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STATE OF NEBRASKA

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Governor

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MAY 21 2010

Mr. Jeffrey McDermott
Union Pacific Railroad Company
1400 Douglas Street
STOP 1030
Omaha NE 68179

Re: Remedial Action Plan (RAP), dated February 1, 2010
Nebraska Solvents Co., 1200 East Highway 30, Grand Island, Nebraska;
IIS 54629 RAPMA 36-336-4923

Dear Mr. McDermott:

The Nebraska Department of Environmental Quality (NDEQ) has reviewed the above referenced document. Although the Department is in general agreement with most of the investigation procedures, conclusions and proposed remedial actions, additional revisions to the RAP are necessary.

Attached to this letter are the Department's review comments on the RAP. Please revise the RAP according to the comments and submit the revision to NDEQ within 60 days of receipt of this letter. If you have any questions, please contact Laurie Brunner, Tom Buell, or me at (402) 471-3388.

Sincerely,

Mike Felix

Mike Felix
Section Supervisor
Remediation Section
Waste Management Division

Cc w/a: Mike Mason, Foth Engineering
Robert Kick, Foth Engineering

20100027602

Remedial Action Plan (draft), February 1, 2010
Nebraska Solvents Co., 1200 East Highway 30, Grand Island, Nebraska;
IIS 54629 RAPMA 36-336-4923
NDEQ Review Comments

General Comments

1. The RAP should include a completed RAP Checklist (Attachment 2-1 of the VCP Guidance Document). Completion and submittal of the RAP checklist will assist the applicant with developing a complete RAP and will also expedite the Department's review of the RAP.

2. As described in the RAPMA statute and the executed Memorandum of Agreement for this site, the RAP should include information indicating that UPRR holds or can acquire title to all lands or has the necessary easements, right-of-way and/or access for the project and related lands (i.e. please include copies of all applicable ownership titles, access agreements, or other documents pertaining to any land where remedial actions will take place).

3. In general, the investigation portion of the RAP is very thorough. However, the information contained in various sections of the RAP need to be reorganized to be consistent with the VCP Guidance. The Sampling and Analysis Procedures section should describe and explain the design, methods, and rationale of the investigation. It should discuss the sampling locations and intervals, in addition to the types of samples collected (i.e. groundwater, soil, soil gas). It should not contain the results of any physical site characterization or nature and extent of contamination. The Physical Site Characterization and Nature and Extent of Contamination sections should present results of physical and chemical sampling for all media. The Remedial Action Work Plan section of the RAP should also follow the format of the VCP Guidance. The Remedial Action Objectives (RAOs) need to be revised to be consistent with the VCP Guidance. In addition, some of the proposed remedial actions need more details.

4. The Nature and Extent of Contamination Section should include various isoconcentration contour maps. Please compile all groundwater sampling locations (direct push and permanent monitoring wells only) on a single, large folding base map with a scale of 1" = 600 ft. Construct isoconcentration contour maps using this base map showing detections at these locations. Construct these maps for all chemicals of concern that occur in concentrations exceeding MCLs or risk-based standards. In addition, maps should also be prepared with only the permanent monitoring well data to assist in evaluation of the adequacy of the permanent monitoring well network for use as a remedial performance monitoring system.

5. The Department requests that a work plan be provided to describe additional bulk soil sampling east of the on-site area. This work plan will be treated as pre-design and can be submitted after the final RAP is approved. An additional work plan is needed to describe additional soil gas sampling for the vapor intrusion evaluation discussed in the RAP. In addition, a Monitored Natural Attenuation (MNA) Study is needed to determine if MNA will achieve aquifer restoration in a reasonable timeframe. These plans may also be submitted as pre-design plans after the final RAP is approved. Please also see specific comment #7 related to 1,4-Dioxane.

6. Based on the preliminary results for the split sampling conducted in April, 2010, breakthrough of the carbon filters is occurring for 1,1-Dichloroethane (1,1-DCA) and cis-1,2-Dichloroethene (cis-1,2-DCE) when lower analytical reporting limits are used. While concentrations detected in the post-treatment samples have been below MCLs or risk-based standards, please address

what response, if any, will be performed in terms of alternate water provisions. Please also see specific comments #7 and #25.

