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July 14, 2003

Ms. Sharon R. Cotner
FUSRAP Program Manager
U.S. Army Corps of Engineers
8945 Latty Avenue
Berkeley, MO 63134

Re: North County Site Feasibility Study and North County Proposed Plan
Comments of Integrated Management & Environmental Solutions LLC
On behalf of GIFREHC

Dear Ms. Cotner:

On behalf of the General Investment Funds Real Estate Holding Company (GIFREHC) and its subsidiary, GIFREHC Missouri Holding Company, I was commissioned to perform a review and prepare this report concerning the U.S. Army Corps of Engineers' North County Site Feasibility Study and North County Proposed Plan (FS/PP), 68 Fed. Reg. 23290 (May 1, 2003). I understand that this report will be submitted to you as a component of GIFREHC's overall comments on the FS/PP.

A. INTRODUCTION

The key objective of my review was to assess the extent to which it has been demonstrated that the preferred remedial alternative, when implemented, will provide the appropriate level of overall protection to occupants of 9150 Latty Avenue (i.e., HISS Vicinity Property 2(L) or "VP2L") and similarly impacted properties consistent with the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) and adherence to applicable or relevant and appropriate requirements (ARARs). While my review was conducted largely from GIFREHC's perspective, the noted issues are generally of wider relevance to other VPs and FS/PP development process as a whole.

In connection with my analysis, I reviewed the draft St. Louis North County Site Feasibility Study and Proposed Plan, certain additional documents from the North County Administrative Record, and certain documents obtained from GIFREHC's files. The narrative comments below summarize the principal concerns or questions identified in my review that should be addressed by the U.S. Army Corps of Engineers (COE) prior to issuing the Record of Decision for the St. Louis North County Site (ROD). In addition, Attachment A to this report provides line-by-line, specific comments on the FS and PP, arranged for your convenience in the order in which they appear in the documents. The majority of these line-by-line comments refer to specific instances where the general issues summarized below arise (and should be addressed) in the text of the FS/PP.

B. SUMMARY OF MAJOR COMMENTS

1. The Level And Extent Of Contamination Are Not Adequately Reported in the FS/PP For The VP2L Property

The highest level of thoriuim-230 (Th-230) given in the FS text for the HISS/Futura and Latty Avenue Vicinity Properties is 830 pCi/g. We presume that 830 pCi/g was the contaminant level used to characterize the current and future risk at VP2L and incorporated into the analysis of implementability, effectiveness and the proposed schedule for remediating VP2L and other North County properties. Based upon review of certain documents in the Administrative Record and data that previously has been provided to the Department of Energy (DOE) and the COE by GIFREHC, it appears that the extent and level of contamination at VP2L property has not been adequately restated and considered in the FS.

- As early as 1987, documentation exists that shows significantly higher levels of Th-230 at the VP2L property than is reported in the FS. A May 1987 Oak Ridge National Laboratory (ORNL) report commissioned by the DOE and titled, *Radiological Survey of Properties in the Vicinity of the Former Cotter Site, Hazelwood/Berkeley, Missouri (LM003)*, documents Th-230 at 8,800 pCi/g in the surface soil and at 81,000 pCi/g in the subsurface soil. This 1987 ORNL document is part of the Administrative Record (ID No. 1297).

- In a December 13, 1996 letter to GIFREHC, DOE acknowledged receipt of data generated by GIFREHC's consultant indicating the presence of Th-230 at 33,970 pCi/g in a discrete area on the west side of VP2L adjacent to the HISS fence line, encountered while undertaking a limited removal action coordinated with DOE. A copy of this letter (and attached data) is provided as Attachment B to this report.
- An August 1990 Bechtel National, Inc. (BNI) report titled, *Radiological Characterization Report of FUSRAP Properties in the St. Louis, Missouri Area,* identified Th-230 at 5,700 pCi/g at the VP2L property. This report is part of the Administrative Record (ID Nos. 1319 and 1321).
- In March 1992, DOE published a report titled, *Engineering Evaluation/Cost Analysis-Environmental Assessment for the Proposed Decontamination of Properties in the Vicinity of the Hazelwood Interim Storage Site, Hazelwood, Missouri.* This report states that Th-230 was found at the VP2-L site at 5,700 pCi/g. The 1992 report is also part of the administrative record (ID No. 1169).

The 5,700-pCi/g level for the VP2L is identified only in Appendix D, Attachment 5 of the FS report and is not carried forward in the FS text and analysis. It is not clear whether the 5,700-pCi/g or the 830-pCi/g Th-230 level was used in the risk and alternatives analysis documented in the FS. This inadequate characterization in the FS/PP poses several potentially significant issues.

First, the potential current and future risks calculated for the Latty VPs and HISS may be understated in the FS/PP. Table D-4b of the FS gives the potential current and future risks for the VPs (highest value), assuming industrial use, as $2x10^{-4}$. The potential current and future risks should be reevaluated using all the available data.

Second, the source or fate and transport mechanism for the higher levels of Th-230 found at VP2L may not be adequately characterized in the FS. For example, there is insufficient documentation or discussion given in the FS regarding the potential impact of soil contamination from the ground water regime (specifically HZ-A), and the potential for recontamination of remediated areas by subsequent shallow groundwater flow. Given the 81,000 pCi/g level of Th-230 identified in the subsurface soils in discrete areas (at

approximately a 6 foot depth), the source of contamination should be assessed further for the VP2L property.

Third, the necessary monitoring and worker safety control measures during and following the proposed remediation are not adequately described in the FS/PP for the VP2L property. The FS must identify specific measures that will be necessary to control radiation exposure of the industrial work force at VP2L during the remediation.

Fourth, the proposed schedule for a 2007 start of remediation of the VP2L property (see April 2003, St. Louis FUSRAP North County Site Property Characterization, Table 3, Administrative Record ID 137) does not appear to factor in the levels of contamination found at the VP2L property. Although site exposures, in fact, presently appear to be well controlled at safe levels at VP2L through voluntary efforts and consistent implementation of the Site Management Plan for 9150 Latty Avenue (developed by GIFREHC in consultation with the DOE), the potential risk levels should be reevaluated in light of all the relevant data, and the VP2L remediation start date should be adjusted accordingly.

Finally, the incomplete characterization baseline data reported for VP2L certainly raises the question whether the characterization data reported in the FS (and presumably relied upon for risk and cost calculations, and other purposes) has been sufficient with respect to the other VPs and at the immediately adjacent HISS.

Section 300.430(a)(ii)(C) of the NCP states that, "[s]ite-specific data needs, the evaluation of alternatives and the documentation of the selected remedy should reflect the scope and complexity of the site problems being addressed." In addition, NCP § 300.430(d)(1) requires that the site be adequately fully characterized, "for the purposes of developing and evaluating effective remedial alternatives." These requirements of the NCP do not appear to have been met for the VP2L property as characterized in the FS/PP.

2. The FS/PP Does not Adequately Address Management and Remediation of Currently Inaccessible Areas.

Under the preferred remedy, remediation of "inaccessible soils" would be indefinitely deferred and the areas would be made subject to institutional controls. The FS lists inaccessible areas as roads, bridges, and permanent structures. The FS also leaves open the possibility for identifying additional areas of inaccessibility after the ROD is issued, during the remedial design phase, although no presumptive criteria are provided for these potential case-by-case determinations. The FS states that the remediation goals for all properties is to allow unrestricted residential use in order to protect human health and the environment. But the FS also suggests that this protective goal may not be maintained with respect to areas currently deemed inaccessible, as it provides that the appropriate level of remediation would be evaluated once inaccessible areas are made accessible, and presumably could be subject to less protective remediation. Currently, the manufacturing facility rail spur and the portion of the HISS rail spur that temporarily crosses VP2L are the only identified "inaccessible" areas on VP2L.

To meet the remediation goals and the ARARs identified for the St. Louis North County site, the clean-up levels for inaccessible areas must be consistent with the clean-up levels identified for the current accessible soils. Particularly given the 200 to 1000 year time frame relevant to this action, the FS (and the ROD) should commit to achieving the same level of protectiveness for soils throughout the North County site (regardless of whether they are currently "inaccessible") or identify sufficient supplemental standards consistent with 40 CFR 192, Subpart C. This is necessary to achieve and demonstrate long-term protection to human health and the environment and to adequately assess the long-term effectiveness of the remedy in accordance with the NCP, 40 CFR § 300.430.

The anticipated criteria for "inaccessibility" determinations also should have been set forth in the draft FS so that the public could better understand and comment on the extent of the North County soils for which remediation will be deferred, and consider whether Alternative 6 is in fact the preferred approach.

Similarly, the FS refers only generically to the kinds of institutional controls that the COE would seek to impose on currently "inaccessible" areas. Property owners and the public need to understand the details of the anticipated controls to assess their potential practical impact on continued property use until the final remediation is complete. While this impact may be minimal, it could be substantial. The anticipated details of these measures should be identified in the FS. Without this information, it is difficult to provide meaningful comment on the overall protectiveness and practicability of Alternative 5 and, again, whether Alternative 6 may be the preferred approach.

3. The Discussion In The FS/PP of the Remedial Approach for "Deep" Soil Contamination Is Not Adequate.

The potential existence of deep soil contamination (i.e., greater than 8 feet) at the North County Site – and the potential use of less stringent remedial standards for such soils – is not raised until Chapter 4 of the FS. It appears that this reference is inserted only as a placeholder, to retain the approach as a future "option." While the lead agency is always free to seek to modify a ROD after a further public process, retaining alternative clean-up standards for deep soil contamination as a discretionary "option" at the North County Site without further public process does not appear permissible on the current record given that the contamination in the deep soil may alter risk estimates and analysis of the implementability and long-term effectiveness of the identified preferred remedy.

