August 5, 2004

Ms. Susan Crowley
Kerr-McGee Chemical LLC (KM)
PO Box 55
Henderson, Nevada 89009

Re: **Kerr-McGee Chemical Corporation LLC (KM)**
NDEP Facility ID #H-000539
Nevada Division of Environmental Protection Response to:
Revised Site-Related Chemical List(Report) dated July 22, 2004

Dear Ms. Crowley,

The Nevada Division of Environmental Protection (NDEP) has reviewed the aforementioned document and provides the following comments:

1. For ease of review and cross-checking it is requested that an alphabetical list of site-related chemicals (SRC) be provided to supplement the SRC list as submitted.
2. As indicated in the NDEP's June 21, 2004 letter, laboratory (instrument) detection limits are not listed for a number of chemicals. Please provide the remainder of these detection limits in a revised submittal. The response provided by KM in item #3 discusses the difference between instrument detection limits and method detection limits. This does not answer the NDEP's question.
3. Per comment #4 in the NDEP's June 21, 2004 letter, please include heavy metal sulfides and various lab wastes on the SRC list or provide a text justification for not including these mixtures.
4. In comment #4 KM states that "chemicals such as graphite and diatomaceous earth are not known to pose significant environmental or health concerns". This statement is irrelevant to the development of a list of all chemicals potentially associated with the site. Also, the NDEP would like to note that it may be appropriate to eliminate SRC from further site characterization and risk

assessment due to no toxicity (chemicals with low toxicity will need to be retained for further evaluation), rapid breakdown in the environment, insignificant volume of breakdown product, or other factors that eliminate health risk, however, these chemicals/compounds should be retained on the SRC list for tracking purposes.

5. In comment #5 KM states that "magnesium is a naturally occurring metal present in the soils, groundwater and drinking water; it is not typically a threat to human health or the environment". Please see comment #4 above.
6. In comment #6 KM states that "Kerr-McGee has limited knowledge of the exact chemical composition of many of the examples cited". Further investigation and justification is needed on this topic. If KM believes that the proposed analyses for unknowns (as presented in KM comment #7) is sufficient to address these mixtures then KM should state this. If KM does not believe that the analyses proposed for unknowns is sufficient to address these mixtures then KM should either 1) expand the analyses for unknowns or 2) perform additional research to determine the chemical makeup of the mixtures.
7. In comment #6 KM states that "identifying specific degradation by-products for each of the chemicals listed on the site-specific chemical list is unnecessary…most chemicals within a specific chemical family is expected to degrade in a reasonably predictable way". The NDEP believes that this justification is inadequate. The NDEP requests that KM review each of the SRC and determine if the degradation by-products are being addressed by the proposed analyses. The NDEP has contracted with independent chemists, radio-chemists, and toxicologists to review the SRC list for the entire BMI facility and identify the degradation by-products as applicable. If KM chooses to not complete the review of it's degradation by-products at this time, re-analysis or re-sampling may be required in the future for analytes that were not addressed. The NDEP is not requiring KM to perform this review, however, it is highly recommended for the sake of historic documentation and to reduce costs due to re-analysis/re-sampling.
8. In the NDEP's June 21, 2004 letter to KM, comment #6b, a list of mixtures was provided. KM did not provide a response to "solvents". It is expected that this could be addressed within KM response #7, Table 2.
9. In response to comment #7b, please explain why manganese, tungsten and platinum were excluded from the list of metals. Manganese and platinum are both associated with KM operations and tungsten is a metal that is believed to be related to the former BMI operations. Also, please explain why cyanide and radionuclides have been excluded from this list.
10. In response to comment #7, Table 1, the NDEP has the following comments:
    a. Please note that methods 8081, 8081A address only organochlorine pesticides. Please change the "chemical, compound, category or element" heading to organochlorine pesticides.
    b. For herbicides it appears that the method is incorrectly listed as "EPA 8051". The correct method appears to be method 8151A for chlorinated herbicides. Please review this issue and respond.
11. In response to comment #7, Table 2, the NDEP has the following comments:

a. It appears to the NDEP that the broad class of chemicals listed as "acids" and "bases" would also require cation, anion, and metals analyses.
b. Based on the National Environmental Methods Index it appears that method 8015(C) will address ethylene glycol but not propylene glycol. Also the CAS number listed is the CAS number for ethylene glycol. If KM has institutional knowledge that suggests that only ethylene glycol was used at the site please explain. Otherwise it is necessary to include and document a method for propylene glycol as well as ethylene glycol.
c. For chlorinated herbicides it appears that the method is incorrectly listed as "EPA 8051". The correct method appears to be method 8151A. Please review this issue and respond.