Specific Comments

1. Executive Summary, Pages x-xiii

Please update the Executive Summary as the Investigation Report and Remedial Action Work Plan sections of the RAP are revised. In addition, the Executive Summary should include a statement or description of future land use plans for the former NSC facility, including the building.

2. Hydrogeology, Section 1.2.6, Pages 3-4

a) Please describe any high volume irrigation wells in the area that may impact the groundwater flow direction.
b) Please include a description of the type and characteristics of any underlying aquitard or low permeability zone(s).

3. Historical Operations and Site Conditions, Section 1.3, Pages 4-5

a) This section should include a detailed description of the types and quantities of the various solvents and fuels stored and distributed during the NSC operations. In addition, this section should describe the types, quantities, management practices and rates of hazardous wastes historically generated, received, disposed of, or managed at the site. NDEQ files have additional information about RCRA hazardous wastes managed at the site.
b) Please prepare a site map showing locations of previous site features related to the NSC operations. Please include the location of any septic tank/leach field, loading docks (both truck and railcar), drum storage areas, underground storage tank locations, and above-ground storage tank locations. Please use a scale for the map similar to that in Figure 2-2.
c) Please include copies of historical aerial photographs. It is not necessary to include every aerial photograph for the site, but the report should provide a representative sample of the photographs (i.e. one or two photographs from each decade) with an emphasis on the years the facility was in operation, and any photographs that indicate changes in facility operations. In addition, please include the source of the photographs, such as the flight and frame number, as well as the date.
d) Please include a chronology and description of known or suspected environmental incidents, spills, or releases of hazardous substances or pollutants.

4. Current Operations and Site Conditions, Section 1.4, Page 5

Please expand this section to discuss land use in areas related to near-site industrial operations and residential and other uses in the impacted area downgradient of the site.

5. Previously Reported Investigations, Section 1.5, Pages 5-7

a) NDEQ files have additional information concerning removal of USTs related to tank and pit inspection observations. Please include this information in the narrative summary of this section.
b) The VCP Guidance document states that in addition to a narrative summary of information from previously reported investigations, the data from the reports should be tabulated and

copies of the original reports included in an appendix. The narrative summary should refer to the location of these data tables and reports in the RAP. Please address.

6. Data Quality and Temporal Variability, Section 1.5.2, Page 7

The VCP Guidance document states that the temporal variability of the previously collected data should be determined. Examples of such data would include chemical data used to define the extent of groundwater contamination and water level data from monitoring wells. Please address.

7. Potential Chemicals of Interest, Section 1.6, Pages 7-8

a) The RAP states that VCP groundwater Remediation Goals (RGs) are based on the direct contact exposure pathway and correspond to the U.S. EPA maximum contaminant level concentrations. Groundwater RGs are based Maximum Contaminant Levels established under Nebraska Title 118, Chapter 4. Absent an established MCL, the RGs for groundwater were established at a concentration estimated to result in an excess lifetime cancer risk of 1×10^{-6} for carcinogenic compounds or a hazard quotient of less than 0.25 for non-carcinogenic compounds, and are based on the ingestion and inhalation pathway for volatile compounds, as well as dermal pathway for appropriate compounds. This is explained in more detail in the *Protocol for VCP Remediation Goals Lookup Tables* (VCP Protocol). Please revise section 1.6, and any other section of the RAP that refers to the RGs for groundwater being based on direct contact exposure, to be consistent with the VCP Protocol.

b) The groundwater and soil migration to groundwater VCP RGs for 1,1-dichloroethane listed in Table 1-2 are incorrect due to incorrect numbers identified in the VCP Protocol. The correct RGs are 2.4 ug/l for groundwater and 0.0007 mg/kg for soil migration to groundwater based on a 1×10^{-6} cancer risk level identified in EPA's "Regional Screening Levels (RSL) for Chemical Contaminants at Superfund Sites" (December, 2009). Please also note the EPA Region 7 has calculated a site-specific risk-based level of 2.0 ug/l for 1,1-DCA at the Parkview Well Site in Grand Island. Please also see general comment #6 and specific comment #25.

c) High concentrations of 1,1,1-Trichloroethane (TCA) have been detected in groundwater at the site. 1,4-Dioxane often has been used with chlorinated solvents, particularly TCA, as a stabilizer and corrosion inhibitor. As such, the presence of 1,4-Dioxane in the soils and groundwater at the site needs to be investigated.