The less stringent, "supplemental standards" (75/210/750 pCi/g for Ra-226, Th-230 and U-238) proposed as an option for the deep soil are derived from the supplemental standards for subsurface soils under 40 CFR Part 192, Subpart C, and would require the imposition of permanent institutional controls. Whether it is appropriate to rely on such standards at all on the current record is highly doubtful. EPA wrote these standards, and its guidance interpreting the proper use of the supplemental standards specifically provides that the supplemental standards were not expected to be used often. "They were designed [only] for situations in which worker safety would be adversely impacted or clearly greater environmental harm would result from the remedial action necessary" to achieve the more stringent standards normally applied. EPA

Directive 9200.4-25, "Use of Soil Clean-up Criteria in 40 CFR 192 as Remediation Goals for CERCLA Sites." The factual case has not been made in the FS that supplemental standards are necessary or appropriate for deep soils at the HISS or HISS Vicinity Properties.

It is difficult for the public to assess the impact of, and comment on, the proposed use of supplemental standards as, indeed, the FS does not clearly identify where any such deep soil contamination may exist. In accordance with NCP, 40 CFR §300.430, the FS must adequately describe: (1) the extent of deep soil contamination and; (2) the effect of the deep soil on the baseline risk assessment and on the alternatives evaluation.

With the 200 to 1,000-year timeframe identified in 40 CFR 192, Subpart A, it is not reasonable to presume (as the analysis in the FS does) that deep soils would never be used or present in the context of a residential setting. The FS states that the only likely current exposure scenario would involve industrial/utility workers and if institutional controls were lost, exposure would be less than 100 mrem/year. This dose rate does not meet the current requirements of CERCLA. See U.S. EPA Directive 9200.4-18, Establishment of Clean-up Levels for CERCLA Sites with Radioactive Contamination (Aug. 22, 1997). Moreover, the FS should also acknowledge that there exists a possibility that these deep soils could be transferred for use in a residential or other uncontrolled setting at some point in the future. If this occurred and the deep soils had been remediated to the less stringent levels of the proposed supplemental standards, as above, the resulting dose rate may well be below 100 mrem/year, but would not be sufficiently protective to meet the requirements of CERCLA. Because the remediation goals specified in the FS are sufficient to allow for unrestricted use in a residential setting, the unrestricted release criteria must be used as the basis for calculating the clean-up levels for any deep soils. If the supplemental standards were derived from the unrestricted release criteria of 5 pCi/g or 15 pCi/g, the deep soil standards would be 15 and 45 pCi/g respectively for Ra-226.

Throughout the FS and inherent in the COE's analysis of most of the alternatives, a 100 mrem/year dose rate is assumed to represent a CERCLA "protective" level. While we understand that the DOE has adopted a primary health standard of 100 mrem/year

effective dose equivalent to members of the public (based on the ICRP's recommendation to limit long-term average effective dose equivalents to 100 mrem or less) (see DOE Order 5400.5), and that DOE Order 5400.5 standards were to be the basis for remedial actions conducted under the DOE's 1992 EE/CA for the HISS and Vicinity Properties, the U.S. Environmental Protection Agency (EPA) authoritatively stated in 1997 that the 100-mrem/yr criterion is not sufficiently protective to meet the requirements of CERCLA, and that 15 mrem/year or less is the appropriately protective level under the statute and regulations. See EPA Directive 9200.4-18, "Establishment of Clean-up Levels for CERCLA Sites with Radioactive Contamination" (Aug. 22, 1997). Accordingly, if supplemental standards are applied to any deep soils, those standards must assure a dose rate of 15 mrem/year or less to meet the minimum protectiveness requirements of the NCP, 40 CFR 300.430.

4. Commitment To Long-Term Monitoring Is Inadequate In The FS And Inconsistent With The Requirements Of The NCP

To the extent construction of the remedy leaves inaccessible areas, deep soil areas, groundwater (e.g., hydrogeologic zones HZ-A, B and C) (and perhaps site improvements) with COC concentrations above ARARs or remediation goals, long-term monitoring must be a component of the remedy to assure the overall protectiveness and effectiveness of the proposed remedy. Similarly, to the extent the remedy relies on institutional controls, there must be long term monitoring to assure that those controls continue to be honored, and remain effective for their purpose.

For example, although the FS recites that the uppermost aquifer is not currently being utilized, radiological contamination does exist in HZ-A. The FS states that remediation of HZ-A is not needed because (1) there are no current receptors (i.e., yield from HZ-A is insufficient as a drinking water source) and; (2) there is no significant hydraulic communication between HZ-A and the lower water bearing zones. The record evidence supporting this second assumption in particular appears to be limited. Only one of the twenty-one wells installed at the HISS/Futura/Latty Avenue Vicinity properties was screened in the lower water-bearing zones. Similarly, there is a concern that shallow groundwater from the HISS may carry contaminants offsite and recontaminate previously

remediated areas at neighboring properties, such as VP2L. The apparent response in the FS to this issue, that groundwater moves slowly, may not be valid where the relevant time frame is 200 to 1,000 years.

To verify the assumptions made in the FS, to demonstrate the continuing effectiveness of the proposed remediation and control measures, and to ensure that any residual contamination (e.g., from inaccessible areas and deep soils) does not pose or create a threat to human health and the environment, adequate long-term monitoring needs to be identified in the FS and specified in the ROD.

5. The FS/PP Does Not Adequately Characterize The Residual Risk Or Provide Sufficient Basis For Deviating From The CERCLA "Point Of Departure" Residual Risk Of 10^{-6}

The collective residual cancer risk after the proposed remediation is complete, as calculated in the FS, appears to be approximately a $3x10^{-4}$ cancer risk. The Ra-226 clean-up levels of 5 pCi/g (surface soils) and 15 pCi/g (subsurface soils) largely drives this residual risk estimate. This risk estimate applies to the average for all the properties being addressed in the St. Louis North County Site remediation. (Again, it is unclear whether the impact of inaccessible areas and deep soil contamination are factored into this residual risk estimate.) Based on the information presented in the FS, the estimated potential residual risk at VP2L is not separately stated. Information needs to be provided to assess the residual risk at each Vicinity Property so that specific evaluations (and comment) can be made on the protectiveness of the proposed remedy, as well as the need for institutional controls, worker safety measures and long-term monitoring.

In the FS, the COE justifies accepting final risk levels less protective than the NCP's default point of departure for risk ($1x10^{-6}$) due to practical implementability issues and cost considerations. We do not believe a sufficient record has been established to justify this deviation from default NCP criteria, at least beyond the $2x10^{-5}$ residual cancer risk level.

With regard to implementability, the FS cites the inability of field instruments to detect radiation levels that correspond to a 10^{-6} cancer risk. However, laboratory instruments are capable of measuring concentrations as low as 1 pCi/g. Based on data in

FS Table D-8, it appears that achieving a 1 pCi/g level would correspond to approximately a $2x10^{-5}$ residual cancer risk. A residual risk of $2x10^{-5}$ is an order of magnitude more protective than $3x10^{-4}$.

At sites where non-radiological contaminants are at issue, laboratory analyses are generally the only means to confirm attainment of RGs. The fact that a relatively inexpensive means exists to demonstrate attainment of a less stringent standards does not justify the less stringent standards themselves. The FS and ROD must justify why remedies for radiologic sites are subject to a lower threshold for deviation from NCP risk standards than are applicable at non-radiologic sites.

The FS also states that the incremental risk reduction that would be achieved by applying a clean-up level more stringent than the proposed 5/15 pCi/g levels does not warrant the additional cost of a more stringent standard. While this may be true, there is no quantitative cost analysis in the FS to support this conclusion. The FS must provide a quantitative cost analysis to justify deviating from the CERCLA "point of departure" of 10^{-6}, and from $2x10^{-5}$ to $3x10^{-4}$.

6. Use Of 40 CFR 192 As Relevant And Appropriate Requirement May Not Meet CERCLA Standards.

The FS looks to the 40 CFR Part 192, Subpart B standard of 5/15 pCi/g for Ra-226 in surface/subsurface soils to establish Ra-226 remediation goals, and then uses the 5 pCi/g as the benchmark for setting surface soil remediation goals for Th-230 and U-238. According to Table D-11 of the FS, the resulting site-specific dose is estimated at 19 mrem/year for Ra-226, which, as discussed in comment No. 3 (¶¶4-5) above, is less protective than the 15 mrem/year level required by EPA to meet the particular requirements of CERCLA. See EPA Directive 9200.4-18, *Establishment of Clean-up Levels for CERCLA Sites with Radioactive Contamination* (Aug. 22, 1997). The FS must justify this deviation or adjust the remediation goal for Th-230 and U-238 in surface soils.

With respect to subsurface soils, EPA has explained that the 40 CFR Part 192, Subpart B 15 pCi/g subsurface standard is not a protective value in and of itself, but

rather a practical adaptation recognizing the finding that remediation to this level, in certain circumstances, generally results in actual clean-up to a CERCLA-protective 5 pCi/g level. The 15 pCi/g practical standard is especially useful as it represents a concentration that can be measured relatively cheaply and quickly with field instruments. See EPA Directive 9200.4-25, *Use of Soil Clean-up Criteria in 40 CFR Part 192 as Remediation Goals for CERCLA Sites.*

It is not clear from the data presented in the FS whether the proposed 15 pCi/g standard is sufficiently protective overall to meet CERCLA and NCP criteria. EPA clearly states that using the 15 pCi/g practical standard is not warranted in situations where there exist significant quantities of contamination of Ra-226 between 5 and 30 pCi/g in the subsurface. For example, according to FS Attachment 12, Appendix D, the range of Ra-226 found at VP2L was from 0.33 to 89 pCi/g with a mean concentration of 2.29 pCi/g. (As indicated in comment No. 1, above, this represents an incomplete statement of the available soil data for VP2L, and acknowledging the additional data in the FS may require, among other changes, modifications to FS Attachment 12). Given this distribution, it appears that Th-230 will be the risk limiting factor driving clean-up, not Ra-226, as is supposed by application of 40 CFR Part 192, Subpart B standards. The FS should clarify whether the 15 pCi/g is an appropriate and protective standard, consistent with CERCLA and the NCP, for the subsurface soils at VP2L and other Vicinity Properties.

