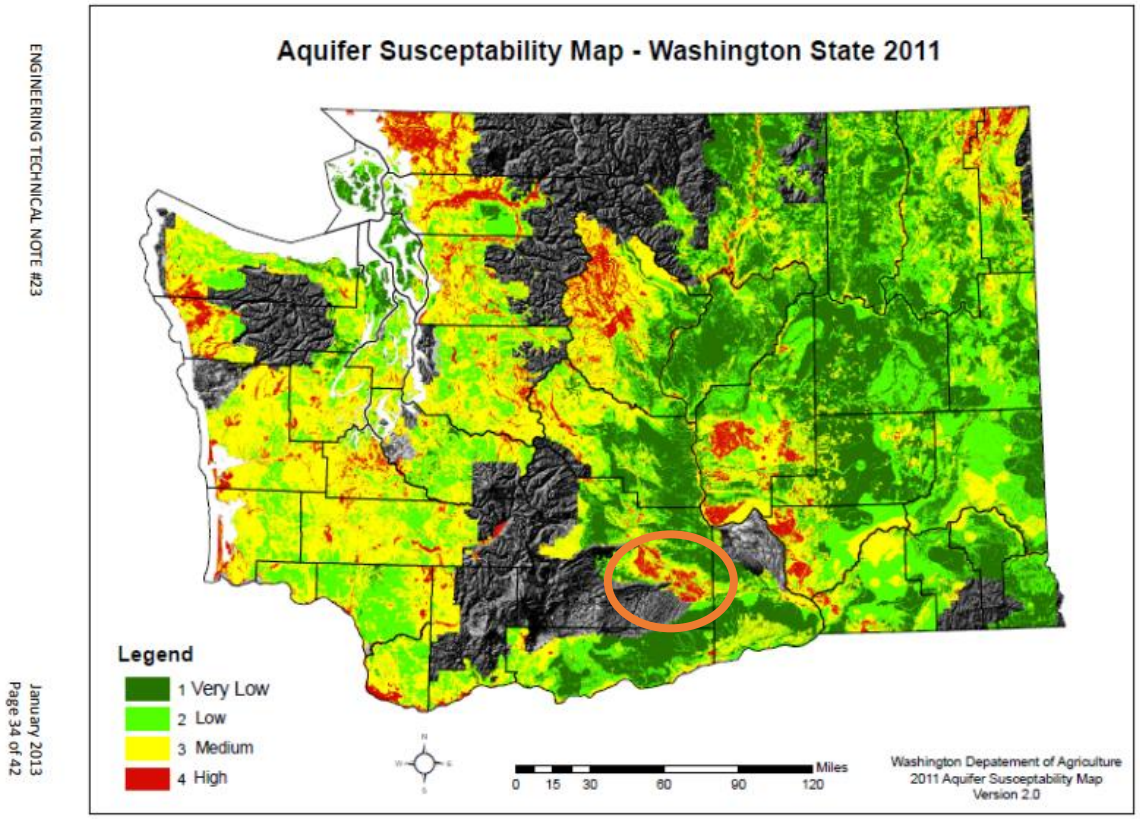
Comments on Tech Note 23 Assessments for Yakima County 2015 to 2021

Friends of Toppenish Creek – August 1, 2021

On July 21, 2021, the Friends of Toppenish Creek received a spreadsheet from Ecology in response to our request for information regarding the implementation of the Lower Yakima Valley Groundwater Management Area (LYV GWMA) Program. The spreadsheet documents Technical Note 23 inspections of manure lagoons in Yakima County. Technical Note 23 is the approved tool for evaluating risks of groundwater pollution from manure lagoons and ponds.

Ecology and WSDA have opined that the agencies need to better understand the conditions of manure lagoons in the area in order to protect the LYV groundwater from lagoon leakage. The Friends of Toppenish Creek have studied the spreadsheet[1] and make the following observations.