8. Data Gaps, Section 1.7, Page 8

Please include that additional bulk soil sampling is needed to characterize the extent of soil contamination and the potential for migration of contaminants to groundwater in the area east of Willow Street and west of Stuhr Road. In addition, soil gas and groundwater sampling are needed to address the potential for vapor migration from groundwater or soil to indoor air east of the site, and for the potential vapor intrusion risk to future construction activities east of the site.

9. Investigation Objectives, Section 2.1, Page 8

This section states that it is an NDEQ policy that requires delineation of impacted soil and groundwater. Fully delineating the lateral and vertical extent of groundwater contamination to MCLs or risk-based standards in absence of MCLs is required by Nebraska Title 118 – Groundwater Quality Standards and Use Classification. As described in the VCP Guidance, delineation of soil contamination should be to the most conservative value, which is either the residential direct exposure pathway or the soil migration to groundwater pathway. Please remove the word "policy" from the first sentence and revise accordingly. Please also delete reference to "remedial investigation" and replace with "VCP investigation".

10. Monitored Natural Attenuation Sampling, Section 2.3.3.2, Pages 15-17

a) The results from the MNA sampling should be discussed in the proposed Remedial Action Work Plan section of the RAP to support the use of MNA at this site.
b) The report states that wells were purged prior to collection of a groundwater sample in accordance with SOP 220A: *Low Flow Sampling for Non-Volatile Analysis*. Please include a copy of this SOP in an appendix to the report. Please also discuss the applicability of the use of peristaltic pumps for groundwater sampling for both VOCs and MNA parameters.
c) Please describe in the narrative of this section the list of field parameters that were measured during sampling events. Discussion of the significance of these measurements should also be included in the proposed Remedial Action Work Plan section of the RAP to support the use of MNA at this site.

11. Source Area Well Abandonment and Investigation, Section 2.3.3.4, Pages 20-21

a) NDEQ does not regulate well abandonment in Nebraska; it is regulated by Nebraska Departments of Natural Resources (DNR) and Health and Human Services (HHS). Well abandonment standards are regulated by HHS, and after a well is abandoned it must be registered with DNR. Please replace NDEQ with DNR and HHS.
b) The report describes the investigation of two historic sump pits located on the site. The investigation of these two sumps consisted of pumping the stagnant water out and discharging it to the ground surface, then removing the sludge that remained and placing the sludge on plastic sheeting. After observing the condition of the sump pits the sludge was placed back into the pits. Please clarify whether the sludge in the sump was sampled, and if the groundwater pumped out of the pits was sampled prior to discharge. Please also explain why the sludge was placed back into the pits and not properly disposed.
c) TCLP analysis of the soil samples collected from SB-29 appear to fail the TCLP limit of 0.7 mg/l for PCE. Please explain how the soil cuttings were managed from this boring.

12. Monitoring Well Installation and Sampling, Section 2.3.3.6, Pages 21-22

Please specify in the narrative of this section that all monitoring wells were constructed with 5 feet of screen as indicated in Table 2-21.

13. Quality Assurance/Quality Control, Section 2.3.4, Pages 26-27

Please include in an appendix a copy of the site-specific Quality Assurance Project Plan (QAPP) that was used for all of the environmental data collected at the site. See the VCP Guidance for more information.

14. Investigation-Derived Waste, Section 2.5, Pages 27-28

a) The report describes that waste water generated as part of the investigation was stored in 55-gallon drums, and that water not exceeding MCLs for COIs was thin-spread over the site. Please include information on the disposition of any IDW water that exceeded MCLs or risk-based standards in absence of MCLs for the COIs.

b) Soil cuttings from monitoring well installation were characterized for disposal using Toxic Characteristic Leaching Procedure (TCLP) Volatile Organic Compound (VOC) method. The report states that total VOC analytical results were compared to residential direct contact exposure pathway from the VCP RG Lookup Tables, and that some soil was disposed of at the Grand Island landfill, while some was thin-spread on the site. Please clarify whether the soil cuttings passed TCLP tests. See also comment #11.