The FS proposes using Ra-226 as surrogate to "measure" levels of Th-230 because the field detection limit for Th-230 is 2120 pCi/g. The technical basis for the adequacy of such an approach is not clear from the FS. The FS should explain how the use of Ra-226 as a surrogate for Th-230 rationally will provide a sufficiently accurate assessment of the final site conditions.

The FS also states the use of 40 CFR 192 as an ARAR is consistent with the 1998 St. Louis Downtown Site (SLDS) ROD. This is not completely accurate. The SLDS ROD had a surface soil clean-up level of 5 pCi/g for Th-230. For SLDS, the surface soil clean-up level for Th-230 was consistent with the Ra-226 clean-up level. The SLDS remedy appears consistent with EPA guidance on the use of 40 CFR 192 as an ARAR

(EPA Directive 9200.4-25), which states that, "at a minimum, this would generally mean that Thorium-230 and Thorium-232 should be cleaned up to the same concentrations as their radium progeny." The FS should state why a deviation from the Th-230 clean-up standards used for SLDS should be deemed protective under the NCP and compliance with ARARs, or otherwise justified for the North County Site.

7. Use Of 10 CFR 40 Appendix A, I, Criterion 6(6) To Determine Clean-up Standards For Th-230 And U-238

EPA Directive 9200.4-35P, *Remediation Goals for Radioactively Contaminated CERCLA Sites using the Benchmark Dose Clean-up Criteria in 10 CFR Part 40 Appendix A, I, Criterion 6(6)* (Apr. 2000) states that when 5 pCi/g and/or 15 pCi/g standards are used as relevant and appropriate requirements, these soil standards should continue to apply to combined levels of radium-226 and radium-228, as well as the combined levels of Th-230 and Th-232. The proposed surface soil standards for Th-230 at the North County Site do not comply with this interpretation of the regulation, and may not be protective or comply with ARARs.

As discussed above, to meet CERCLA protectiveness criteria, the benchmark dose rate should be 15 mrem/year or less when establishing clean-ups using Criterion 6(6). EPA Directive 9200.4-18, *Establishment of Clean-up Levels for CERCLA Sites with Radioactive Contamination* (Aug. 22,1997). The FS should explain why the deviation from EPA's interpretation of its regulations is warranted and how the use of the proposed clean-up levels for Th-230 and U-238 are protective under CERCLA.

The FS should also further discuss whether use of Criterion 6(6) is appropriate. It is one element of a comprehensive siting and management program, the other elements of which are not present or accounted for at the North County site. It may not be appropriate to rely on one provision of a comprehensive program where the other circumstances assumed by that program to exist are not present (e.g., that the U.S. would ultimately take title to disposed cells).

In addition, the FS should consistently make clear that the clean-up levels proposed under 40 CFR 192 and Criterion 6(6) are levels above background. The FS

should discuss what background levels and associated dose and risk rates are for the St. Louis North County Site (currently only identified in Appendix D). In addition, discussion should be added that describes the process used for determining background for the St. Louis North County site.

C. CONCLUSION

In general, the remediation goal of unrestricted use proposed by the COE in the St. Louis North County Feasibility Study and Proposed Plan demonstrates a true commitment by the United States to restore lands impacted by our nation's Cold War legacy to complete and beneficial use. Remediating all properties to unrestricted use will provide the maximum protection to human health and the environment as envisioned by CERCLA.

As I have indicated above, I believe that a more complete characterization of the North County properties and the adherence to all the components of the relevant and appropriate environmental requirements must be completed in order to achieve a comprehensive and protective remedy that meets the requirements of the NCP and the COE's remediation goal of unrestricted release

INTEGRATED MANAGEMENT &
ENVIRONMENTAL SOLUTIONS, LLC

By: Lisa G. Feldt
Lisa G. Feldt

ATTACHMENTS

A: Specific Comments of IMES on St. Louis North County FS/PP

B: Letter from David Adler, DOE, to GIFREHC (Dec. 13, 1996) (enclosing VP2I. analytical data).

C: Biographical Profile of Elisabeth G. Feldt

ATTACHMENT A

To Report of Integrated Management & Environmental Solutions
July 14, 2003 Comments on Draft St. Louis North County FS/PP

SPECIFIC COMMENTS ON ST. LOUIS NORTH COUNTY SITE FEASIBILITY STUDY/PROPOSED PLAN

EXECUTIVE SUMMARY

1) Pg. ES-1, 1st Paragraph and Pg. 2 of Proposed Plan: Clarify that Latty Vicinity Properties meet the definition of facility/site as defined under CERCLA, § 101(9) and NCP 40 CFR §300.6 and therefore are subject to the same RGs, five-year reviews (potentially) and permit waivers as the narrowly defined NPL site.

2) Pg. ES-3, Site History, 1st paragraph, last sentence and Pg. 4 of Proposed Plan: Add Latty Avenue VPs to sites that were contaminated.

3) Pg. ES-4, 3rd paragraph: The sentence that reads, "Removal actions started under the EE/CAs...." is not complete or clear and is confusing when the following sentence discusses ROD criteria superceding commitment to clean-up criteria in previously issued documents.

4) Pg. ES-5, 2nd paragraph and Pg. 6 of Proposed Plan: The removal at HISS included the removal of the Eastern Piles that were located at VP2L. In addition, a portion of the temporary HISS rail spur is also located on VP2L. The document should acknowledge the removal actions at VP2L. As written, it appears that the removal action only took place on the HISS property.

5) Pg. ES-8, 4th paragraph and Pg. 10 of Proposed Plan: The ranges of contaminant levels given for HISS/Futura are inconsistent with what has been provided to DOE and the COE for VP2L. Specifically, documentation has been provided that indicates Th-230 has been found in one area on VP2L at 33,970 and 81,000 pCi/g. Per DOE instruction, this hot spot area was not excavated and is covered with asphalt pending final site remediation

under the North County ROD. In addition, several documents in the Administrative Record show significantly higher levels of Th-230 contamination. (i.e., 81,000 pCi/g). While currently exposure to this material is being managed through adherence to the VP2L Site Management Plan, COE must address these levels of contamination as part of the overall remediation to eliminate any future risk. In addition, there is an inconsistency within the FS documentation for VP2L. Attachment 5 of Appendix D gives a maximum level for Th-230 found at 5700pCi/g. Again, the statement that the highest concentration for Th-230 in the HISS/Futura properties is 830pCi/g is not supported. FS should state the full extent of contamination for VP2L and confirm that related calculations remain valid.

6) Pg. ES-9, Summary of Site Risks, 2nd paragraph and Pg. 11 of Proposed Plan: Specify the 10^{-6} is the point of departure and should only be deviated from if there are technical implementation issues or the increased cost does not warrant a 10^{-6} level of protectiveness.

7) Pg. ES-15, 3rd paragraph: For the properties that currently exceed CERCLA risk range, acknowledge that these are being controlled through various institutional controls and best management practices. Also in Table ES-2 and Table D-4A, it may be misleading to group all the vicinity properties together. It is not clear why vicinity properties were presented as a worst case and average scenario, while the other properties were not presented this way.

8) Pg. ES-15, Conclusions of Risk Evaluation, 1st paragraph: Conclusion should be consistent with previous paragraphs and specify that a few properties exceed CERCLA risk range currently but exposure is being controlled as a practical matter. See specific comment No. 7.

9) Pg. ES-16, Ground Water: There needs to be discussion on potential pathway for contamination (or recontamination) of soils from HZ-A.

10) Pg. ES-17, 1st paragraph: Disagree that "Remediation will result in residual site conditions that allow for unlimited use and unrestricted exposure." Proposed remedy

does not address inaccessible areas and has supplemental standard for deep soil that in a residential setting would exceed dose rate of 15 mrem/year.

11) Pg. ES-17, Table ES-3: Unless commitment is made to address inaccessible areas and deep soil adequately, the remedial objective "Eliminate or minimize the potential migration of contaminants off-site, including the potential for migration to ground water and surface water, by removing the sediment and soil sources" is not met.

12) Pg. ES-18: Citation to 40 CFR 300.430(e)(90(iii)(B) is not complete. Add, "or provide grounds for invoking a waiver under Paragraphs f(1)(ii)(C) of this section."

13) Pg. ES-18, third paragraph: Specify the supplemental standards under 40 CFR Part 192, Subpart C are also being proposed for a deep soil excavation "option" for Alternatives 2,3, 5 and 6, and explain the significance of that option.

14) Pg. ES-21, 2nd paragraph and Pg. 17 of Proposed Plan: The Th-230 surface soil remediation goal of 14Pci/G is not consistent with SLDS ROD. The surface soil Th-230 remediation goal for SLDS was 5 pCi/g and is consistent with the intent of 40 CFR 192 and supporting EPA guidance. (Feb 12, 1998, EPA Directive 9200.4-25, Use of Soil Clean-up Criteria in 40 CFR Part 192 as Remediation Goals for CERCLA Sites).

