the exposure point as “On-Site.” It is currently unclear as to where the risk pathway applies since migration may be considered during the evaluation. Consider listing the samples used for this exposure point in a footnote. It appears that calculation of averages utilized only detects and duplicates were not combined prior to the calculation. It is appropriate to combine duplicates and apply ½ the detection limit for non-detects during averaging and calculation of UCLs.
6. **Table 11:** The exposure pathway table should be further revised to include the quantitative evaluation of hypothetical future residents to indoor air impacted by both the groundwater and soil. In addition, please add the ambient air from groundwater pathway for the construction worker scenario to this table. The “inhalation during showering” pathway for a hypothetical future resident does not appear to have been quantitatively evaluated, as stated on this table. Therefore, please revise this table to reflect the type of evaluation performed for the “inhalation during showering” pathway. Once COPCs for surface water are reselected, this table may need to be revised to accurately reflect the type of evaluation to be performed.
7. **Table 13, general:** Exposure assumptions from the 1997 Exposure Factors Handbook do not appear to have been incorporated into the exposure assessment. It also appears that the 2004 reference on this table is sometimes referring to the EPA Dermal Guidance (RAGS Part E) rather than the Subsurface Vapor Intrusion Guidance. Please correct. In addition, justification for the exposure assumptions selected (e.g., surface areas and skin adherence factors) has not been provided. Please address. Numerous inconsistencies and errors were noted for the exposure assumptions. Some equations provided on this table are not correct and a thorough quality assurance review is warranted for this information. For example, inhalation equations appear to be lacking an “Exposure Time” variable, the groundwater ingestion equation appears to have an unnecessary conversion factor, and the airborne concentration calculated using the volatilization factor and particulate emission factor appears to give units of mg/m<sup>3</sup> rather than ug/m<sup>3</sup>, as stated. These errors have the potential to significantly affect the ultimate risk and hazard estimates. These must be corrected.
8. **Table 13, air pathways:** Please clarify how the soil to air pathway was evaluated.
9. **Table 13, future construction worker:** During the April 2005 meeting, we agreed to use a 120-day/year exposure frequency value for the construction worker. Please revise the construction worker exposure frequency to 120 days/year and recalculate the risks/hazards for this receptor.

10. **Table 13, future juvenile trespasser:** During the April 2005 meeting, we agreed to use an exposure frequency of 50 days/year, and if not used, additional information was to be provided to document and justify the 12-day/year assumptions. No further information has been added to this table or the revised report to address this comment. Please address accordingly.
11. **Tables 14 and 15 general:** Tables 14 and 15 do not reflect the use of surrogate values for compounds lacking compound-specific toxicity values. Please correct.
12. **Table 14, manganese:** Medium-specific toxicity values for manganese have been removed from the table. Please explain why.
13. **Table 14, cis-1,2-dichloroethene:** The RfC for cis-1,2-dichloroethene has not been added to this table. Please correct
14. **Table 16 (Table 7.1.RME), construction worker:** It appears that both surface and subsurface soils were combined for evaluation. It may be more appropriate to evaluate the two soil depth intervals separately. Furthermore, the EPCs need to be confirmed. For example, aluminum shows an EPC, which is the maximum surface soil value. Antimony presents the EPC for subsurface, yet the surface soil value is higher than the subsurface value.
15. **Figure 10:** This figure has not been revised to accurately reflect soil exposure depth intervals evaluated in the risk assessment. This figure needs further revisions based on comments provided herein (e.g., the addition of potentially complete surface water exposure pathways once COPCs are re-selected for that medium and the addition of sediment ingestion).

## **APPENDIX G – ECOLOGICAL RISK ASSESSMENT**

### **SIGNIFICANT TECHNICAL COMMENTS**

1. The SLERA should conclude whether or not there is preliminary risk, in what media risk occurs, and whether or not additional investigation is needed and why. A discussion of how potential remedial alternatives may or may not achieve clean-up targets is not part of the ecological risk assessment process, and should not be included in the SLERA. This should be reserved for the FS Report.
2. The SLERA concludes that although preliminary risk exists, no further ecological risk investigation is necessary based on size of the site (following the guidance in Eco Updates, June 2001). However, this decision is allowable only on the condition that the site is cleaned-up to screening levels. The text must clearly and consistently recognize this condition.

