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WISCONSIN DEPT. OF NATURAL RESOURCES

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December 22, 2011

Nelson Olavarria (Representative for the Ripon FF/NN Landfill Potentially Responsible Party (PRP) Group)
Cooper Industries
600 Travis Street, #5600
Houston, TX. 77210

SUBJECT: Evaluation of Focused Feasibility Study (FS) for the Ripon HWY FF/NN Landfill
Ripon HWY FF/NN Landfill
License #467, Ripon, WI.
WDNR BRRTS #02-20-000915

Dear Mr. Olavarria:

The Department and US EPA have completed the review of the above-reference report, prepared for you by Tetra Tech GEO, received on October 14, 2011. We find the report is incomplete and can't be approved at this time. Please address the following comments and submit a revised report accounting for the changes within 45 calendar days of the date of this letter. Please provide a cover letter with the revised FS providing a point by point response to each comment below.

WDNR Comments

1. Maps and figures showing, in sufficient conceptual detail, the features and layouts of the alternatives that have construction of additional items must be provided. Alternatives B3, B4, C3 and C4 all have such features. Drawings and maps showing the layout and locations of extraction and treatment wells, all in-ground piping, including piping between wells and the treatment building and the discharge pipe for pump and treat and treatment system is especially important so the public can perceive where construction may take place. Also, please be sure the hard copy of the next version contains all the figures; this submittal hard copy was missing figure 5-4.

2. Section 2.3, second paragraph. Guidance and interpretation documents are not Applicable or Relevant and Appropriate Requirements (ARARs), they may be To Be Considered factors (TBCs). Technical guidance outlining use of monitored natural attenuation (MNA) and engineered barriers do not change any of the ARARs that may apply at this site. We request that this second paragraph be removed. [Note: EPA commented on the third paragraph in this section, below]

3. Sections 4.4.3, 5.3.4 and 5.3.8 – These sections involving the description of and evaluation of groundwater extraction, treatment and discharge must account for the following regarding WPDES Permit requirements.

   To determine if the design and cost estimates for these alternatives are generally correct, it will be necessary to obtain preliminary discharge limits for a discharge to Silver Creek.

Mr. Dick Sachs – WDNR Watershed Management (WM) staff person in the Green Bay Office, indicated that a pre-permit application should be completed and submitted. They would enter the data into their WPDES permit program and print out a detailed permit application. Then you would fill in the parameters of concerns, levels of contaminants, volume of discharge, levels of chlorides, nitrogen ammonia and phosphorus levels, etc., and submit it to them.

The WM Program staff can then run their program to determine the discharge limits for Silver Creek and provide them to you. Because a formal permit application isn't required at this time, they would not keep the information in their program.

Our WM staff has indicated it is more likely that the effluent limits would be more stringent for a wetland discharge option, so we agree that alternative need not be pursued at this time.

4. Section 4.4.5 Alternate Water Supply and Section 5 descriptions of Municipal Water Contingency – These sections should be revised to clarify that if a currently used private well becomes contaminated, that an attempt will be made to connect the user to the municipal water supply voluntarily; the municipal water will be offered. If the well owner refuses, then the next option is to offer to replace the well. If that is refused then the next option is to offer a home treatment unit that the RPs would maintain.

5. Section 5 Descriptions and evaluations of alternatives with groundwater pump and treat and in-situ groundwater treatment (alternatives B3, B4, C3 and C4) – All of these 4 alternatives include MNA, yet there is very little information provided as to why they do. EPA has indicated in their comments to us on the document that they have an expectation that such alternatives would actively treat the entire area of the contaminated aquifer and not rely on MNA for some of it. We don't necessarily agree with them, but the areas that will be left to MNA have to be justified. The descriptions and evaluations must be revised to show what portion of the aquifer will be contained/affected/treated by the pump and treat and in-situ treatment activities and what portions will be left to be managed by MNA. These assumptions should be confirmed as acceptable with Christine Lilek – WDNR Hydrogeologist before the next revision to the document is submitted. We suggest you send us a letter or document with the information and proposed language changes to section 5 to address this as soon as possible.