15) Pg. ES-21, 3rd paragraph: See specific comment No. 13.

16) Pg. ES-24, Table ES-4, Remediation Goals for Use with Institutional Controls at SLAPS and HISS/Futura and Pg. 18/32 of Proposed Plan: Do not agree, "...that public exposure limits would not be exceeded should the institutional controls be lost". The dose rate would be less than 100 mrem/year versus less than 15 mrem/year. 15 mrem/year is the level that EPA deems protective for CERCLA clean-up actions. (August 22, 1997 EPA Directive 9200.4-18, Establishment of Clean-up Levels for CERCLA Sites with Radioactive Contamination).

17) Pg. ES-26, Table ES-6: Given potential for deep soil contamination and inaccessible areas, land use restrictions should be a component for each alternative except Alternative

6. The table incorrectly specifies that Alternatives 2, 3 and 5 would not require any land use restrictions.

18) Pg. ES-30, Table ES-8: No explanation or notation given to category "Properties with previous DOE removal actions that will require additional investigation." Given some of the discrepancies identified in specific comment No. 5, VP2L could fit into this category.

19) Pg. ES-31, On-going Removal Actions: See specific comment No. 3.

20) Pg. ES-33, Excavation: Need to discuss deep soil excavation.

21) Pg. ES-34, Excavation: See specific comment No. 20.

22) Pg. ES-36, Excavation: See specific comment No. 15. In addition, an open-ended commitment for addressing inaccessible areas at a later date, at least for private properties, is not acceptable. The clean-up criterion is for unrestricted use. That commitment needs to be made in this FS and Record of Decision for inaccessible areas to meet protectiveness and long-term effectiveness criteria in the NCP.

23) Pg. ES-36, Monitoring: Given that there are sources still in place (i.e., deep soils at supplemental standards and inaccessible areas), long-term monitoring is required in HZ-A and within buildings at a minimum, to address long-term effectiveness of remedy.

24) Pg. ES-37, Alternative 5: Five-Year reviews would also apply to areas where contaminated deep soils at supplemental standards are left in place.

25) Pg. ES-41, Alternative 5 and 6: Disagree that mobility would be "slightly" reduced. By placing material in off-site permitted facility, there should be a "significant" reduction of mobility.

CHAPTER 1

26) Pg. 1-1, 2nd paragraph: See specific comment No. 1.

27) Pg. 1-4, 1st paragraph: It clearly states that Latty Avenue VPs are not part on the NPL. The significance of this should be clarified. See specific comment No. 1.

CHAPTER 2

28) Pg. 2-8, § 2.2.1.3, 1st paragraph: The acreage given for the "Latty Avenue properties" support that the Latty Avenue Vicinity Properties and specifically VP2L may be part of the NPL site listing. (See www.EPA/Superfund, NPL Site Narrative for St Louis Airport/HISS/Futura Coating Co.)

29) Pg. 2-9, 4th paragraph: Change "...storage piles at HISS and an adjacent property" to "....storage piles at HISS and Latty Avenue VP2L."

30) Pg. 2-9, 4th paragraph: The work conducted by GIFREHC and the creation of the East Piles at the VP2L property was per agreements entered into between DOE and GIFREHC (1994) and later adopted by COE (1998). DOE specifically agreed that this was a private party removal action. GIFREHC has been reimbursed for these response costs by the United States. Therefore, the text should recognize the work as a removal action under CERCLA. FS text also must acknowledge that a portion of the HISS rail spur is on the VP2L property and has been utilized (per 1998 Agreement) to support COE removal actions and will be used to support the remedial work. In addition, the COE has committed that the rail spur at VP2L will be removed as part of the final remediation under this action.

31) Pg. 2-25, Local Hydrostratigraphy at HISS: Only one well was screened in the lower HZ. This is not adequate to make the determination that there is no/minimal communication between the upper (HZ-A) and the lower aquifer (HZ-D/E). Long-term monitoring of groundwater must be component of remediation

32) Pg. 2-31, Latty Avenue Properties, 3rd paragraph: Part of the "recently constructed spur" is also on the VP2L property but must be removed by 2010. See specific comment No. 30.

33) Pg. 2-36, Table 2-9: Data provided to the DOE and the COE by GIFREHC should be listed. See specific comment No. 5.

34) Pg. 2-37-55, Table 2-10 and 11: Tables 2-10 and 11 indicate that there is no inorganic/heavy metal contamination at VP2L. VP2L needs to be further characterized to support this.

35) Pg. 2-60, 1st paragraph. The depth of contamination (surface to 6 feet) at HISS is not supported by the data summarized in Table 2-10. Reference to Appendix D should be added.

36) Pg. 2-60, § 2.3.1.6: Th-230 is found as high as 2,000 pCi/g. This is higher than the maximums given in early sections of the FS. See specific comment No. 5.

37) Pg. 2-62, § 2.3.1.9: Th-230 is found at 1,200 pCi/g. Again this is inconsistent with the maximum given in early sections of the FS and the Proposed Plan. Also inconsistent with Appendix D of the FS, the DOE's prior studies, and reports provided by GIFREHC to DOE and COE. FS must accurately report the data for VP2L. Also, there is no discussion of depth of contamination at VP2L and other vicinity properties.

38) Pg. 2-62, § 2.3.1.10: Identify site as VP2L. Description that East Piles originated from construction activities is not completely accurate. See specific comment No. 30. Also the statement that the property was "...extensively contaminated with radioactive isotopes of uranium, thorium, and the actinium series as a result of commercial activities by private parties which managed ores and other materials" raises several issues. First, the data summarized in the FS (without the discrepancies already mentioned in previous comments) and the statement in § 2.3.1.9 that "Only 2 out of 231 samples collected exhibited concentrations of Th-230 exceeding proposed criteria" does not support this statement. Second, the contamination at VP2L and other vicinity properties originated from the storage of residue materials both at HISS and SLAPs, transportation of materials to HISS by DOE and others, airborne particulate transfer from the HISS under DOE/COE management and perhaps other means. The generic reference to source of contamination given in 2.3.1.10 is too broad in the context of the East Piles. At the very least, the

attribution should be to "commercial activities managing ores at the HISS property by Cotter Corp. and other private parties."

39) Pg. 2-65, § 2.4. Discussion needs to be added regarding potential fate and transport mechanism for HZ-A groundwater to contaminate subsurface/deep soils.

40) Pg. 2-66, 2nd paragraph: Do not agree that a 1400 pCi/g level of sediment contamination is "minimal".

41) Pg. 2-68/69: Do not agree that risk assessment should exclude radon especially if it is one of the major environmental release mechanisms. Need to commit that remediation to clean-up levels will achieve an acceptable radon concentration in vicinity buildings such as VP2L, consistent with the requirements of 40 CFR § 192.12(b)(1) and (2).

42) Pg. 2-69, 3rd bullet: The 100 mrem/yr criterion is not protective under CERCLA (EPA Directive August 22, 1997, Establishment of Clean-up Levels for CERCLA Sites with Radioactive Contamination). Where deep soil contamination exists, any supplemental standards should equate to a dose rate of 15 mrem/year or less or the remedy does not meet protectiveness threshold defined in the NCP.

43) Pg. 2-71: Reference is made to "the most contaminated of the VPs" and to "the highest VP". In addition, scheduling of remediation needs to account for extent and level of contamination and previous commitments made to property owners (e.g., 1998 Agreement between GIFREHC and COE). The remediation start date of 2007 for VP2L is not considered adequate. (Information was not found in the FS on potential start date. The 2007 date was identified in Table 3 of the April 2000 St. Louis FUSRAP North County Site Property Characterization, Administrative Record ID 137).

44) Pg. 2-79, Table 2-17: The basis for the subsurface RG of 3 times the surface RG should be explained and should be shown to result in a CERCLA protective level.

45) Pg. 2-80, Table 2-17, footnote b: Deep soil contamination has not previously been discussed in FS (and is not presented until Chapter 4). It is not clear why deep soil

excavation was not carried through in any of the alternatives. The final risk numbers must factor exposure to this contamination and the proposed supplemental standards for clean-up.

46) Figure 2-12, Hazelwood Interim Storage Site and Futura Coatings Location. The East Piles were on VP2L. VP2L should be marked on the figure.

47) Pg. 3-1, § 3.2.1: As long as a decision on how clean is clean for inaccessible areas is deferred and supplemental standards for deep soils exceed a dose exposure of 15 mrem/yr, site specific RGs do not appear to "produce residual site conditions that allow for unlimited use and unrestricted exposure."

48) Pg. 3-3, § 3.2.2: Add "and groundwater" to end of first sentence to be consistent with Table 3-1.

49) Pg. 3-4, 1st paragraph: Identifying ARARs should also factor in exposure pathways and risk receptors.

50) Pg. 3-5, 3rd paragraph: Need to clarify that VP properties, specifically VP2L, receive same treatment as "on site" in terms of not requiring specific permits.

51) Pg. 3-7, 2nd paragraph, 3rd sentence: Should read "Standards set forth in Subpart B apply to the clean-up of residual radioactive materials from land and buildings....".

52) Pg. 3-8, 2nd paragraph, 3rd sentence: Should read " The standard of selection for a supplemental standard is one that comes as close to meeting the otherwise relevant and appropriate standard...."

53) Pg. 3-8, 3rd paragraph: Text justifies use of supplemental standards for subsurface soils in accordance with 40 CFR 192.21c because radiological materials do not pose a current or future hazard. This is not accurate given remediation is required to protect human health and the environment.