3. **Section 2.3.3, Terrestrial and Aquatic Wildlife, Page 12, 3<sup>rd</sup> paragraph, 3<sup>rd</sup> sentence:** Revise the text to include recent beaver activity recently observed at the site.
4. **Section 2.4, Identification of Potential Receptors and Endpoints, Page 14, 3<sup>rd</sup> paragraph:** Text discussing NOAELs and LOEALs does not correspond to how the screening benchmarks were actually selected. Eliminate extraneous text.
5. **Section 2.4, Identification of Potential Receptors and Endpoints and Tables 1-3 3<sup>rd</sup> paragraph, page 14:** The final sentence of this section states that a LOAEL (Lowest-Observed-Adverse-Effects-Level) was used a surrogate measurement endpoint for comparison purposes if a NOAEL (No-Observed-Adverse-Effects-Level) screening benchmark was not available. First, the Chemicals of Potential Ecological Concern (COPECs) for which this was done should have been noted in Tables 1-3. In addition, for a SERA, it is preferable to apply an uncertainty factor (typically, 0.1 to go from a LOAEL to a NOAEL) rather than use the less conservative LOAEL as a surrogate value for the more conservative NOAEL. This uncertainty factor should be applied and then noted in the table and discussed in the uncertainty section.
6. **Section 4.0, Uncertainty Analysis, page 21 :** The paragraph starting “Extensive scientific data...” references a presentation at a workshop (Nakles et al. 2002). It is not acceptable to reference an unpublished source such as this. There are issues of reliability, accuracy, and context that can cast doubt over the information presented. Published information found from a literature search is warranted to support the concept of reduced bioavailability of contaminants in soil.
7. **Section 5.0, pg 22 Conclusions and Recommendations:** The first sentence is technically incorrect. The maximum detected concentrations of contaminants were not necessarily compared to the lowest established ecological benchmarks. The benchmarks were chosen via the hierarchies presented earlier in the document. This sentence should be corrected to reflect the actual process.
8. **Section 5.0: Conclusions and Recommendations, Page 22, 1<sup>st</sup> Paragraph, 3<sup>rd</sup> Sentence:** The text reads that “only a few PAHs” are above probable effects concentrations (PECs) and, based in part on this statement, concludes that impact to ecological receptors would therefore be limited. A PEC is the concentration at or above where chronic toxic effects are predicted and may indicate a potential for severe ecological harm. Exceedances of PECs should not be dismissed because they originate from background if it is unsubstantiated. Given the historical uses of the site, including an MGP, it is possible the PAHs originate from the site. Further proof that contaminants originate off-site should be presented before concluding that no further evaluation in sediment is required.

### General Comments.

1. Text in Section 3 should summarize historical on-site sampling activities, including where and how many samples were collected and which were used for the SLERA, what chemicals were analyzed, the methods used to analyze them, the extent of data validation, the dates of the sampling event, and a reference to where the original data or data summaries can be reviewed. This information provides the basis for the risk assessment. Proceeding from a discussion of habitat types directly to a discussion of the results of the comparison of data to screening benchmarks without a discussion of the data themselves creates a serious gap in the continuity and context of the risk assessment. Also, if data are several years old, text should also explain why they are representative of current conditions and therefore appropriate for the SLERA.
2. In several locations (ex. executive summary and conclusion), the text states that measures protective of human health will also be protective of ecological receptors. In order to determine whether or not a potential remedial alternative is protective of ecological receptors, it must be based on the ecological risk assessment, not the human health risk assessment. A human health risk assessment does not adequately address ecological risk to ecological receptors. Given that the SLERA demonstrates that ecological pathways are in fact complete and preliminary risk exists for ecological receptors at least for soil (see Specific Comments below for discussion for possible risk in other media), it may not be accurate to conclude that human health clean-up targets will be protective of ecological receptors.
3. In several locations within the text, contaminant concentration in the East Branch Black River area is attributed to non-site related sources. However, no site specific background data are presented to support this assertion. Until background data are included in the risk assessment, text should assume that COPECs have originated from the site, including historical uses such as the MGP.
4. Bibliographic references are incomplete. Citations to many USEPA and Ohio EPA documents lack reference to tracking numbers and other essential information needed to identify and locate these references. As a result, several documents could not be located and contents could not be verified. Suggest revising the bibliography to include full citation.

### Specific Comments.

1. **Section 1.1, Purpose and Methodology, Page 3, 3<sup>rd</sup> Paragraph:** Bulleted references should be updated to include Eco-SSL 2005 updates, and should also list the June 2001 Eco Update to the 1997 *Guidance*.