6. Sections 4.4.3, 5.3.4 and 5.3.8 – The evaluation of the groundwater extraction, treatment and discharge alternatives should discuss the potential impact such an action may have on the groundwater quality in the nearby private and municipal wells. It might have a positive affect, by increasing oxidizers (Fe, Mn & SO4) into the aquifer, but there's also the slight possibility that arsenic or chloride could be released. The latter possibility should be addressed through a discussion in the detailed evaluation. Reference: WGNHS Report 2003-01 "St Peter Sandstone Aquifer Study, Ripon, Wisconsin & Fond du Lac Groundwater Summary" - http://www4.uwsp.edu/cnr/watersheds/Reports_Publications/Reports/fdl_gw.pdf

7. Christine Lilek forwarded copies of the draft FS to two WinFlow Groundwater Modeling experts: Randy Hunt - USGS and Jeffery Helmuth - WDNR to check on the input and output values for the Groundwater Pump & Treat Alternative.

Both of these groundwater modelers thought the use of the WinFlow Model was acceptable for predicting groundwater pump wells.

They did suggest that the input values for the model could be run a bit differently : 1) Run the model as a "leaky-confined" aquifer instead of a totally "confined" aquifer and 2) Include irregular groundwater flow features (surface water sinks, recharge areas, etc...) into the model instead of just using uniform flow inputs.

This makes sense, because the St Peter Sandstone aquifer is receiving oxygen mixing (flow) from the upper aquifers and the gradient changes in Layer 3 when Municipal Well #9 is pumping.

The rate of flow and volume generated from the pump and treat system would change some if they altered the input values, but we don't believe it would be a big change. WDNR has used similar models to run Wellhead Protection drawdown areas for municipal water utilities, and minor changes in the model do not result in major changes to the groundwater flow system.

USEPA Comments

We are willing to facilitate a conference call or meeting between your consultant, the EPA Remedial Project Manager and us to discuss and determine how best to address these comments before the report is revised. This may be especially helpful for comments regarding language and wording. Please contact me directly if you wish to do so.

Christine Lilek has provided information for some of the comments that we suggest you consider when revising the report and preparing the point by point cover letter. Christine's information is identified below after those comments.

8. Regarding the cover letter, one evaluates alternatives using the nine criteria. One screens alternatives using the short- and long-term aspects of these three criteria: effectiveness, implementability, and cost. This comment also applies to the report. For example, see the Executive Summary.

9. Executive Summary, second paragraph. Did the City extend municipal water to the affected residences or did the FF/NN Landfill PRP Group do this? In other words, did the City alone pay for the extension or did the Group?

10. Subsection 2.1, second paragraph. It should be mentioned here that an alternative water supply was provided for these residences.

11. Subsection 2.2.3. Regarding "The lateral extent of shallow groundwater contamination was approximately 500 feet. . .", it needs to be clarified that the "500 feet" refers to the downgradient direction.

12. Subsection 2.2.5. The ROD was issued when USEPA issued its letter of concurrence, which was March 27, 1996. You can also include the date when the state signed the ROD.

    The quotation needs quotation marks at the beginning of the second paragraph. It would make the extent of the quote clearer if, instead of quotation marks, the quote was indented and set in smaller type.

13. Subsection 2.2.7. It says, ". . . routine sampling detected low concentrations of vinyl chloride (VC) in a residential water supply well. . .". Was this well sampled more than once in October 2001? If not, then it should say "detected a low concentration". *Lilek* information: Altnau private well VC detect found in October 2001, then Ehster private well was sampled later in October 2011. The VC detect was also found in the Ehster well.

14. Subsection 2.2.11, first paragraph. In 2.2.10 it says, "Methane measurements at the probes and monitoring wells indicated concentrations that exceeded 25% of the lower explosive limit (LEL) at several locations outside the limits of the landfill." The first sentence in section 2.2.11 uses the term LEL, not 25% of the LEL to describe the ch. NR 504, Wis. Adm. Code regulation. This should be corrected to read 25% of the LEL.

15. Subsection 2.2.12. The IC Plan was conditionally approved in April 2011. Institutional Controls (ICs) are non-engineered instruments, such as administrative and legal controls. Things like a landfill cap and a fence are not ICs and should not be listed here.

16. Subsection 2.3, third paragraph. It isn't really an ARAR that necessitated further remedial actions at the site since the ROD. It is the fact that in the five-year review one can no longer say that the original remedy is protective. Note that in October 1993 and afterword the concentrations of vinyl chloride in well P-107D were exceeding the ES and, generally, the MCL.