54) Pg. 3-9, 5th paragraph: When giving clean-up levels in accordance with either 40 CFR 192 or Criterion 6 (6), FS should always say that level is above the background number for the respective radionuclides. Also state that the U-238 benchmark dose concentration is for surface and subsurface soils.

55) Pg. 3-12: Disagree with statement that one of the reasons for periodic monitoring is to "assure the continued lack of migration from the contaminated soils". It has already been identified that radioactive contamination exists in HZ-A. Monitoring as it relates to ground water should assure the remediation is effective and that continued migration to the groundwater (HZ-A) is eliminated.

56) Pg. 3-12, § 3.4.4, 2nd paragraph: Disagree that there are no contaminants of concern (COC) for groundwater. Radionuclides and metals have been identified in groundwater.

57) Pg. 3-14, § 3.5, 1st paragraph: The dose exposure for residential exceeds 15 mrem/year. This is not deemed protective for CERCLA clean-up actions (August 22, 1997 EPA Directive 9200.4-18, Establishment of Clean-up Levels for CERCLA Sites with Radioactive Contamination).

58) Pg. 3-15, 1st full sentence: See specific comment No. 54.

59) Pg. 3-15, 2nd paragraph: The use of 50 pCi/g for U-238 standard is too qualitative. Should show in Appendix D how 50 pCi/g ensures that the decay products will not exceed natural abundance.

60) Pg. 3-22, Air Monitoring: Short term monitoring should be done in all areas, not just "unremediated" areas. Long-term monitoring should be conducted in areas that are not currently proposed for remediation.

61) Pg. 3-25, § 3.6.6.3, 1st paragraph: FS does not support statement that current data indicates response actions alternatives for buildings are not required. Only Futura building is listed as being surveyed. DOE conducted a survey of the external surfaces of

VP2L in 1992 (following the loss of the cover of the HISS main pile) and detected fixed contamination above DOE unrestricted use criteria.

62) Pg. 3-22, 1st line: Contaminated soils should not be used a backfill for Airport runway expansion. The contaminant levels are not protective so how could beneficial use be justified?

63) Pg. 3-33, Table 3-5: Vitrification is not effective for low-level radioactive waste such as found at the St. Louis North County Site.

64) Pg. 3-34, Table 3-5: Incineration is not effective for the contamination found at the St. Louis North County Site. In addition, the transportation technologies listed were not discussed in text. Given that the a portion of the HISS rail spur is located on VP2L and that, historically, contamination has spread to vicinity properties when the material was transported to the HISS, additional discussion and analysis is needed regarding transportation. Specifically, the FS should identify measures that will be taken to ensure that the industrial workers at VP2L and the public in general are not adversely impacted in the short term.

65) Pg. 3-40, Effectiveness: A multi-layer cap does not eliminate the long-term issue of shallow ground water in contact with contaminated subsurface soils.

66) Pg. 3-42, § 3.7.5.1: Effectiveness discussion for removal needs to factor in the short term transportation risk and how it will be managed. See specific comment No. 64.

67) Pg. 3-48, § 3.7.8: Consider whether the discussion of off-site disposal technologies needs to factor in the potentially higher levels of contamination that may exist, e.g., the "hot spot" found at VP2L and impact to off-site disposal option. See specific comment No. 5.

68) Pg. 3-49, Table 3-6: The basis for screening out the synthetic liner option is not discussed.

69) Pg. 3-50, Table 3-6: The barge transportation technology is screened out due to high cost. This is not consistent with the text in § 3.7.7 that indicates that barging is retained

CHAPTER 4

70) Pg. 4-1, § 4.2, 1st paragraph: The description of Table 4-1 is not consistent with the title of Table 4-1.

71) Pg. 4-1, §4.2, 3rd paragraph: Removal is also the main technology versus supplemental for Alternative No. 5.

72) Pg. 4-1, § 4.2, 4th paragraph: Long-term monitoring and five year reviews are necessary whenever any contamination is left in place above the protective clean-up level. In addition, long-term monitoring is required for any properties that have "inaccessible" areas. Since deferring decisions on inaccessible areas is part of Alternative 5, long–term monitoring must be a component of the remedy.

73) Pg. 4-2, Table 4-1: Well drilling prohibitions should be component of institutional controls for all alternatives (not just alternatives 2-4) since groundwater will not be addressed but contamination exists in HZ-A. In addition, disagree that long-term monitoring is "unlikely" for alternative 5. See specific comment No. 72.

74) Pg. 4-3, Table 4-2: The total in-situ and ex-situ volumes given are not consistent with volumes identified in the Appendix C, Cost Assumption Summary Table (278,400 cubic yards/348,020 cubic yards respectively). In addition rounding volumes to 2 significant figures is misleading.

75) Pg. 4-4, Table 4-3: Disagree that Alternative 5 will allow "Land Use D" given that properties such as VP2L will have inaccessible areas that do meet protectiveness criteria. Institutional controls will be necessary.

76) Pg. 4-5, Table 4-4. See general comments regarding use of 10 CFR 40, Appendix A, I, Criterion 6(6).

77) Pg. 4-10, Supplemental Standards for Deep Soils: The discussion of deep soils in the FS is not adequate. Assumptions are made about exposure that cannot be predicted for a 200

to 1000-year period. The FS states that if this deep soil were at some point used in a residential setting, the dose would be less than 100 mrem/year. Per EPA guidance, 15 mrem/year or less is the protective dose rate for sites being cleaned up under CERCLA. It is not appropriate to have the initial discussion of deep soils in Chapter 4 versus Chapter 2 or 3. It is also not accurate to indicate that under alternatives 5 and 6, clean-up will be done to unrestricted use when clearly institutional controls are necessary for inaccessible areas and/or deep soils.

78) Pg. 4-11, On-going Removal action: See specific comment No. 3. In addition, it is not clear why the statement about excavating under buildings is within this heading versus "Excavation".

79) Pg. 4-11, Institutional Controls: See specific comment No. 77.

80) Pg. 4-12, Monitoring: The statement that, "In addition, monitoring will support evaluation of impacts resulting from the remaining soils unavailable for remedial action ...", supports our previous assertion that long-term monitoring must be an explicit part of the remediation strategy, especially for properties such as VP2L. Radon monitoring must be a requirement in all buildings that are being used for industrial purposes. Only the Futura building is identified as requiring radon monitoring. The manufacturing building at VP2L should also be periodically monitored for radon to assure the long-term effectiveness of the remedy.

81) Pg. 4-12, Remedial Action Control Measures: Given that the HISS rail spur is also located on VP2L and that a significant amount of remedial activity will be taking place at this site, the remedial action control measures are not adequately addressed as set forth in the FS. These measures must address worker health and safety protections, including monitoring, action levels and response plans, for the VP workforces potentially affected by activities at the HISS or on the VPs during the remediation phase. Specific control measures need to be determined upfront to ensure that the existing workforce is not impacted from a safety and health perspective. These measures must be identified in the FS to adequately assess the short-term effectiveness of the selected remedy.

82) Pg. 4-13, 2nd paragraph: The basis for identifying "additional soils" as inaccessible need to be discussed in the FS and agreed to by all affected parties. This open-ended statement could have an impact on VP2L in terms of whether the preferred remedy is protective or desirable. This applies to all alternatives except alternative 6.

83) Pg. 4-14, 1st paragraph: Demolition of building identified as an option for all alternatives except alternative 4. It is not clear why this is retained as an option.

84) Pg. 4-15, Institutional Controls: As discussed, 100 mrem/year is not a CERCLA protective dose rate.

85) Pg. 4-15, 5th bullet: Restricted groundwater use needs to be a component for all alternatives identified, not just alternative 2, 3, and 4.

86) Pg. 4-17, § 4.2.5: In this section, it is stated that institutional controls may be necessary to restrict land use. The type of institutional controls and process for obtaining/implementing such controls needs to be discussed in the FS. For industrial properties such as VP2L, the specific requirements need to be agreed to and understood up front in order to make an informed decision on the overall implementability of the proposed remedy.

87) Pg. 4-18, 1st partial paragraph: See specific comment No. 80.

88) Pg. 4-18, Monitoring: The stated intent of monitoring is "to verify that there is no significant migration to useable groundwater...". This is not correct and inconsistent with clean-up objectives. Monitoring should assess adequacy and permanence of remediation and to ensure that no or minimal migration is occurring to ground water.

89) Pg. 4-19, 1st paragraph: See specific comment No. 83.

90) Pg. 4-19, § 4.2.6, 2nd paragraph: The qualifier "regardless of current or likely future land use," applies to Alternative 5.

CHAPTER 5

91) Pg. 5-2, Cost: Clarify whether the costs are in FY 2000 or FY 2003. Cost tables and Appendix C indicate FY 2003. Also § 5.6.17 indicates FY 2003.

92) Pg. 5-26, § 5.6.2.1: Again, the need for institutional controls at properties such as VP2L is not defined for Alternative 5.

93) Pg. 5-27, § 5.6.2.2, 1st paragraph: The statement that the "least benefit in terms of risk and hazard reduction..." as it relates to deep soils in inaccessible areas is not supported. As presented, deep soil contamination has not been adequately characterized in the FS. To make a statement on relative risk reduction is apparently premature.

APPENDIX C

94) Government Estimate Work Sheets: There is no breakdown given for Alternative 5.

95) Cost Assumption Summary for Alternative 5: For VP2L as well as other vicinity properties, there is a cost component for remediating roofing material. This is not discussed anywhere in the FS or alternatives analysis. Please provide basis for remediation. Aspects of the roof at VP2L have already been remediated.

