

Appendix I

Summary of the Process for Evaluating Practices

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See Section 6 of the report for additional text describing the process used to arrive at the recommended beneficial management practices.

- “Emission reductions” refers to ammonia and/or hydrogen sulfide.
- A standard practice is a practice that already occurs regularly on many farms in Wisconsin and therefore, the Advisory Group decided that is not a recommended beneficial management practice.
- Insufficient information means that there was not enough additional information available upon which the Advisory Group could base a sound decision on a practice recommendation.

	Round 1	Round 2	Round 3
Animal Housing			
1. Diet management/Reduce protein to match animal need/additional nutrition			Recommended Practice in this Report - Established
2. Feed in accordance with NRC, or equivalent, guidelines utilizing routine nutritional analysis for rations	Combined with Practice 1		
3. Lower sulfur feeds for swine	Combined with Practice 1		
4. Feed/nutrient management for lower manure pH (liquid/slurry systems)	Combined with Practice 1		
5. Cover or ensile all silage			Recommended Practice in this Report - Established
6. Collect leachate from silage	Combined with Practice 5		

piles and send to wastewater treatment system at least once every 24 hours			
7. Uneaten feed should be re-fed or removed daily to minimize emissions from decomposing feed	Combined with Practice 5		
8. Silage face management – only disturb the required face area	Combined with Practice 5		
9. Dry Grains to be stored in commodity barn	Combined with Practice 5		
10. Bio-filter/filtration			
11. Freestall enclosure with biogas vented to biofilter	Combined with Practice 10		
12. Biofilters on pit fans from deep-pit buildings	Combined with Practice 10		
13. Vegetable oil sprinkling (for swine only)			Recommended Practice in this Report - Established
14. Urine-feces segregation			Recommended Practice in this Report - Demonstration
15. Slatted floors	Removed from Consideration – Considered a Standard Practice		
16. Binding Ammonium (w/zeolite, etc)			Recommended Practice in this Report - Established
17. Fresh water flush		Removed from consideration – Impractical & Negative Impacts on Water Usage	

18. Treated water flush		Removed from consideration – Does Not Reduce Emissions and Standard Practice	
19. Confine recycled waste water used for flushing barns and alleyways		Removed from consideration – Does Not Reduce Emissions and Standard Practice	
20. Air dam			Recommended Practice in this Report
21. Windbreak (includes man-made berms); landscaping			Recommended Practice in this Report - Established
22. Frequent cleaning of animal areas			Recommended Practice in this Report – Established/Demonstration
23. Feed lanes and walkways to be flushed daily, scraped daily, or vacuumed daily	Combined with Practice 22		
24. Weekly scraping and/or manure removal using a pull type manure harvesting equipment, except during periods of rainy weather	Combined with Practice 22		
25. Flush/spray Milking Parlor after each batch	Removed from Consideration – Minimal effect		
26. Bedding selection			
27. Ozonation		Removed from consideration – Impractical	
28. Wet scrubber/bioscrubber			Recommended Practice in this Report - Demonstration

29. Electrostatic Precipitator		Removed from consideration – Impractical	
30. Non-thermal plasma	Removed from Consideration – Impractical		
31. Concrete freestall and drylot feed lanes and walkways	Removed from Consideration – Considered a Standard Practice		
32. Pave feedlane at least 8 feet on corral side of the fence	Moved to Open Lot/Corral Farm Component		
33. Poultry specific DNR BMPs	See Appendix J		
34. Alum addition to litter			Recommended Practice in this Report - Established
35. Wet scrubbers	Combined with Practice 28		
36. Keep manure dry; drinker maintenance, etc	Combined with Practice 43		
37. Poultry layer belt drier, pelletizing – Increasing litter dry matter	Move from Housing to Manure Storage & Treatment		
##. Water treatment (potable water - sulfur & nitrate content removal)	Practice 1 Recommends Consideration of Sulfur Content	Removed from consideration – Impractical	
Manure Storage and Treatment			
38. Anaerobic digestion with biogas combustion			Recommended Practice in this Report - Demonstration
39. Manure Gas Safety General DATCP, NRCS recommendations	Remove from Consideration – Does Not Reduce Emissions		
40. Chemical or biological			Recommended Practice in this

additives – e.g., Urease inhibitors			Report - Demonstration
41. Pit additives see Stowell	Combined with Practice 40		
42. Composting for solid manure with proper C:N ratio			Recommended Practice in this Report - Established
43. Maintain dry manure			Recommended Practice in this Report - Established
44. Solids separation and reduction			Recommended Practice in this Report - Demonstration
45. Enclosed mechanical separator – Designs with less turbulent flow	Combined with Practice 44		
46. Dewatering press to reduce moisture content of separated solids	Combined with Practice 44		
47. Weekly removal of separated solids	Removed from Consideration – Considered a Standard Practice		
48. pH reduction (acidification) of manure by a variety of methods	Combined with Practice 40		
49. Waste-water Treatment			Recommended Practice in this Report - Demonstration
50. Aeration/aerobic lagoon (manure or process wastewater)		Combined with Practice 49	
51. Phototrophic facultative circulating aerobic system		Combined with Practice 49	
52. UV Treatment	Removed from Consideration –		