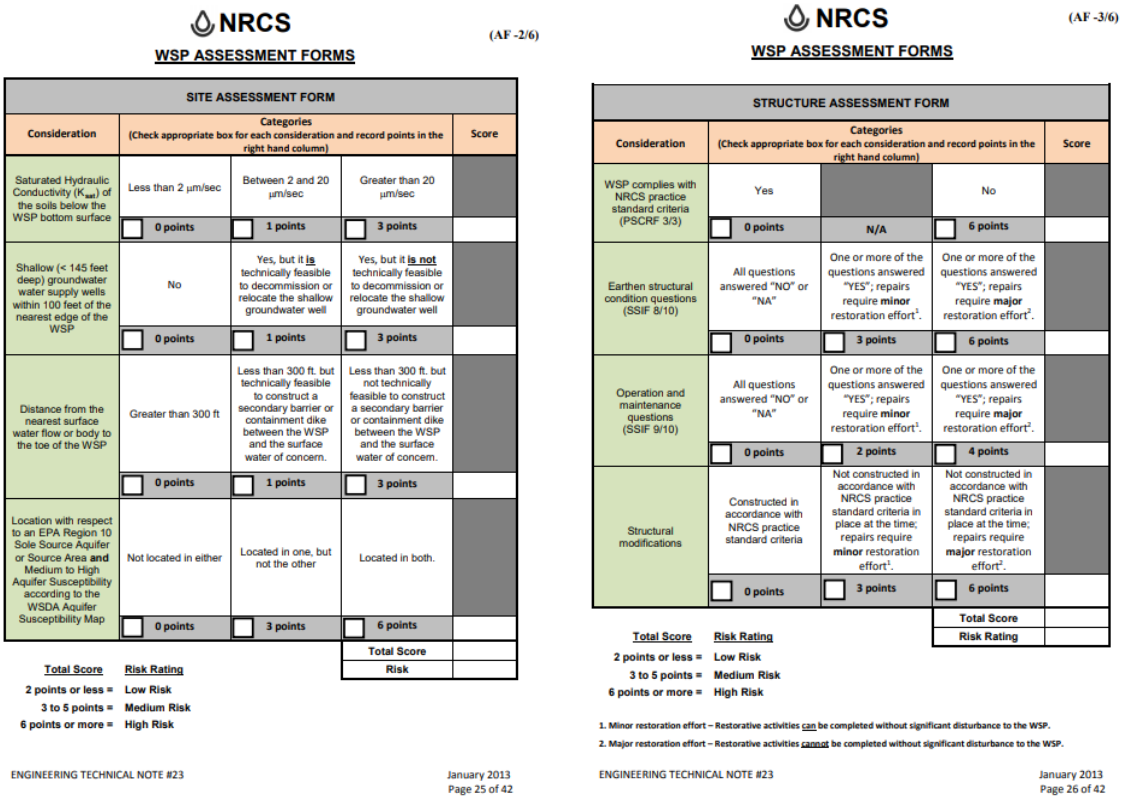
1. This is the WSDA Map that the agencies use for determining Aquifer Susceptibility to pollution from lagoons[2].



Much of the Lower Yakima Valley falls into the "High" category. But none of the dairies in this study had an aquifer susceptibility score greater than 3 - Medium. (See Columns U & BF) This indicates a tendency to downplay problems associated with manure lagoons.

1. Attachment A – Spreadsheet of Lagoon and Pond Assessment received from Ecology.
2. Page 34/42 from Attachment B – Tech Note 23

2. Tech Note 23 Assessments are performed by experts in agricultural engineering who evaluate a. the site of a lagoon, and b. the structure of the lagoon, using standardized checklists – see below. Evaluators then give each lagoon a site score and a structure score. The two scores are combined to place the lagoon in a risk category[3] – 1A, 1B, 1C, 2A, 2B, 2C, 3A, 3B, 3C or 4.



NRCS (AF -2/6)

WSP ASSESSMENT FORMS

SITE ASSESSMENT FORM

Consideration	Categories (Check appropriate box for each consideration and record points in the right hand column)			Score
Saturated Hydraulic Conductivity (K_{sat}) of the soils below the WSP bottom surface	Less than 2 µm/sec	Between 2 and 20 µm/sec	Greater than 20 µm/sec	
	☐ 0 points	☐ 1 points	☐ 3 points	
Shallow (< 145 feet deep) groundwater water supply wells within 100 feet of the nearest edge of the WSP	No	Yes, but it **is** technically feasible to decommission or relocate the shallow groundwater well	Yes, but it **is not** technically feasible to decommission or relocate the shallow groundwater well	
	☐ 0 points	☐ 1 points	☐ 3 points	
Distance from the nearest surface water flow or body to the toe of the WSP	Greater than 300 ft	Less than 300 ft. but technically feasible to construct a secondary barrier or containment dike between the WSP and the surface water of concern.	Less than 300 ft. but not technically feasible to construct a secondary barrier or containment dike between the WSP and the surface water of concern.	
	☐ 0 points	☐ 1 points	☐ 3 points	
Location with respect to an EPA Region 10 Sole Source Aquifer or Source Area **and** Medium to High Aquifer Susceptibility according to the WSDA Aquifer Susceptibility Map	Not located in either	Located in one, but not the other	Located in both.	
	☐ 0 points	☐ 3 points	☐ 6 points	
			Total Score	
			Risk	