15. Soils and Geology, Section 3.2, Pages 28-30

a) Please include at least four geologic cross-sections. Include north to south sections through the three general cleanup areas, and a west to east section showing the source area to the toe of the plume. The cross-sections should illustrate the vertical and horizontal geometry and lithology of geologic strata underlying the site, in addition to aquifer extent, well construction including screened interval, and isoconcentrations of the primary contaminants. The sections may be constructed using the electrical conductivity logs or well completions, and should be consistent with the conceptual site model (CSM) shown in Figure 7-1.

b) Please include a brief mention and discussion of the clean fill placed near the former NSC building in the soils discussions on page 29.

c) The concept of lateral variation of hydraulic conductivity and permeability as a function of the depositional environment is a key to understanding the contaminant flow path. Please make section 3.2.1 consistent with section 1.2.5. For example, the depositional environment is described in Section 3.2.1 as braided fluvial systems, resulting in fining upward stacked fluvial sequences, and as alluvial/eolian and fluvial in Section 1.2.5.

16. Hydrogeology, Section 3.3, Pages 30-33

Please include a discussion of any evidence for vertical hydraulic gradients and any influence from irrigation or other well pumping. A discussion of seasonal and temporal fluctuations in groundwater flow should also be included if enough water level data has been collected to determine if seasonal or temporal fluctuations exist. In addition, please include multiple potentiometric surface maps to illustrate if any seasonal or temporal fluctuations exist, and discuss any differences in the report.

17. Air, Section 4.2, Pages 34-38

This section should evaluate two exposure pathways – air inhalation from direct contact with soils and intrusion of vapors into underground or slab on grade structures. This section appears to only evaluate the vapor intrusion pathway. Please address.

a) Please include figures showing the locations of the 45 soil gas sampling points installed in the source area, mid-gradient and downgradient plume areas and reference these figures in the narrative of this section.

b) Please include a table of soil gas results for detected constituents and reference this table in the narrative of this section.
c) Please number the tables in these sections for ease of reference. The table heading on page 36 should be for the near-source area, not source area. The table heading at the top of page 38 should be for the mid-gradient and downgradient plume areas, not the source area. For consistency with NDEQ's draft VCP Vapor Intrusion Guidance, please present soil gas/vapor data in $\mu g/m^3$ rather than ppb/v. Please also include in the tables the target indoor air concentrations used to calculate the soil gas screening levels.
d) Vinyl chloride concentrations in groundwater appear to increase to the east of the former NSC facility and the depth of contaminants in groundwater remains very shallow. As such, the potential for vapor intrusion from groundwater in the area east of Willow Street and west of Stuhr Road needs to be evaluated. Additional groundwater sampling is needed in this area to evaluate this potential.
e) The value for acceptable risk from a non-carcinogen in a residential setting should be set at a hazard quotient of 0.25 instead of 1.
f) Please include the calculated attenuation factor in the tables.

18. Source Area Groundwater, Section 4.4.1, Page 39

This section indicates the deepest groundwater impacts were at 30 feet, however deeper samples were not impacted. Please clarify. Please also see comment #20.

19. Contaminant Fate and Transport, Section 5, Pages 40-44

a) The Contaminant Fate and Transport section should (1) describe contaminant characteristics, and (2) describe site characteristics. This description should include not only a general discussion of contaminant fate and transport mechanisms, but also a site-specific discussion in the context of the contaminants detected at the site and the site-specific characteristics that would influence contaminant fate and transport. Contaminant characteristics should describe chemical and physical properties, contaminant persistence, transport and partitioning, and transformation and degradation. Currently only transformation and degradation are discussed in the RAP. Site characteristics should include environmental media, migration pathways, preferential flow pathways, and exposure pathways. Please revise this section of the RAP to more closely follow the VCP Guidance
b) Please discuss whether the site is under aerobic or anaerobic conditions. In addition, the RAP explains three types of chlorinated solvent plume behaviors, Type 1, 2, and 3. Please indicate where the different behaviors are in effect and apply the general discussion to the site specific conditions.

20. Site Impacted Media, Section 6.1, Pages 45-46

a) The purpose of this section is unclear. The main section is titled "Potential Receptors," which should describe both human and ecological receptors. However, the Site Impacted Media section describes a brief overview of the nature and extent of contamination. If new information is being presented on the nature and extent of contamination please move it to the Nature and Extent of Contamination section.

b) This section also indicates the deepest groundwater impacts were at 30 feet, however deeper samples were not impacted. Please clarify. Please also see comment #18.