	Impractical, could be included in Practice 49		
53. Bio-cover (straw and other materials)			Recommended Practice in this Report - Established
54. LECA (light expanded clay aggregates)	Combined with Practice 53		
55. Geotextile/permeable cover	Combined with Practice 53		
56. Impermeable cover			Recommended Practice in this Report - Established
57. Rigid cover (e.g. concrete/wood)	Combined with Practice 56		
58. Inflatable cover	Combined with Practice 56		
59. Floating synthetic (i.e. geotextile)	Combined with Practice 53		
60. Natural crust		Combined with Practice 59	
61. Clay balls (LEKA rock)		Combined with Practice 59	
62. Temperature control (manure)		Remove from Consideration - Impractical	
63. Bottom fill/avoiding agitation			Recommended Practice in this Report - Established
64. Windbreak (includes man-made berms); Landscaping (now called Vegetative Environmental Buffer)			Recommended Practice in this Report - Established
65. Settling basins/Weeping Walls BMP	Remove from Consideration – Does Not Reduce Emissions		
66. Dry contents in basins	Removed from Consideration –		

within a 2-week period	Considered a Standard Practice		
67. Contents must either be directly incorporated into land or spread in thin layers, harrowed and dried	Combined with Practices in Land Application Farm Component		
Open lots/corrals			
68. Frequent Cleaning			Recommended Practice in this Report - Established
69. Drag animal lot	Combined with Practice 68		
70. Animal lot moisture control	Removed from Consideration - Insufficient Information		
71. Windbreak (includes man-made berms)	Combined with Practice 64		
72. Dust control plan with specific BMPs (Yakima Regional Clean Air Authority)	Remove from Consideration – Does Not Reduce Emissions		
73. Provide shade for cattle in open lots to encourage movement throughout the pens over the course of the day to disperse manure over the pen surface	Removed from Consideration – Considered a Standard Practice		
74. Shade structures on open corrals	Combined with Practice 73 Removed from Consideration – Considered a Standard Practice		
75. Drylots sloped to facilitate runoff and drying	Combined with Practice 70 Removed from Consideration - Insufficient Information		

76. Acidifier (sodium bisulfate) Pasture Systems	Combined with Practice 40		
77. Stock only appropriate numbers	Removed from Consideration – Considered a Standard Practice		
78. Move water and feed areas on regular basis to avoid hot spots	Removed from Consideration – Considered a Standard Practice		
79. Irrigating may reduce NH3 immediately after grazing, but could increase emissions of N2O and nitrate to groundwater	Removed from Consideration - Insufficient Information		
80. Using appropriate rotational grazing practices			Recommended Practice in this Report - Established
Land Application			
81. Knifing in (direct injection)	Combined with Practice 82		
82. Injecting (slot)			Recommended Practice in this Report - Established
83. Irrigation of crops using liquid or slurry manure from holding/storage pond	Remove from Consideration – Does Not Reduce Emissions		
84. Liquid injection of manure until crops become tall enough that damage would occur (only applies to slurry)	Combined with Practice 82		
85. Minimize liquid manure irrigation and broadcast	Remove from Consideration – Does Not Reduce Emissions		

sprinkler irrigation			
86. Additives	Combined with Practice 40		
87. Timing – when cooler, less windy	Removed from Consideration – Insufficient Information on Emission Reductions		
88. Rapid incorporation of manure into the soil after land application (solid manure, as well)			Recommended Practice in this Report - Established
On-field Crop activities			
89. Minimize passes	Removed from Consideration – Considered a Standard Practice		
90. Practice conservation tillage	Removed from Consideration – Considered a Standard Practice		
91. Restrict field activity during high wind events (>20mph)	Removed from Consideration – Insufficient Information on Emission Reductions		
92. Surface roughening of fallow fields	Removed from Consideration – Considered a Standard Practice		
93. Track-out prevention	Removed from Consideration – Considered a Standard Practice		
Added during Round 3			
Swine Housing Wall or Ceiling Ventilation			Added during Round 3
Land Application - Demonstration			Added during Round 3