2. **Section 1.2, pg 4-5 Conceptual Site Model (CSM):** In general, the CSM description should be more detailed, including specific exposure pathways. For example, the CSM description does not describe specific pathways for exposure to aquatic receptors; it also does not mention any ingestion pathways for either terrestrial or aquatic receptors. This lack of detail would have been helped by the inclusion of a diagram or chart summarizing the CSM, including which exposure pathways are complete and which are not, in addition to more details in the text itself.
3. **Secondly, the first full paragraph on page 5 (starting “For the CRS site,...):** needs clarification. It states that dermal exposure to chemical stressors is difficult to quantify, but then the following sentence states that the SLERA for the “site quantitatively assesses exposure to direct contact with contaminated soil only.” This appears contradictory.
4. **Section 1.2, Conceptual Site Model, Page 5, 3<sup>rd</sup> paragraph, 2<sup>nd</sup> sentence:** For clarity, briefly discuss the types of receptors, which may be encountered in surface water.
5. **Section 1.2, Conceptual Site Model, Page 5, 3<sup>rd</sup> paragraph, 2<sup>nd</sup> sentence:** Text reads that potential migration of contaminants from surface water may occur via groundwater and/or sheet flow from soils. State that contaminants from the site may also be transported via storm sewers, as discussed later in Section 2.1.
6. **Section 1.2, Conceptual Site Model, Page 5, 3<sup>rd</sup> paragraph:** Referring to text on page 12 paragraph 3, 6<sup>th</sup> sentence, which reads “sediment starved rivers often regain sediments lost behind a dam by eroding...away at the stream banks.” Moreover, discuss the potential for eroding riverbank soils to contribute to surface water and sediment contaminant levels in the East Branch Black River.
7. **Section 1.2, Conceptual Site Model, Page 5, last paragraph:** The text lacks a discussion of surface water and sediment exposure pathways, including sources and potential aquatic and benthic receptors. Revise the text to include a suitable discussion for completeness.
8. **Section 1.2, Conceptual Site Model, Conceptual Site Model, last paragraph:** The Conceptual Site Model should contain a flow diagram which originates at the primary contaminant source(s) and identifies primary release mechanisms and contaminant transport pathways, the release and movement of the contaminants, secondary sources, etc as discussed in the 1997 *Guidance*.
9. **Section 2.2, Surrounding Land Use, Page 7, 2<sup>nd</sup> Paragraph:** The findings of the eight-year-old Englehard screening level risk assessment which are presented in this section are not relevant to the conclusions of this risk assessment. Remove the

discussion of the findings from the Englehard screening level from this SLERA.

10. **Section 2.3.1, Vegetation, Page 8:** List in the text the species of vegetation that were identified on site. This list would probably be similar to the species shown on Figure 4. Also include text discussing when and how the survey was conducted; include a description of aquatic vegetation inhabiting in the river. Note: these discussions are necessary because later in Section 2.4, reproduction and survival of aquatic and terrestrial vegetation are identified as assessment endpoints, and should therefore be described.
11. **Section 2.3.2, East Branch Black River, Page 8, general:** Include a description of the maximum and average river width and depth at the site, as well as a description of substrate at the site. For clarity, it would be useful to include a photo
12. **Section 2.3.2, East Branch Black River, Page 10, 2<sup>nd</sup> Paragraph, 1<sup>st</sup> Sentence:** Text reads “No significant impacts on chemical water quality were observed by Ohio EPA...” As written, it is unclear how “significant” is defined and what criteria and assumptions formed the basis of the assessment. For clarity, expound on these points in the discussion section of the report.
13. **Section 2.3.2, East Branch Black River, Page 10, 3<sup>rd</sup> Paragraph, 1<sup>st</sup> Sentence:** Text reads that no detectable levels of PCBs, SVOCs, or toxic pesticides were found in a 1999 Ohio EPA study in the East Branch Black River. For clarity, including a description of detection limits; include a discussion of how the detection limits compare to screening values would be helpful.
14. **Section 2.3.3, Terrestrial and Aquatic Wildlife, Page 13, 2<sup>nd</sup> Paragraph, 3<sup>rd</sup> sentence:** For clarity, a discussion here about surface discharge that runs into the storm sewer could potentially originate from the Site due to the pipe being damage.
15. **Section 3.2, Identification of COPECs in Sediment, Page 16:** In the original April 2005 Response to Comments, the response to Comment 6 on the SLERA indicates that the hierarchy for sediment benchmarks would be as follows: 1) Threshold Effects Concentrations (TECs) (Macdonald, 2000) followed by 2) Region 5 Ecological Screening Levels (ESLs). The text in Section 3.2 generally echos this comment, but does not reference MacDonal specifically. A review of Table 2 shows that this hierarchy was not followed. Additional sources were apparently used, in addition to MacDonal TECs and Region 5 ESLs. For example, Table 2 shows a “TEC” for acetone of 57 ug/kg, though MacDonal (2000) does not give a value for acetone. Several of the screening values presented for PAHs are appear to be Ontario Ministry of the Environment (OMOE) Low values. Hierarchy should be finalized, text and tables should be made to agree, values should be double checked and properly referenced, hazard quotients should be re-calculated, and the list of COPECs should be revised as necessary.