21. Potential Human Receptors, Section 6.2, Pages 44-45

a) Please include a discussion of land use near the site, including private well use for commercial and/or residential use.
b) Please include a map that illustrates the locations of residences currently supplied by municipal water supply for the entire site, including businesses located directly east of the former Nebraska Solvents property to the toe of the groundwater plume.
c) Evaluation of potential human receptors should be performed prior to any interim actions taken such as alternate water provisions in order to fully understand the potential risks posed at the site. As such, ingestion, inhalation and dermal contact with COIs in groundwater for off-site residents and non-residents should be added as a complete pathway, in addition to this pathway being identified as a future hypothetical pathway.
d) The Nebraska Department of Health and Human Services currently recommends using treated water for whole house use, other than ingestion, if the PCE concentration exceeds 21μg/l based on inhalation and dermal contact.

22. Ecological Receptors, Section 6.3, Page 47

The Ecological Receptors section should discuss the surface water body (pond) located directly north of the site.

23. Conceptual Site Model (CSM), Section 7, Pages 48-52

The CSM should provide a summary of how and where the contaminants are expected to migrate and the affect that migration is expected to have on human health and the environment. In addition to describing current site conditions, the CSM should incorporate future potential land use and potential exposure pathways. And finally, the CSM should demonstrate why the contamination is a problem and remedial action is necessary. Please revise the discussion on the CSM in accordance with the VCP Guidance.

24. Summary and Conclusions, Section 8, Pages 51-54

a) This section should be revised to also summarize potential impacts to human health based on the completed exposure pathways.
b) The full extent of soil impact has not been defined east of the site. Please revise the statements in Sections 8.1 and 8.1.1 on page 52 to indicate that the extent of bulk soil contamination and the vapor intrusion pathway east of Willow Street and west of Stuhr Road has not been fully defined.
c) Please include a brief discussion of potential vapor intrusion impacts. Describe why vapor intrusion is not expected to be a complete exposure pathway east of the Stuhr Road.

25. Interim Remedial Actions, Section 9, Page 54-55

a) The title of Section 9 should be revised to Remedial Action Work Plan. The discussion of Interim Remedial Actions should be the first sub-section of the Remedial Action Work Plan. Sections 10-15 should also be incorporated as sub-sections in Section 9, Remedial Action Work Plan.

b) Please provide additional documentation to support the statement that groundwater restoration to MCLs is technically impracticable. In addition, please remove the discussion of the water line extension until the section on proposed remedial actions.
c) This section indicates that alternate water was provided for residences with detections of PCE and in one case with detections of TCE. Please address how detections of 1,1-DCA will be responded to in terms of alternate water provisions. Please also see general comment #6 and specific comment #7.

26. Remedial Action Objectives, Section 10, Page 55

a) Remedial action objectives (RAOs) are statements that define qualitative goals and quantitative levels of cleanup for each of the contaminants identified at the site. RAOs should be specific for chemicals of concern, exposure pathways, potential receptors, cleanup levels as determined by the lookup tables, locations for points of compliance, and a timeframe for which the remedial actions will be completed.
b) Nebraska Title 118 – *Groundwater Quality Standards and Use Classification*, Appendix A – Groundwater Remedial Action Protocol establishes a pollution ranking system for groundwater in Nebraska. The specific Remedial Action Class (RAC) is dependent on current or potential use of groundwater as drinking water. RACs range from RAC-1 to RAC-3, with RAC-1 sites requiring the most cleanup extensive cleanup and RAC-3 sites the least. As discussed in a letter to UPRR from NDEQ dated November 12, 2009, the Department has determined that the Nebraska Solvents site is a RAC-1. This was determined by the existing and potential use of groundwater in the area for private drinking water and by documented impacts to private drinking water wells. Also discussed in this letter were typical remedial action measures at RAC-1 sites, these measures include: (1) source control to minimize further degradation of the groundwater, (2) cleanup of readily removable contaminants (e.g. free product), (3) cleanup of dissolved groundwater contamination, (4) restoration of the aquifer to MCLs within a reasonable timeframe (up to 20 years), (5) prevention of further contaminant migration in the groundwater, (6) provision of alternative water supplies to affected residences, and (7) use of institutional controls to minimize the potential for human exposure to contamination and to protect the integrity of the remedial action. Please revise the RAOs to be consistent with a RAC-1 site. In addition, please revise RAOs to include specific cleanup levels and specific timeframes. Nebraska Title 118 defines a reasonable timeframe as 20 years.
c) Also included in the November 12, 2009 letter was an explanation of the VCP soil remediation goals for the site. The VCP lookup tables have two values for soil remediation, direct exposure and migration to groundwater. Direct exposure is based on inhalation, ingestion, and dermal contact. Migration to groundwater assumes a dilution attenuation factor (DAF) of 20; which essentially means that a 20-fold reduction in contaminate concentration between the soil and the groundwater table. However, as explained in the letter, because groundwater at the former Nebraska Solvents site is extremely close to the ground surface the Department recommends using a DAF of 1. Soil cleanup levels using a DAF of 1 can be found in EPA's "Regional Screening Levels (RSL) for Chemical Contaminants at Superfund Sites" (December 2009). Please reference using a DAF of 1 in any RAO that relates to remediation of source area soil.

