Appendix H - Management Practices and Associated Information

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Below is a list of nonpoint source management practices that may be used to generate credits for trading. The list specifies an uncertainty factor for each practice. The uncertainty factor accounts for the multiple types of uncertainty that normally occur in the generation of pollutant reduction credits, especially when credits are generated by a nonpoint source. Uncertainties originate from climatic variability, potential inaccuracies in field testing or modeling of the amount of pollutant controlled by a management practice, and the reliability of the management practice to perform. For practices subject to a range of default uncertainty factors, corresponding modeling and performance criteria are specified in the table below. Refer to referenced appendices for a complete list of modeling and performance criteria that are applicable regardless of the uncertainty factor applied.

Generators of pollutant reduction credits are not restricted to the management practices covered by the following list, but if not present in the list a proposed management practice will likely require an evaluation by the WDNR before a water quality trading plan is drafted. Contact WDNR water quality trading staff for more details.

Pursuant to s. 283.84(1m)(a), Wis. Stats., water quality trade agreements must result in an improvement in water quality. Water quality trade agreements result in an increase in pollutant discharged (via the use of credits) as well as a decrease in pollutants discharge (via the generation of credits). For WDNR to ascertain that a water quality improvement is occurring, the pollutant load reduction must be quantified using either monitoring or best-available modeling approaches. Where the guidance document and associated appendices convey requirements surrounding pollutant loading quantification, these are requirements authorized under s. 283.84(1m)(a), Wis. Stats.

Agricultural Management Practice	Default Uncertainty Factor[1]	Applicable Technical Standard	Method for Calculating Pollutant Load Reductions	Notes
Whole Field Management: Requires an approved nutrient management plan, filter strips/buffer strips[3], grassed waterways[4], conservation or no till[5], and cover crops.	1	WI NRCS 590, 393, 332, 412, 345 329, 340 and 330	SnapPlus or equivalent field scale model[2] (See SnapPlus Appendix D for modeling guidance	Requires an approved WI NRCS 590 nutrient management plan (NMP) that meets both the soil test phosphorus and phosphorus index requirements. Requires a draw down strategy for phosphorus concentrations that are above University of Wisconsin-Extension soil fertility recommendations. Additional practices deemed necessary by NRCS or county conservationists may be required to protect against mobilization and delivery of pollutants.
Forage Production – Rotational Grazing	1.5 (2)	WI NRCS 528	SnapPlus or equivalent field scale model[2] (See SnapPlus Appendix D for modeling guidance)	Grass/hay crop established and maintained to provide an annual average 70 - 80% live canopy cover; tillage is prohibited. Unrestricted livestock access to surface waters is prohibited, per s. NR 151.08(5)(a), Wis. Adm. Code. Any water crossings must be designed to maintain bed and bank stability. An uncertainty factor of 2 is required if fields are not brought into compliance with ss. NR 151.02, NR 151.04, and NR 151.07, Wis. Adm. Code, or if the nutrient management plan does not meet WI NRCS 590 standards.
Forage Production – Mechanical Harvest	1.5 (2)	WI NRCS 512	SnapPlus or equivalent field scale model[2] (See SnapPlus Appendix D for modeling guidance)	Grass/hay crop established and maintained to provide an annual average 70 - 80% live canopy cover; tillage is prohibited. Any water crossings must be designed to maintain bed and bank stability. An uncertainty factor of 2 is required if fields are not brought into compliance with ss. NR 151.02, NR 151.04, and NR 151.07, Wis. Adm. Code, or if the nutrient management plan does not meet WI NRCS 590 standards.
Prairie Restoration / Conservation Cover	1	WI NRCS 327	SnapPlus or equivalent field scale model[2] (See SnapPlus Appendix D for modeling guidance)	Establish native prairie vegetation to provide annual average of 85 - 90% live canopy cover to protect soil surface and minimize runoff.