96) Cost Assumption Summary Table for Alternative 5: The cost assumes that monitoring will only be required for SLAPS VPs. This is not acceptable given that monitoring will be necessary (short and long term) at properties where inaccessible areas may be identified and where deep soil contamination is proposed to be cleaned up to supplemental standards.

97) On-Site Disposal Cell Estimate: Since onsite disposal is not an option in conjunction with Alternative 5, it is unclear and confusing why there is a cost work sheet.

98) In Situ Volumes for North County Site: For VP2L, volumes are presented for excavation in soils to clean-up standards as well as supplemental standards. Alternative 5 for soils does not include use of supplemental standards. (Other than deep soils that are not identified in the table). Please provide basis for these supplemental standard volumes. In

addition, there is no contingency for inaccessible areas identified, though clearly VP2L has a manufacturing building on site as well as two rail spurs, one of which will be removed as part of this action.

APPENDIX D

99) Pg. D-8, Table D-1: Radionuclides need to be listed as potential contaminants of concern for groundwater or sediment.

100) Pg. D-12, Table D-2: Please identify the multiplier for the Latty Avenue Vicinity properties that are listed at bottom of table and shown in BRA Table 2.15

101) Pg. D-20, Table D-3: Title of table is not consistent. See Pg. D-19.

102) Pg. D-24, Table D-4b: An average value is given for VPs. As indicated in previous comment, VPs are given a worst case and average value for risk and dose. This is potentially misleading given that some properties have significantly higher contaminant levels that others. Need to define what is worst case and what properties drive that calculation and then the basis for deriving an average value.

103) Pg. D-25, 3rd paragraph: The highest calculated dose under a current scenario for construction worker is listed as 325mrem/year. Table D-4b, IA-1 has a dose rate of 2801 mrem/year. If properties revert to residential use, doses would be unacceptable (using 15 mrem/year as protective standard) for all properties except IA-11 and IA-13 and VP-average.

104) Pg. D-30, 3rd paragraph: Given the number of properties and the diversity in levels of contamination across portions of individual properties, and among the several properties, the use of the 15pCi/g clean-up level for subsurface Ra-226 contamination may not be appropriate if properties (or portions of properties) have Ra-226 contamination between 5 and 30 pCi/g. (EPA Directive 9200.4-25, Use of Soil Clean-up Criteria in 40 CFR Part 192 as Remediation Goals for CERCLA Sites).

105) Pg. D-31: Specify the dose rate used for establishing the benchmark goal for Th-230 and U-238. As discussed, EPA's view is that 15 mrem/year or below is the protective dose rate for CERCLA actions.

106) PgD-32: Remediation goals for the SLDS ROD are not consistent with what is being proposed for the St. Louis North County Site. The Th-230 surface soil standard for SLDS is 5 pCi/g versus 14 pCi/g for the North County site. We believe the correct approach was used at SLDS.

107) Pg. D-33: 1st paragraph: Disagree that using the laboratory detection limit of 1 pCi/g would produce a total risk of 10^{-4}. Using Table D-8, it would be on the order of 10^{-5}.

108) Pg. D-34, 1st paragraph: Specify quantitatively the proposed acceptable total risk.

109) Pg. D-35, Table D-9: Some of residual means given for the various properties are below the laboratory detection limits specified as 1 pCi/g. Given that this an average concentration, it is not clear how this was measured.

110) Pg. D-37, Table D-11: Again, the indicated Ra-226 Benchmark Dose for residential scenario is not considered protective for CERCLA actions in EPA's view.

111) Pg. D-39, 2nd paragraph: See specific comment No. 104.

112) Pg. D-41, 3rd paragraph: 100 mrem/year used as dose rate for supplemental standards for subsurface and deep soils. Again, 15 mrem/year is the protective dose for CERCLA actions identified by EPA. Therefore the proposed standards do not meet EPA's protectiveness criteria.

113) Pg. D-43, Supplemental Standards for Deep Soils, 2nd paragraph: The deep soil supplemental standards are derived from the supplemental standards for subsurface soils. If they were derived from the unrestricted release criteria of 5 pCi/g or 15 pCi/g, the deep soil standards would be 15 and 45 pCi/g respectively for Ra-226. With the 1000-year timeframe identified in 40 CFR 192, it is not reasonable to preclude that these soils would

never be used in the context of a residential setting. Therefore the input to the deep soil calculation needs to be the unrestricted release level.

114) Attachment 5 to FS (Pg. 83 of 84): Change all references to "Stone Container" to VP2L to be consistent with other references to this property in the FS and supporting studies.

115) Attachment 19 to FS (Pg. 1of 3): "C" versus "A' should be identified for Alternative 5 for the VP2L property.

* * * *

ATTACHMENT B

To Report of Integrated Management & Environmental Solutions
July 14, 2003 Comments on Draft St. Louis North County FS/PP

SUPPLEMENTAL VP2L ANALYTICAL DATA (LETTER FROM DAVID ADLER, DOE, TO GIFREHC (DEC. 13, 1996))

Stone C.
96-546

Department of Energy

Oak Ridge Operations Office
P.O. Box 2001
Oak Ridge, Tennessee 37831—8723

December 13, 1996

Mr. John Katkish, President
First Management Group Investments, Inc.
Suite 246
3201 New Mexico Avenue, N.W.
Washington, D.C. 20016

Dear Mr. Katkish:

HAZELWOOD SITE - IMPROVEMENTS AT 9150 LATTY AVENUE, HAZELWOOD, MISSOURI

As a follow-up to our recent telephone conversations, this letter is to confirm our understanding regarding recent improvements to the trailer lots at the 9150 Latty Avenue property located in Hazelwood, Missouri. These improvements were undertaken by General Investment Funds Real Estate Holding Company (GIFREHC) under the June 28, 1994 agreement between GIFREHC and the Department of Energy (DOE).

As contemplated in the Site Management Plan, we understand that GIFREHC undertook a radiological survey prior to making commercial improvements to the property. GIFREHC's consultant discovered radiological contamination along the fence adjacent to DOE's Hazelwood Interim Storage Site in excess of levels previously identified by our surveys (see Enclosure 1). This information was reported to me by GIFREHC's consultant and I advised him to leave the contamination in place while proceeding with the trailer lot improvements (see Enclosure 2). It is our position that the June 28 agreement fully contemplates and addresses such circumstances and that our commitments regarding remedial action at the property are not affected by these actions.

If you have any questions or would like to discuss this matter further, please give me a call at (423) 576-9634.

Sincerely,

Robert G. Adler

for David G. Adler, Site Manager
Former Sites Restoration Division

Enclosures:
1. Radiological Data and Site Survey Information
2. Zambrana Engineering, Inc. Drawing No. 95086PLB, Sheets 1-3, June 16, 1996

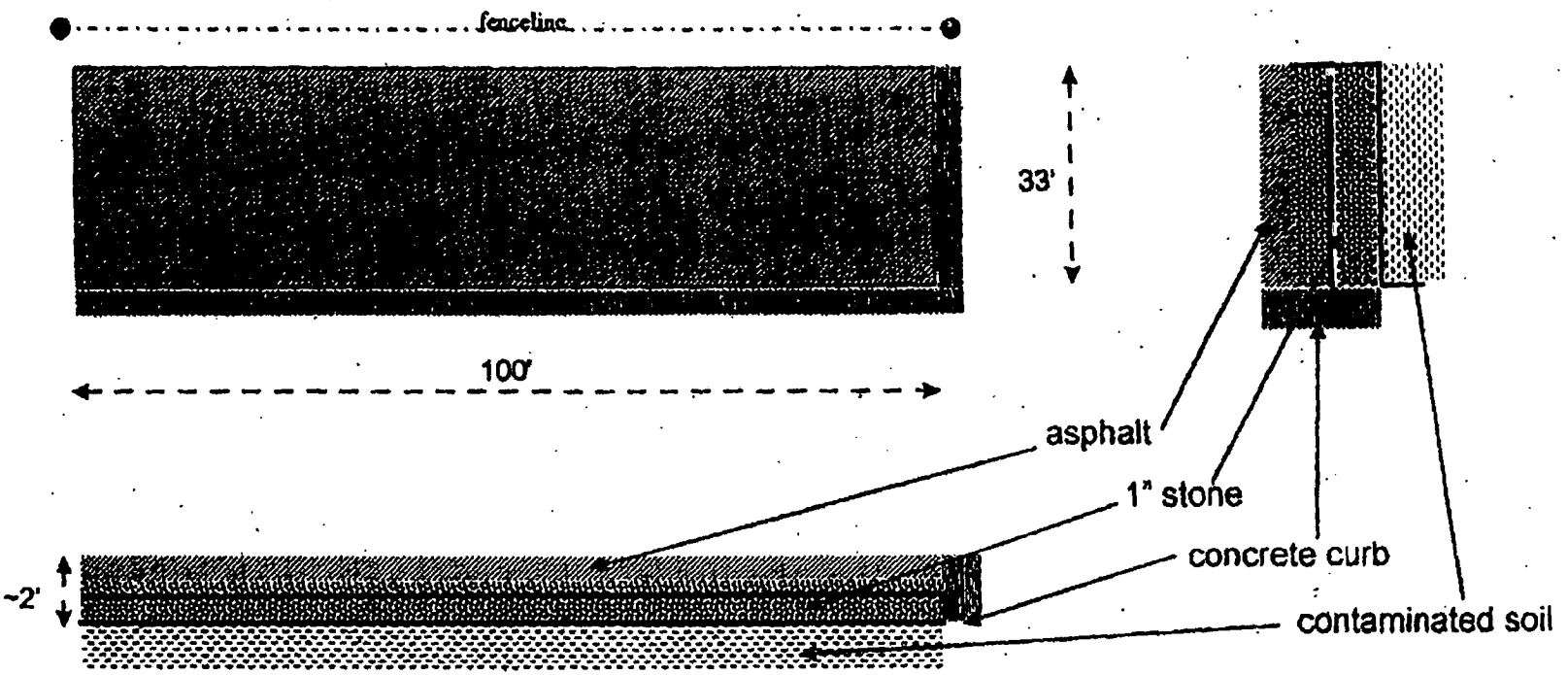
cc w/o enclosures:
C. R. Miskelley, CC-10
J. J. Davidson, Hale and Dorr