12. In response to comment #8c, the response does not answer the NDEP's question. Please explain how KM will address a scenario where the instrument detection limit exceeds the screening level or explain when (and in what document) KM will address issue.
13. In response to comment # 13b, the NDEP would like to note that Method 8310 may have lower detection limits for some PAHs. This may be an issue that KM may want to address in the future.
14. In response to comment #15, the NDEP would like to note that a number of the radionuclides in the Thorium 232 and Uranium 238 decay series have been omitted. Including (but not limited to): Actinium 228, Lead 210, Lead 212, Bismuth 212, and Thorium 234. Please re-evaluate the radionuclides include on the SRC list and explain. Also, the isotope number has not been provided for Polonium. Please explain what isotopes of Polonium will be analyzed.
15. In response to comment #15a, the NDEP would like to note that regardless of half-lives, elevated levels of radon 222 have been found in groundwater immediately adjacent the KM site. The NDEP suggests that radon 222 be added to the SRC list.
16. To clarify comment 15b, it should be noted that adjusted gross alpha does not subtract Radon 222 and Uranium. This adjustment subtracts the effects of these compounds. Radon 222 is lost during the preparation of the sample for EPA Method 900.0 and it is important to not remove the effects of radon 222 twice.
17. In comment #16a KM states that "those site-related chemicals that are non-hazardous or those site-related chemicals that do not pose a threat to human health or the environment should not be critical elements of the list". As discussed in our meeting, the NDEP disagrees. The NDEP believes that it is useful to do a thorough analysis of the universe of site-related chemicals and to document the reasoning for excluding chemicals from further analysis (where applicable).
18. In response to comment #16g, the NDEP disagrees with KM's statement. Please explain how EPA method 8015M will address other components of petroleum hydrocarbons (including but not limited to): lead, naphthalene, fluorene, BTEX compounds and MTBE (if applicable at the site).
19. In response to comment #16i, the NDEP requested an explanation for what was meant for the category labeled "non-halogenated" as it appeared to be a truncated version of "non-halogenated organics". KM stated "non-halogenated organics has been deleted, as requested" with no further explanation. This does not respond to

the original question. If this category was erroneously included KM should have stated as such and deleted the category. The NDEP can only assume that this is the case since no explanation was provided.

20. On the SRC List Table the NDEP has the following comments:
    a. This table still has a number of QA/QC issues. As the NDEP explained to KM, each submittal should represent the "best effort" of KM. The NDEP can not expend it's limited resources reviewing documents that have numerous errors. Due to the number of errors the NDEP did not verify the validity of all of the analytical methods present. Once KM has reviewed the QA/QC issues with this document and re-submitted the NDEP will perform a more thorough review.
    b. It appears that some of the proposed analytical methods can be consolidated in to other methods (e.g.: 8260, 8270) that are proposed for other compounds and KM can realize an analytical cost savings (see specific comments below for examples). The NDEP requests that KM evaluate this and respond.
    c. For a number of chemicals/compounds (for example, anti-foam agent, argon, chelant, coagulants, coal, coke, sodium alpha olefin sulfonate) the analytical method listed is "None". It is necessary to provide an explanation for each of these situations. If no analytical method exists then a discussion on the feasibility of method development is necessary. If a method exists but KM is not proposing to analyze for this chemical/compound then adequate justification is required. For clarity, it is suggested that chemicals that KM proposes to not analyze be placed at the end of this list under a distinct header or be placed on a second table.
    d. For sodium alpha olefin sulfonate it appears that analysis for sodium would be sufficient to address this compound.
    e. Please provide a text justification for the use of EPA Method 8015B for "flammables'.
    f. Also, for boric acid, the NDEP believes that it would also be appropriate to include the analysis for pH in the list. This comment is typical for all acids and bases. KM should review the entire list and address this issue.
    g. For boron tribromide the analysis for bromide is not included and for boron trichloride the analysis for chloride is not listed. It may also be appropriate to include the alkalinity analysis for the carbide portion of boron carbide. This comment is typical for a number of examples in the list and should be addressed.
    h. Calcium chloride is proposed to be addressed by calcium and sulfate analysis. This appears to be a typographic error. This and all other typographic errors should be addressed.
    i. Chlorine is listed as being an air contaminant only, however, an analysis is listed. Please explain if KM plans to analyze for chlorine in the air or if this is a typographic error. If the chemical is not proposed for analysis the notes should state this.
    j. Paints included analysis "8015 as VOC". It appears that this should be method 8260 for VOCs.

k. Several compounds included methods 6010/6020 analysis for silicon dioxide. It appears that it would be more appropriate to state that this analysis is for silica.
l. Sodium dichromate lists methods 6010/6020 for chromium. Please verify if any hexavalent chromium could be present in this compound and include the analysis for hexavalent chromium (if necessary).
m. Please include the words "as sodium" after the words "EPA 6010, 6020" for sodium hyposulfide
n. Unless KM can provide additional details, the NDEP suggests that "tank mud" also include analyses for cations, anions, pH, and hexavalent chromium.
o. Titanium tetrachloride includes a line that states "as tetrachloride". The NDEP believes that the analysis is intended to be for chloride. Please verify and correct this issue.
p. KM includes analysis for ammonia by methods 350.1 (various compounds) and 350.2 (urea). Please explain the rationale for utilizing two methods.
q. The method for sulfate is listed as 300.1. Is this supposed to be method 300.0?
r. Nothing is filled in for the phosphorous row. Please explain.
s. Under VOCs it appears that ethylbenzene, methanol, MIBK, chlorinated organics and chlorinated paraffins can be addressed by method 8260B. Please explain.
t. Under total petroleum hydrocarbons it would be helpful to list which petroleum hydrocarbons (diesel, gasoline, grease, oil, paraffin wax, etc.) will be addressed by each analysis.

By **September 27, 2004** KM shall address the issues outlined herein. Should you have any questions or concerns, please do not hesitate to contact me at (702) 486-2870.

Sincerely,

Brian A. Rakvica, P.E.
Staff Engineer III
Remediation and LUST Branch
Bureau of Corrective Actions
NDEP – Las Vegas Office

BAR/bar

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