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May 7, 2020

Wyoming Water and Waste Advisory Board
c/o Ms. Gina Thompson
Wyoming Department of Environmental Quality
200 West 17th Street
Cheyenne, Wyoming 82002

Re: Comments to Proposed Rulemaking: WQRR Chapters 14 and 28

Dear Wyoming Water and Waste Advisory Board:

We appreciate the opportunity to provide comments to the proposed rules and apologize for the fact that we were not able to provide these written comments by May 2, 2020 as requested. We understand that comments received as late as today will still be considered by the Wyoming Water and Waste Advisory Board. As stated in our comments submitted last year and so our comments can be reviewed in context, we have been involved with the design, permitting and operation of Commercial Oilfield Wastewater Disposal Facilities (COWDFs) in Wyoming since 2011. We have found the current procedure for permitting to be fairly efficient and the current *Guidelines: Commercial Oilfield Wastewater Disposal Facilities (COWDF)* provides good guidance for the design, permitting and operation of such facilities; however, we believe that consolidation of the rules is a positive step.

It appears that the proposed changes to Chapter 14 are basically housekeeping changes. Our comments to the proposed Chapter 28 rules will be presented by referencing sections as included in the draft dated March 31, 2020 followed by our comments in Italics.

Section 9. Engineering Design Report.

Line 336; a.iii.F "A list of anticipated generators of the waste(s)."

We are not sure of the need for this requirement and it seems to be of little value from an engineering design standpoint. If that kind of business information is required under the revised regulations, the Applicant should be provided with a means of keeping such information confidential since it is sensitive business information.

Line 377; a.v.C "A potentiometric map of the uppermost water table that illustrates the locations and use of all wells within one (1) mile of the proposed facility, clearly identifying those wells producing in whole, or in part, from the uppermost aquifer, including the project borings and wells;"

We recommend that this requirement be modified to reflect that fact that many facilities are permitted in areas where groundwater is never observed or is discontinuous across the proposed facility foot print during the geohydrologic assessment. For example, a site with 23-foot deep ponds will have a typical pond bottom that is somewhere in the neighborhood of 15 or less below grade so if groundwater is not observed to 35 feet, that should be sufficient information for permitting and leak-detection monitoring purposes. In that case, there is no groundwater surface to map. The water level information for registered wells is typically somewhat course and collected on different dates since these measurements are made during well installation; therefore, it would not be accurate to prepare a potentiometric map of the uppermost water table using these data since they were collected at different times and may be from different water-bearing zones.

This wording could be revised as follows:
"A map that illustrates the locations and use of all wells, well permit number and observed water levels within one (1) mile of the proposed facility, clearly identifying those wells producing in whole, or in part, from the uppermost aquifer, including the project borings and wells;"

Section 10. Minimum Design and Construction Standards.

Line 585; c.i.B.IV "Geosynthetic clay liners that are used as secondary liner bases require surface erosion and abrasion protection in accordance with GRI GC5 and the factor of safety for slope failure on the composite liner shall be shown to be at lease 1.5:1."

We purchased a copy of GRI GC 5 Test Method for Erosion Control Systems to Protect against Soil Detachment by Rainfall Impact and Overland Flow Transport and reviewed it. It does not seem to be a relevant citation since this document describes a laboratory test procedure for evaluating erosion of clay from geosynthetic clay liner (GCL). We suspect that the intent was that the GCL be protected from precipitation during the period when it is exposed to the elements prior to placement of the 40 mil high density polyethylene (HDPE) secondary liner.

Regarding the slope failure language, we do not believe that the expense of the slope stability analysis should be required for slopes meeting the 3:1 horizontal to vertical requirement. We have not encountered slope stability issues relating to GCL installations using this relatively flat slope. If a steeper interior pond slope is proposed, then we agree that the slope stability analysis should be required.

This wording could be revised as follows:
"Geosynthetic clay liners that are used as secondary liner bases require surface erosion and abrasion protection and should be protected during installation consistent with the manufacturer's requirements and if interior pond slopes steeper than 3:1 horizontal to vertical are proposed, the factor of safety for slope failure on the composite liner shall be shown to be at lease 1.5:1."

Line 696; c.ii.D *We believe that the language included in the October 17, 2019 draft was better since it referred to compliance with the Chapter 28 standards. In our opinion, the proposed language is too absolute and may create some unintended consequences. The standards contemplate maximum permeabilities of the various liner layers. By definition, there could still be some very small seepage from the ponds since the liner materials still have some permeability, albeit very low. We recommend that the language included in the October 17, 2019 draft be used here.*

Line 745; c.v.D *Our comments are basically the same as those for c.ii.D. The wording for this item could be revised as follows:*
"Geomembrane liners installed and operated according to this Section shall satisfy the requirements of the Water Quality Rules and Regulations Chapter 3, Section 17(a)(i)."

Section 11. Monitoring and Reporting Requirements.
Line 780; a.iv.B.I "The sampling and analysis plan shall identify the evaporative pond locations and the methodology used; and"

We apologize, we do not understand this item. This section appears to be related to groundwater monitoring. Maybe some clarification would help.

We very much appreciate the opportunity to comment on the proposed rules during the rule-making process.

Sincerely,
PARAGON CONSULTING GROUP, INC.

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