SUMMARY

E_NUMBER	CUST_NUMB	BATCH_ID	SMP_ID	DATECOLL	SMP_TYPE	ANALYTE	RESULTS	RAD_ERR	UNITS	ANA_METHOD	DL
		3	GRD16	19960911	REG	TH-230	18.43	3.35	PCI/G	ALPHASPEC	0.08
		7	GRD162	19961002	REG	TH-230	21.86	4.35	PCI/G	ALPHASPEC	0.21
		7	GRD163	19961002	REG	TH-230	63.89	10.97	PCI/G	ALPHASPEC	0.17
		7	GRD165	19961002	REG	TH-230	23.61	4.51	PCI/G	ALPHASPEC	0.17
		7	GRD167	19961002	REG	TH-230	26.68	5.26	PCI/G	ALPHASPEC	0.22
		7	GRD168	19961002	REG	TH-230	30.06	5.96	PCI/G	ALPHASPEC	0.19
		7	GRD169	19961002	REG	TH-230	75.43	14.60	PCI/G	ALPHASPEC	0.11
		7	GRD1612	19961002	REG	TH-230	57.52	10.12	PCI/G	ALPHASPEC	0.28
		7	GRD1613	19961002	REG	TH-230	27.68	5.00	PCI/G	ALPHASPEC	0.15
		8	GRD1615	19961002	REG	TH-230	50.70	8.95	PCI/G	ALPHASPEC	0.18
		11	GRD07	19961014	REG	TH-230	115.40	25.49	PCI/G	ALPHASPEC	0.49
		11	GRD08	19961014	REG	TH-230	1166.00	242.30	PCI/G	ALPHASPEC	0.35
		11	GRD19	19961014	REG	TH-230	183.10	37.42	PCI/G	ALPHASPEC	0.14
		11	GRD09	19961014	REG	TH-230	33970.00	1982.00	PCI/G	ALPHASPEC	4.94
		11	GRD010	19961014	REG	TH-230	9263.00	570.40	PCI/G	ALPHASPEC	4.29

SUMMARY

E_NUMBER	CUST_NUMB	BATCH_ID	SMP_ID	DATECOLL	SMP_TYPE	ANALYTE	RESULTS	RAD_ERR	UNITS	ANA_METHO	DL
		7	GRD00A	19960919	REG	K-40	18.14	2.34	PCI/G	GAMMASPEC	0.25
		11	GRD07	19961014	REG	TH-230	115.40	25.49	PCI/G	ALPHASPEC	0.49
		11	GRD08	19961014	REG	TH-230	1166.00	242.30	PCI/G	ALPHASPEC	0.35
		11	GRD09	19961014	REG	TH-230	33970.00	1982.00	PCI/G	ALPHASPEC	4.94
		11	GRD09	19961014	REG	TH-232	27.71	12.81	PCI/G	ALPHASPEC	3.95
		11	GRD010	19961014	REG	TH-230	9263.00	570.40	PCI/G	ALPHASPEC	4.29
		11	GRD010	19961014	REG	TH-232	18.40	9.89	PCI/G	ALPHASPEC	3.56
		11	GRD07	19961014	REG	K-40	17.47	2.36	PCI/G	GAMMASPEC	0.75
		11	GRD07	19961014	REG	TH-230	46.98	12.04	PCI/G	GAMMASPEC	10.69
		11	GRD08	19961014	REG	K-40	17.52	2.64	PCI/G	GAMMASPEC	1.20
		11	GRD08	19961014	REG	TH-230	619.20	67.77	PCI/G	GAMMASPEC	22.80
		11	GRD09	19961014	REG	K-40	23.98	5.16	PCI/G	GAMMASPEC	2.93
		11	GRD09	19961014	REG	RA-226	144.50	8.29	PCI/G	GAMMASPEC	0.61
		11	GRD09	19961014	REG	TH-230	13570.00	2045.00	PCI/G	GAMMASPEC	184.50
		11	GRD09	19961014	REG	U-235	26.27	2.28	PCI/G	GAMMASPEC	3.11
		11	GRD09	19961014	REG	U-238	156.10	22.37	PCI/G	GAMMASPEC	16.65
		11	GRD010	19961014	REG	K-40	18.52	2.92	PCI/G	GAMMASPEC	1.44
		11	GRD010	19961014	REG	RA-226	35.14	2.10	PCI/G	GAMMASPEC	0.30
		11	GRD010	19961014	REG	TH-230	3646.00	557.50	PCI/G	GAMMASPEC	99.69
		11	GRD010	19961014	REG	U-238	38.36	8.32	PCI/G	GAMMASPEC	10.01
		12	GRD01	19961012	REG	K-40	16.01	1.89	PCI/G	GAMMASPEC	0.36



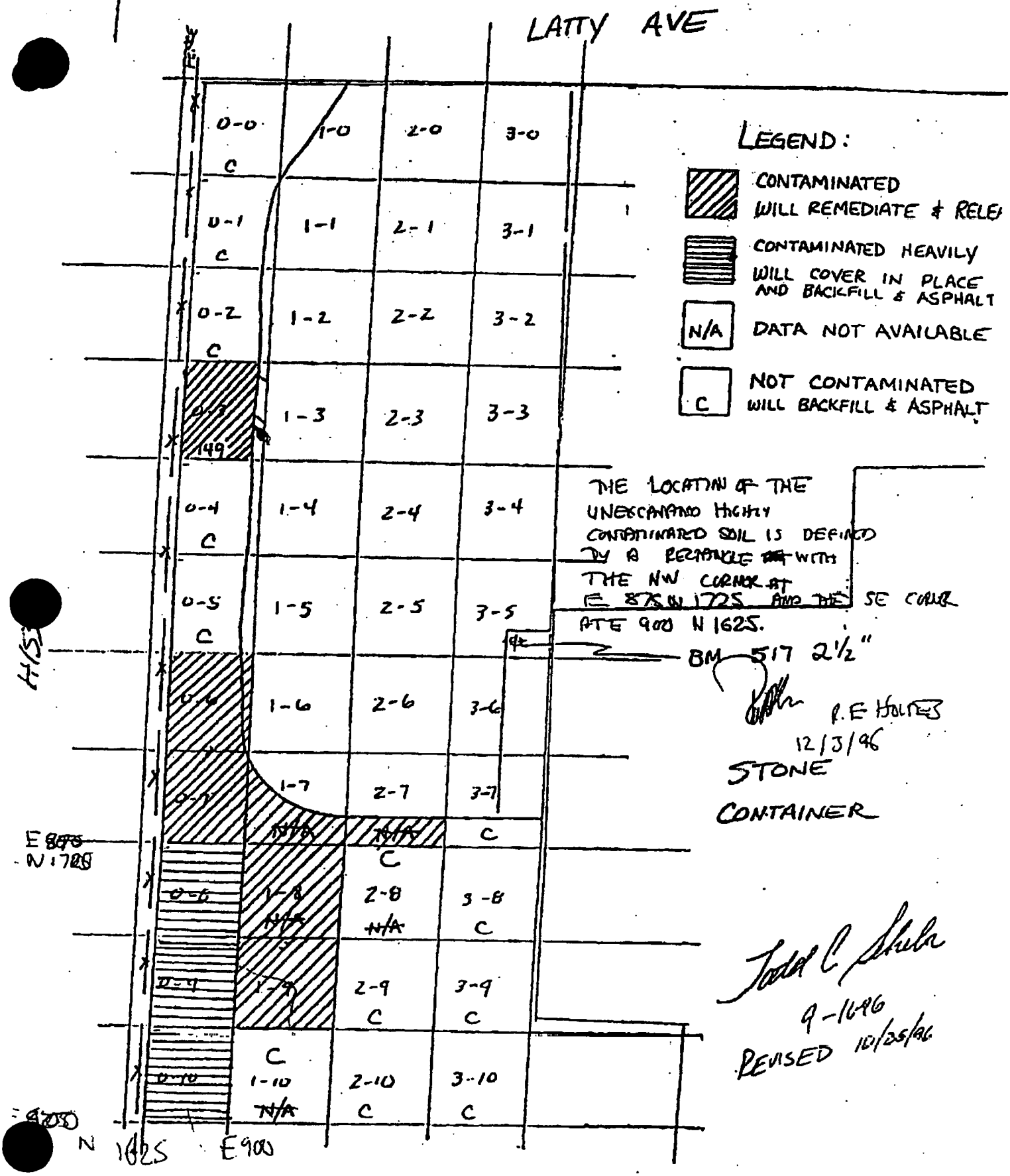
THE LOCATION OF THE UNEXCAVATED HIGHLY CONTAMINATED SOIL IS DEFINED BY A RECTANGLE WITH THE NW CORNER AT E 875 N 1725 AND THE SE CORNER AT E 900 N 1625

- Unexcavated highly contaminated Soil
- 40 mil seamless polyethylene liner
- Concrete curb to be installed at final grade around perimeter
- Clean 1" minus stone
- Asphalt binder and surface

L E Hughes
12/3/96

ATG/Stone Container
9150 Latty Avenue
Berkeley, MO
West Side Excavation Phase 2
Grids 0-8, 0-9, & 0-10
Drawing Not to Scale N