27. Source Area Soil Vapor, Section 11.2, Page 56

Please clarify why this section states "no remedial actions will be needed" (away from the source area) when other sections of the RAP state additional exploration and characterization of the risk from soil vapor migration in the near-source area will be needed.

28. Source Area Groundwater, Section 11.3, Page 56

The RAP proposes using chemical injections of an oxidizing agent (chem-ox), similar to Fenton's reagent, near the source area, defined as the area west of Stuhr Road. Injections are proposed to be in the shallow groundwater to a depth of 20 feet. Please elaborate on the proposed injections. Please also clarify use of this treatment technology in the source and near-source areas where reducing (anaerobic) conditions are indicted based on the contaminant fate and transport section and Figure 5-1. Injection treatment areas should be based on a target treatment zone determined through groundwater modeling that when combined with source area soil remedial action will allow the remaining groundwater contamination to naturally attenuate within a reasonable timeframe. The groundwater modeling can be in conjunction with the MNA Study discussed in Comment #33.

29. Mid to Downgradient Plume Groundwater, Section 11.4, Page 56

a) Please provide additional documentation to support the statement that groundwater restoration to MCLs being technically impracticable.
b) Please add a separate proposed remedial action that discusses the extension of a municipal water supply line and the trigger level at which the service line connection will be offered. Included should be a plan to address any new private drinking water wells that might become impacted and a trigger level at which they will be offered alternative water and a connection to the proposed municipal water supply line. In addition, this section should include that bottled water and/or in-home treatment systems will be maintained until a municipal water source is extended to impacted homes, or until groundwater RGs are obtained.
c) Please include a statement that groundwater monitoring will be ongoing and will be conducted until RGs are reached in all impacted areas.

30. Leading Edge Groundwater, Section 11.5, Page 57

This section should also include a statement that periodic private well surveys and sampling will be conducted in this area to determine any potential future impacts to private drinking water supplies, as well as continued monitoring well sampling.

31. Sections 11.6 to 11.9, Pages 57-59

a) These sections should be revised to address the following remedy evaluation criteria identified in the VCP Guidance: 1) Protection of human health and the environment, 2) Compliance with ARARs, 3) Short-term and long-term effectiveness, 4) Implementability, 5) Cost, and 6) Community Acceptance.
b) The section on community acceptance should indicate that further evaluation of this criteria will be addressed as part of the public notice and comment period.

32. Sections 11.10 to 11.14, Pages 59-66

These sections do not need to be titled Presumptive Remedies, Innovative Technologies, Traditional Technologies, Engineering Controls, and Institutional Controls. These sections in the VCP Guidance are intended to provide assistance in the determining remedial approaches and technologies for a particular VCP site. Once a remedial approach and technology is determined, it should be identified in the Remedial Action Work Plan as components of the remedy in the sub-section titled "Proposed Remedial Action".