Total Score	Risk Rating
2 points or less =	Low Risk
3 to 5 points =	Medium Risk
6 points or more =	High Risk

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NRCS (AF -3/6)

WSP ASSESSMENT FORMS

STRUCTURE ASSESSMENT FORM

Consideration	Categories (Check appropriate box for each consideration and record points in the right hand column)			Score
WSP complies with NRCS practice standard criteria (PSCRF 3/3)	Yes		No	
	☐ 0 points	N/A	☐ 6 points	
Earthen structural condition questions (SSIF 8/10)	All questions answered "NO" or "NA"	One or more of the questions answered "YES"; repairs require **minor** restoration effort[1].	One or more of the questions answered "YES"; repairs require **major** restoration effort[2].	
	☐ 0 points	☐ 3 points	☐ 6 points	
Operation and maintenance questions (SSIF 9/10)	All questions answered "NO" or "NA"	One or more of the questions answered "YES"; repairs require **minor** restoration effort[1].	One or more of the questions answered "YES"; repairs require **major** restoration effort[2].	
	☐ 0 points	☐ 2 points	☐ 4 points	
Structural modifications	Constructed in accordance with NRCS practice standard criteria	Not constructed in accordance with NRCS practice standard criteria in place at the time; repairs require **minor** restoration effort[1].	Not constructed in accordance with NRCS practice standard criteria in place at the time; repairs require **major** restoration effort[2].	
	☐ 0 points	☐ 3 points	☐ 6 points	
			Total Score	
			Risk Rating	

Total Score	Risk Rating
2 points or less =	Low Risk
3 to 5 points =	Medium Risk
6 points or more =	High Risk

1. Minor restoration effort – Restorative activities can be completed without significant disturbance to the WSP.
2. Major restoration effort – Restorative activities cannot be completed without significant disturbance to the WSP.

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3. There are 141 lagoons and ponds in the spreadsheet, but 11 are out of county, which leaves 130 Yakima County lagoons.
4. 65 out of the 130 lagoons listed in the spreadsheet have both site risk assessments and structure risk assessments. For those 65 lagoons and ponds[4]:
    a. Six are missing depth to water table which makes it impossible to answer the second item under Site Assessment.
    b. Three are missing an Aquifer Susceptibility score (item 4 in the Site Assessment), but they still received a rating under Site Assessment.
    c. Fifty are missing scores under items 1 and 4 for the Structural Assessment, but they still received a Structural Site Rating[4].
    d. Fifteen received scores of zero under items 1 and 4 for the Structural Assessment. Item 1 asks whether the water storage pond complies with NRCS storage criteria.

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3. Page 27/42 in Attachment B – Tech Note 23
4. See Attachment C – A simplified spreadsheet with Site and Structure Assessments for these 65 lagoons.

Item 4 asks whether structural modifications have been done in accordance with NRCS practice standards in place at the time of construction.

e. Liner thickness is shown for only ten of the lagoons. It is impossible to estimate the amount of leakage from a lagoon if you do not know the thickness of the liner.
f. Liner thickness is unknown for 42 of the lagoons with Total Risk Scores of 1A, 1B, or 2A – approved for continued use.
g. Date of design and year of construction is documented for only 15 of the lagoons.
h. Date of Modification is documented for only 1 of the lagoons.
i. It is impossible to answer 1 & 4 in the Structural Assessment if you do not know the date of construction or the date of modification.
j. Distance between the bottom of the lagoon and the seasonal high groundwater table is documented for 15 of the lagoons. It is impossible to evaluate compliance with current National Pollutant Discharge Elimination System (NPDES) criteria without this data.

5. Approximately half of the inspections were conducted in 2015, over five years ago.
6. Some of the dairy farms in the spread sheet are no longer in business.
7. There is no data for the Henry Bosma Dairy or Liberty Dairy – a joint operation with thousands of milk cows.
8. There is no data for dairy farms on deeded land on the Yakama Reservation.
9. Data is missing for "Distance to Water Table" column P for 47 of the lagoons. Without this information it is impossible to answer item 2 in the Site Assessment form. But a Site Assessment rating of 0 is provided for 6 of those 47 lagoons, see column BD and rows 11, 20, 21, 22, 23, and 36.
10. Some "Distance to Water Table" data is suspect:
    a. Skyridge Farm (rows 17, 18 & 19) is right next to Sunnyside Dairy (Rows 50 & 54-58). Distance to water table for Skyridge is 190 to 345 ft. Distance to water table for Sunnyside Dairy is 768 ft.
    b. Distances to water table for DeRuyter Bros. Dairy (rows 73-75) and Snipes Mountain Dairy (rows 80-82) are incorrect. The distance to the water table in this area is < 50 feet and often < 20 feet.
    c. The distance to water table for Viewpoint Dairy is listed as 1,195 feet (rows 114 & 115). This number requires verification. The water table is more likely a few hundred feet or less.
11. The spreadsheet provides Site Risk Assessment ratings for a number of dairy farms, but there are:
    a. No item scores for George DeRuyter & Son, rows 4 – 7 (Site Assessment low)
    b. No item scores for Cow Palace Dairy, rows 8 to 10 (Site Assessment low)
    c. Missing item scores for DBD Washington, rows 37 to 41 (Site Assessment medium)
    d. No item scores for Snipes Mountain Dairy, rows 80 to 82 (Site Assessment low)
    e. No item scores for Spring Canyon Ranch, rows 33 to 35 (Site Assessment low)
    f. Missing item scores for Hidden Valley Dairy, rows 71 & 72 (Site Assessment medium)
    g. Missing item scores for Pride & Joy Dairy, row 86 (Site Assessment low)