ALLIED TECHNOLOGY GRO'''



RADIOLOGICAL SURVEY REPORT

GS #: GIF- 072

	INSTRUMENTATION USED				
	MODEL	S/N	EFF.%	BKRD	CAL. DUE DATE
DATE: 10-16-96					
TIME: 1255					
SURVEYOR: Kountz/Goldstein	M-19	131291	NA	18 μR	12-19-96
LOCATION: Grid # O-8 (Phase II)	M-2224	132159	20%	α 6 / β 377	8-28-97
REVIEWED BY: Dick Kountz	M-2929	126128	α 390 / β .436	α .4 / β 620	6-14-97

Smear Locations Circled; Dose Rates= μR/hr

PURPOSE OF SURVEY: VERIFICATION SURVEY and Soil Sampling
α/β readings recorded in Counts Per Minute

PROPERTY FENCELINE — ←3'→ — 24' — ↑N — 10m

Row	1	2	3	4	5	6	7	8	9	10
1				24		24		24		18
2										
3				24		26		24		23
4										
5				26		26		24		24
6										
7				26		32		32		28
8										
9				24		60		60		32
10										

α/β' READINGS TAKEN @ Contact = 100 cm²
Each block is ≈ 1 meter ; Micro "R" readings
in approximately 1 meter from surface ; ▯ denotes Fence

SMEAR RESULTS
RESULTS = DPM/100cm²
UNLESS NOTED

#	βγ	α
NA		

RADIOLOGICAL SURVEY REPORT

FOSSIL: GIF-073

DATE: 10-16-96	INSTRUMENTATION USED				
TIME: 1312	MODEL	S/N	EFF.%	BKRD	CAL. DUE DATE
SURVEYOR: Kountz / Goldston	M-19	131291	NA	18 uR	12-19-96
LOCATION: Grid # 0-9 (phase II)	M-2224	132159	20%	α 5 / β 500	8-28-97
REVIEWED BY: Bill Kountz	M-2929	126128	γ 390 / .436 E	α .4 / 62 B	6-14-97

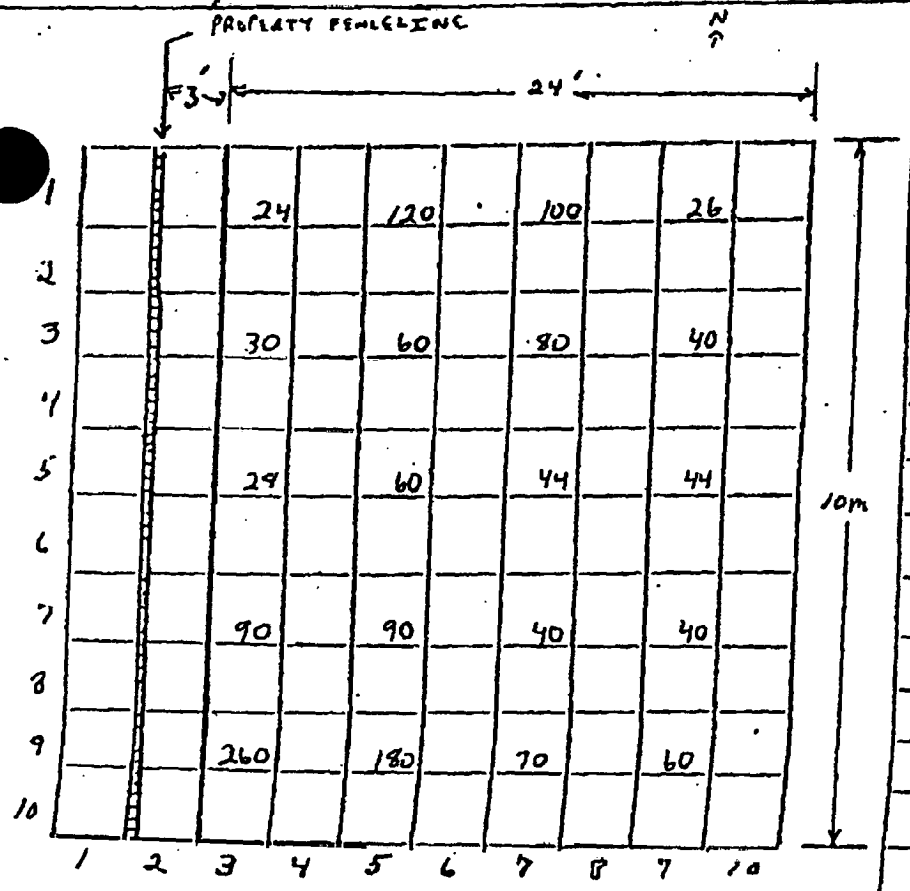
Smear Locations Circled; Dose Rates= uR/hr

PURPOSE OF SURVEY: VERIFICATION SURVEY and Soil Sampling

α/β readings recorded in Counts Per Minute

SMEAR RESULTS
RESULTS = DPM/100cm²
UNLESS NOTED

	II	βγ	α



α/β' READINGS TAKEN @ Contact = 100 cm²

NOTES: Each block is = 1 meter ; Micro "R" readings were approximately 1 meter from surface ; ▒ denotes Fence

RADIOLOGICAL SURVEY REPORT

Page 1 of 2

RSR #: G/F-024

	INSTRUMENTATION USED				
DATE: 10-16-96	MODEL	S/N	EFF.%	BKRD	CAL. DUE DATE
TIME: 1330					
SURVEYOR: Goldstein / Kountz II	M-19	131291	NA	30 uR	12-17-96
LOCATION: Grid #0-10 (phase)	M-2224	132159	20%	α 29 / 900 β	8-28-97
REVIEWED BY: D. Kountz	M-2929	126128	α .390 / .436 β	α .4 / 62 β	6-14-97

Smear Locations Circled; Dose Rates = uR/hr

PURPOSE OF SURVEY: Verification Survey and Soil Sampling
γ/β - readings recorded in Counts Per Minute

PROPERTY FENCE LINE

3' — 24' — 24'

	1	2	3	4	5	6	7	8	9	10
1				170		170		100		40
2										
3				170		150		80		60
4										
5				140		110		50		50
6										
7				170		100		60		50
8										
9			End of Parking Lot							
10										

α/β' readings taken @ contact = 100 cm²

Remarks: Each block is ≈ 1 meter; Micro "R" readings approximately 1 meter from surface; ▯ denotes Fence

SMEAR RESULTS
RESULTS = DPM/100cm² UNLESS NOTED

#	βγ	α
	NA	

ATTACHMENT C

To Report of Integrated Management & Environmental Solutions
July 14, 2003 Comments on Draft St. Louis North County FS/PP

BIOGRAPHICAL PROFILE OF ELISABETH G. FELDT

INTEGRATED MANAGEMENT & ENVIRONMENTAL SOLUTIONS, LLC

6105 Winnebago Rd.
Bethesda, MD 20816
Phone (301)229-6187, Fax (301)229-6188

BIOGRAPHICAL PROFILE OF ELISABETH G. FELDT

Lisa Feldt is president of Integrated Management and Environmental Solutions, LLC (IMES), an environmental firm providing consulting and project management expertise to numerous Fortune 500 companies and the government sector. Prior to founding IMES in 2000, Ms. Feldt had 20 years experience in the environmental and regulatory arena. She has worked for the Environmental Protection Agency (EPA) Superfund and Air and Radiation Programs and the Department of Energy's (DOE) Environmental Management Program.

During her tenure at EPA, Ms. Feldt was one of the key individuals responsible for the establishment and implementation of the technical and regulatory components to the Superfund program. She was the regional program manager for all aspects of the Superfund clean up including preparation and implementation of Remedial Investigation/Feasibility Studies, Proposed Plans, Record of Decisions and the Remedial Design, Remedial Action work for Superfund sites across the country. She received EPA's Bronze Medal for her work on the Love Canal Superfund site and was instrumental in developing the remediation strategies for the Glen Ridge/Montclair Radiation Superfund site. With her expertise and experience, Ms. Feldt was designated as one of the technical experts to the EPA working group responsible for the development of the National Contingency Plan. Ms. Feldt was also the primary technical representative in developing the National Radon program and received EPA's Bronze Medal for her work on addressing radon in schools and homes throughout the country.

While at DOE, Ms. Feldt managed the nation's largest cleanup program, the remediation of the country's nuclear facilities and sites that were used in the nuclear weapons program during World War II and the Cold War. Ms. Feldt was the lead senior manager for developing DOE's nuclear facility deactivation program and received numerous departmental awards for her work for the clean-up of sites and facilities located at Hanford, Oak Ridge, Fernald and Rocky Flats. Her last position at DOE was in the senior executive service working as Chief of Staff to the Assistant Secretary for Environmental Management. As Chief of Staff, she was responsible for all aspects of the nuclear clean up program.. Her key work as a senior technical advisor on the Waste Isolation Pilot Plan, a first-of-kind, world-class repository for radioactive waste earned her special recognition by the Secretary of Energy. Ms. Feldt left the Department in 2000 after over fifteen years of service. She received the Distinguished Career Service Award where she was recognized for her significant role in "remedying the environmental problems faced by this Country, and has been distinguished by exemplary performance and significant contributions to the success of the programs."

FUSRAP Document Management System

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Author/Originator: Lisa Feldt | Company: Integrated Manageme | Date: 7/14/2003

Recipient (s): Sharon Cotner | Company (-ies): FUSRAP | Version: Final

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Include in which AR(s)?

- ☑ North County
- ☐ Madison
- ☐ Downtown
- ☐ Iowa

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