33. Innovative Technologies, Section 11.11, Pages 59-64

The typical lines of evidence for supporting monitored natural attenuation (MNA) as one of the remedy components should consist of the following: 1) Stable or decreasing plume over time, 2) Use of geochemical indicators to document biodegradation is occurring by comparing background geochemistry with plume geochemistry to identify the presence of electron-acceptor zones in the aquifer, 3) Documenting microbial activity, if determined necessary, and 4) Documenting through groundwater modeling that MNA can achieve remediation goals within a reasonable time frame, which is 20 years as defined in Nebraska Title 118. The Department requests that a MNA Study be conducted to evaluate the effectiveness of MNA achieving remediation goals in 20 years. The MNA Study should be based on a minimum of eight consecutive quarters of groundwater data. After the data is collected a report should be submitted to NDEQ that provides scientific documentation that allows an objective evaluation of whether MNA is capable of achieving the remediation goals within the 20 year timeframe. The Department requests a work plan be submitted which describes how the MNA study will be conducted, including which wells and sampling parameters will be part of the study.

The information in this section can be used as part of the MNA Study. The Department suggests adding oxidation-reduction potential (ORP) to the list of field sampling parameters. A table should be provided that compares the background geochemistry with the plume geochemistry, indicating whether there is an increase or decrease in the parameters within each electron-acceptor zone and whether the increase or decrease is indicative that MNA is occurring.

34. Traditional Technologies, Section 11.12, Pages 64-65

a) Although titled "Traditional Technologies" this section describes removal of the source area soil contamination via excavation. Please combine this section with section 11.1, which discusses source area soil and include all of this information as a sub-section of new Section 9 title "Remedial Action Work Plan".

b) The RAP describes that based on sampling results an estimated 65 percent of the source area excavated soil would be disposed of as special waste, and the remaining 35 percent would be hazardous waste. The RAP also explains that some of the excavation will occur below the water table. However, the RAP does not provide details on how the excavated soil, some of which is estimated to be hazardous waste, will be managed. Please provide information on the management of the excavated soil, such information should include how the groundwater will be removed from the excavated soil, and how the waste water will be disposed, and if an Area of Contamination (AOC) would be designated. Management of remediation waste will need to be in accordance with Nebraska Title 128 and Title 132 and

the Department's "Investigation Derived Waste and Remediation Waste Considerations" guidance document. Please see comment #37 below

35. Institutional Controls, Section 11.14, Page 66

a) This section does not indicate whether an institutional control will be needed at the site. An institutional control such as an environmental covenant consistent with the Nebraska Uniform Environmental Covenants Act would be needed if the site is not cleaned up to unrestricted land use. Please address
b) This section indicates that an institutional control will be implemented restricting the installation of potable wells in the area of impacted groundwater. Please clarify whether the City of Grand Island's jurisdiction extends into the entire area of impacted groundwater

36. Performance Monitoring, Section 12, Page 66

The Department will reserve judgment on the adequacy of the permanent monitoring well network to serve as a remedial performance monitoring system until after receipt of the requested isoconcentration maps. The schedule in Appendix T shows groundwater monitoring continuing only until the end of 2012. Groundwater monitoring will need to continue until remedial goals are met. Please clarify.

37. Remediation Waste Management, Section 13, Pages 66-67

Please see comment #34 above.

38. Proposed Schedule of Remedial Activities, Section 15, Page 67 and Appendix T

This schedule should be updated to include timeframes for submittal of the pre-design plans for performing additional bulk soil sampling east of the on-site area, vapor intrusion evaluation, and the MNA Study.

Tables

a) Please include Indoor Air Remediation Goals in Table 1-2 and reference these in the vapor intrusion discussion section.

Figures

a) Please include a map at the same scale as Figure 2-1 showing the areas defined as "site", "off-site", "source", "near-source", "mid-gradient" and "down-gradient".
b) Please label Willow Street and other roads on all figures where appropriate.

Figure 1-2

a) Please include businesses located at 2008 Seedling Mile road, 2028 E. Highway 30, 2105 East Highway 30, and 2203 East Highway 30.
b) Please overlay the current municipal water line and indicate which businesses along Highway 30 are connected to municipal water.

Figure 2-3

a) Please locate SBD-01 on Figure 2-3.

Figure 2-4

a) Please correct the water level depth on Section C-C'.

Figure 2-6

a) Please correct the orientation indicators.

Figure 2-7

a) Please include sample location 207.

Figure 4-1, 4-2

a) Please add the MCLs to the inset reporting limit tables.

Figure 11-2:

a) Please add sampling locations 178 and 179.
b) Please correct location 48.