17. Subsection 3.2. The first paragraph is essentially the paragraph of subsection 3.1. Second paragraph. The term "Layer 3" is used here, but the definition of layers has not yet been given. *Lilek* information: The Layers have not been described in the FS and should be. Layer #1 are wells 25 - 65 feet below ground surface as measured from the top of each well (BGS), Layer #2 wells are 62 - 95 feet BGS, Layer #3 wells are 152 - 199 feet BGS and Layer #4 wells are 281-328 feet BGS. A reference to table 3-1 could be added as well.

18. Subsection 3.3.3, fourth paragraph. I would be more inclined to say that the travel time estimated from the groundwater velocities suggests that the release which impacted the private wells in 2001 occurred prior to capping of the landfill in 1985 rather than that it confirms it.

19. Subsection 4.2. The alternative water supply is not another operable unit. Source control and groundwater operable units are. If the site had not been divided into operable units for the initial remedial action, it would not have been necessary to divide it even at this stage. The residential water supply is a remedial alternative for the groundwater, just as a landfill cap is a remedial alternative for the waste area. There is no remediation needed for the alternative water supply. The document should be revised wherever there is a statement that the residential water supply is an operable unit.

20. Subsection 4.4.2. First paragraph. This has, "However, as noted in Section 3.6, landfill gas at levels greater than 25% of the LEL were present more than 135 feet outside the limits of fill. . .". Subsection 3.6 really does not say this. From what is in subsection 3.6, the reader does not know which gas probes this refers to and how much above 25% of the LEL the concentration reached.

    Second paragraph. This states, "Active landfill gas recovery will be selected under the amended ROD for gas control but it also serves as a remedy for groundwater because of its demonstrated ability to reduce the source of vinyl chloride groundwater contamination." The phrase ". . . will be selected under the amended ROD. . ." must be removed. It is pretty much obvious that the changes that have been implemented will be part of the remedy that will be selected in the ROD Amendment, but the document should not say so.

21. Subsection 4.4.4. Fifth paragraph. This has, "Chemical oxidation involves the injection into the subsurface of chemicals which have a high oxidizing potential to degrade the organic contamination to carbon dioxide and water." Of course with vinyl chloride, the chlorine has to go somewhere. *Lilek* information: The oxidizing zone in the St Peter Sandstone would provide the mechanism to degrade the vinyl chloride to water, carbon dioxide and chloride.

    Eighth paragraph. This has ". . .plume is known to be relatively stable. . .". It would seem that if it has been found that this plume is relatively stable, monitored natural attenuation is not a good process. With MNA, one wants change. But after using the word "stable", it is said that there has been a significant change in contaminant concentration. *Lilek* information: The plume has stable characteristics, e.g.: natural degradation of cVOC is occurring at a stable rate; and dispersion of prior contaminates are moving through the aquifer at a stable rate (no additional contaminant loadings are leaching from the landfill). Significant change is occurring as sample results have shown VC degradation in the lower aquifer layers.

    Second-last paragraph. This has ". . . flows out of the anaerobic zone into an aerobic environment." What is the source of the oxygen that would have to come in to increase the oxygen concentration? Is there some mixing there with water that contains higher concentrations of oxygen? *Lilek* information: Yes, the St Peter Sandstone in this area is an aerobic aquifer, which has more naturally occurring oxidizers (Fe, Mn, SO4) due to the draw down occurring by water supply and high capacity wells in this area. WGNHS Report 2003-01 "St Peter Sandstone Aquifer Study, Ripon, Wisconsin".

22. Subsection 5.2.8. The support agency comments could be available by the time of the proposed plan, so the sentence should state that EPA comments may be addressed in the Proposed Plan and will be addressed in the ROD Amendment.

23. Subsection 5.3.1.1. This says "Alternative 1". Should this be "Alternative A"?

The Department appreciates your efforts to restore the environment at this site. Should you have any questions regarding this letter, please call me at (608)267-7563 or email me at gary.edelstein@wisconsin.gov. Thank you for your cooperation.

Sincerely,

Gary A. Edelstein, P.E.
Waste Management Engineer
Remediation & Redevelopment Program

cc: Christine Lilek, DNR - ecopy
Bernard Schorle, EPA – ecopy - schorle.bernard@epa.gov
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