16. **Section 3.3, Identification of COPECs in Surface Water, Page 17, 3<sup>rd</sup> Paragraph, 2<sup>nd</sup> Sentence:** The text reads that a value of 239 was used for hardness. Revise the text to include units on this measurement, and specifying if hardness calculations for metals were based on total or dissolved criteria.
17. **Section 3.3, Identification of COPECs in Surface Water, Page 17, Paragraph 4, 1<sup>st</sup> Sentence:** The text reads that a water sample was collected from one of the westernmost outfall pipes in April 2005. Please include a table presenting a complete summary of all sample results.
18. **Section 4.0, Uncertainty Analysis, Page 19, general:** For clarity, the text should evaluate uncertainty of calculating benchmarks using hardness data which were collected independently of the surface water sampling data used for the SLERA.
19. **Section 5.0, Conclusions and Recommendation, Page 22, 1<sup>st</sup> Paragraph, 1<sup>st</sup> Sentence:** Text states that lowest established ecological benchmarks were used for each medium of concern. In actuality, benchmarks were selected following a hierarchy, and are not necessarily the lowest established value. Please revise the text.
20. **Section 5.0, Conclusions and Recommendations, Page 22, 1<sup>st</sup> Paragraph, last sentence:** The text reads that there is little natural habitat for wildlife on the site. Please revise the text to account for recent sightings of beaver activity at the site.
21. **Section 5.0, Conclusions and Recommendations, Page 22, 2<sup>nd</sup> Paragraph:** Based on presence of beaver, suggest revising conclusions that steepness of riverbank precludes its availability as habitat and that receptors may be only transient.
22. **Table 2, Sediment Data:** Region 5 ESLs are incorrectly labeled as TECs. They should be given their own column; correctly identified.
23. **Table 2, Summary of Sediment Data:** Benchmark values for some analytes were incorrectly transcribed into Table 2. For example, 4-methyl phenol (p-Cresol) should have a ESL value of 20.2 ug/kg, not 6,700 ug/kg, giving a HQ of >1 Rather than <1. Please recheck all values, and correct as appropriate.
24. **Table 3, Summary of Surface Water Data:** Footnote should clarify that Outside Mixing Zone Average (OMZA) values for the Lake Erie basin are being used.

**END OF REVISION 1 REMEDIAL INVESTIGATION  
REPORT (JULY 2005) COMMENTS**

**REVIEW COMMENTS TO REVISION 1 FEASIBILITY STUDY REPORT  
(July 2005)  
CHEMICAL RECOVERY SYSTEMS INC.**

**General Comments**

1. Most comments submitted to the Respondents dated March 2005 have been addressed.
2. The Revision 1 FS Report may require future revisions if the recommended revisions to the HHRA or SLERA alter the conclusions of this report.

**Specific Comments**

1. **Section 1.2.6, Human Health Risk Assessment Summary, Page 15 of 40, 1<sup>st</sup> paragraph:** Since risk evaluation was conducted for commercial/industrial receptors, with only a hypothetical resident scenario evaluated for informational purposes it is, therefore, necessary that a deed restriction be placed/created for this site restricting future use to be commercial/industrial. This is so because future zoning may change and the Agency (U.S. EPA) must, therefore, be assured that any changes to zoning in the future alert zoning officials of potential risks to residents. This would require further and more extensive re-evaluation of residential scenarios than what is provided in this document.

The text reads that...groundwater ingestion pathway is incomplete at the site because municipal water is provided to the site ....and impacted groundwater is not and is unlikely to be used as a drinking water source. Just to make sure that impacted groundwater is not going to be used as a future drinking water source, the deed restriction mentioned above should address this issue as well by specifically stating that future groundwater use is prohibited by future users of the site pending determination of potential exposure and risk under different use scenarios.

Furthermore, a realistic (not hypothetical) scenario that requires evaluation of potential groundwater exposures can be based on the likelihood of contaminated groundwater charging the nearby river. Then, evaluation of surface water ingestion, dermal contact and inhalation exposures determined for current and future (using modeling) exposures for recreational fisherman fishing in the nearby river. Incidental, by virtue of being accidental, ingestion and dermal contact of contaminated groundwater should be evaluated for current and future recreational fisherman, and this should also include the possible ingestion of contaminated fish.

2. **Section 1.2.7, page 17 of 40, last sentence:** Evidence of beaver activity indicates

that this is an attractive habitat for some fauna. This should be documented in the report.

3. **Section 4.2.3 Alternative 3 - Stone Cap, page 30 of 40:** Figure 3.2 is missing. It is not included in the Figure section of the document, please add.
4. **Appendix C:** These tables are confusing. Tables for all parameters are called "Table 1." One table has "0" for a parameter. Some parameters have more than one table, using different values, but no reason is given for this, please address and correct. Also, it would be helpful to include an interpretation of these tables, rather than presenting them without a discussion or explanation.

**END OF REVISION 1 FEASIBILITY STUDY COMMENTS**