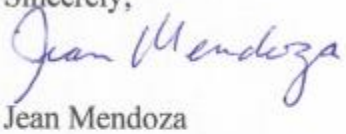
h. Missing item scores for Newhouse Dairy, row 87 (Site Assessment low)

12. There are no Site Risk or Structure Risk Assessments at all for many of the dairy farms in the area, including some large dairies with thousands of milk cows.
    a. Sunny Dene Ranch, rows 43 to 47
    b. Haringa Dairy, rows 102 to 105
13. In order to complete the Structure Risk Assessment, the evaluator must know the dates of lagoon modifications. There is only one date of modification for one facility in the spread sheet, although many facilities have updated and improved their lagoons.
14. In order to complete the Structure Risk Assessment, items 1 & 4 require the assessment officer to know the date of lagoon construction – so the officer can determine whether the lagoon meets the criteria in place at the time of construction. There are Structural Risk Assessment scores for numerous dairies without date of construction, and often no scores for items 1 & 4:
    a. DeRuyter Bros. Dairy, rows 73 to 75, rows 111 to 112 – No date of construction and no entries for items 1 & 4 (Structure Risk Assessment low)
    b. Klompe & Frieslandia, rows 49, 63, 94, & 95, - No date of construction and no entries for items 1 & 4 (Structural Risk Assessments low, medium and high)
    c. Sunnyside Dairy, rows 54 to 58 - No date of construction and no entries for items 1 & 4 (Structural Risk Assessments low & medium)
    d. Smeenk Bros., rows 61 & 62 - No date of construction and no entries for items 1 & 4 (Structural Risk Assessments are low & high – For the high score lagoon, the score for item 3 was a 6, but the matrix only allows for a score as high as 4)
    e. Mensonides Dairy, rows 88 to 91 - No date of construction and no entries for items 1 & 4 (Structure Risk Assessment low)
    f. John Prins Dairy, rows 66 & 67 - No date of construction and no entries for items 1 & 4 (Structure Risk Assessment low)
    g. J & L Rollinger Farm, rows 68 to 70 - No date of construction and no entries for items 1 & 4 (Structure Risk Assessment low)
    h. Hidden Valley Dairy, rows 71 & 72 - No date of construction and no entries for items 1 & 4 (Structure Risk Assessment low & medium)
    i. Riverview Ranch, rows 84 & 85 - No date of construction and no entries for items 1 & 4 (Structure Risk Assessment medium)
    j. Cherry Hill Dairy, rows 97 & 113 - No date of construction and no entries for items 1 & 4 (Structure Risk Assessment low)
    k. And others
15. Liner thickness is provided for 15 of the lagoons. All other entries for this category are blank or more often “unknown”. It is impossible to calculate how much a lagoon may leak if you do not know the liner thickness – See NRCS Agricultural Waste Management Field Handbook, Chapter 10, Appendix D at https://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?content=31529.wba
16. There are several lagoons on the DBD and DeRuyter Bros dairy with maximum excavation depths of zero. Does this mean that the lagoons are above ground level?

17. FOTC was under the impression that Ecology and WSDA were undertaking a statewide assessment of all manure lagoons as a prelude to development of a plan to protect groundwater from CAFO pollution. Unless there is better data than the information we received, the agencies are preventing adequate implementation of the WA water laws by not completing that study.

Thank you for reading our comments and for responding.

Sincerely,



Jean Mendoza

Executive Director, Friends of Toppenish Creek
3142 Signal Peak Road
White Swan, WA 98952

Attachments

A. Tech Note 23 spreadsheet from Ecology
B. Tech Note 23
C. Abbreviated spreadsheet adapted by FOTC from Ecology's spreadsheet