Agricultural Management Practice	Default Uncertainty Factor[1]	Applicable Technical Standard	Method for Calculating Pollutant Load Reductions	Notes
Filter Strip (edge of field)	2 (3)	WI NRCS 393	SnapPlus or equivalent field scale model[2] (See SnapPlus Appendix D for modeling guidance)	Filter strip vegetation established and maintained at an annual average 90% vegetative cover. An uncertainty factor of 3 is required when riparian filter strips are established without supporting upland practices. An uncertainty factor of 3 is required if fields are not brought into compliance with ss. NR 151.02, NR 151.04, and NR 151.07, Wis. Adm. Code, or if the nutrient management plan does not meet WI NRCS 590 standards. Current and historic field and farm information/cropping records must be submitted and captured within field scale modeling to allow DNR to verify phosphorus loss calculations are accurate and confirm phosphorus loss is not shifted to other fields.
Stabilization of Gully Erosion	2 (3)	WI NRCS 412	NRCS Spreadsheet Tool or Equivalent (See Appendix M – Gully Quantification)	Provide photographic and other supporting documentation that gully erosion areas connect with and discharge via a defined channel into perennial surface waters. An uncertainty factor of 2 may be applied when erosion volume estimates utilize measurements from at least two proceeding years. An uncertainty factor of 3 is required when erosion volume estimates fail to utilize measurements from at least two proceeding years. An additional uncertainty factor increase of one (+1) is required for gullies that partially deposit sediment in flat depressional or vegetated areas before reaching perennial surface waters.
Sediment Control Basin	2	WI NRCS 350	P8	For TSS/sediment runoff control only.

Barnyard and Production Area Management Practice	Default Uncertainty Factor[1]	Applicable Technical Standard	Method for Calculating Pollutant Load Reductions	Notes
Site Abandonment / Restoration	2	WI NRCS 512	University of Wisconsin Barnyard Tool APLE-Lots or equivalent model (See Appendix O)	APLE-Lots inputs should be supported by farm data, photos, soil sample results, and topographic maps included in the WQT Plan.
Diversion	2	WI NRCS 362	University of Wisconsin Barnyard Tool APLE-Lots or equivalent model (See Appendix O)	APLE-Lots inputs should be supported by farm data, photos, soil sample results, and topographic maps included in the WQT Plan. An increased uncertainty factor (+1) is required when barnyard/feedlot sites continue to violate NR 151.08(4) following installation of practices.
Roof Runoff Structure	4	WI NRCS 558	University of Wisconsin Barnyard Tool APLE-Lots or equivalent model (See Appendix O)	APLE-Lots inputs should be supported by farm data, photos, soil sample results, and topographic maps included in the WQT Plan. An increased uncertainty factor (+1) is required when barnyard/feedlot sites continue to violate NR 151.08(4) following installation of practices.
Vegetated Treatment System	4	WI NRCS 635	University of Wisconsin Barnyard Tool APLE-Lots or equivalent model (See Appendix O)	APLE-Lots inputs should be supported by farm data, photos, soil sample results, and topographic maps included in the WQT Plan. An increased uncertainty factor (+1) is required when barnyard/feedlot sites continue to violate NR 151.08(4) following installation of practices.

Streambank and Shoreline Stabilization Management Practice	Default Uncertainty Factor[1]	Applicable Technical Standard	Method for Calculating Pollutant Load Reductions	Notes
Correction of acute/localized causes (lateral instability, not systemic)	3 (2)	WI NRCS 580 WI NRCS 382	Appropriate methods include NRCS recession calculation. See Appendix F for detailed methods.	For livestock producers, streambank stabilization must be accompanied by riparian fencing or other controls to prevent destruction of streambanks. A habitat adjustment may reduce the uncertainty factor from 3 to 2 for projects that meet habitat adjustment criteria outlined in guidance.
Correction of systemic erosion with application of natural channel design	3 (2)	WI NRCS 580 WI NRCS 582 WI NRCS 382	Appropriate methods include NRCS recession calculation. See Appendix F for detailed methods.	For livestock producers, streambank stabilization must be accompanied by riparian fencing or other controls to prevent destruction of streambanks. A habitat adjustment may reduce the uncertainty factor from 3 to 2 for projects that meet habitat adjustment criteria outlined in guidance.
Stabliziation without natural channel design (risk of habitat degradation and/or shifting pollutant loads)	4	WI NRCS 580	Appropriate methods include NRCS recession calculation. See Appendix F for detailed methods.	For livestock producers, streambank stabilization must be accompanied by riparian fencing or other controls to prevent destruction of streambanks.

Dredging, Lake Treatment, or Wetland Restoration Management Practice	Default Uncertainty Factor[1]	Applicable Technical Standard	Method for Calculating Pollutant Load Reductions	Notes
<u>Lakes and Reservoirs</u> Dredging and removal of in-situ sediment and nutrients or treatment (i.e., alum) Dredging and removal of in-situ sediment and nutrients or treatment accompanied by aquatic habitat restoration.	3 2	WI NRCS 395	Load reductions calculated by determining seasonal flux rate. Contact WDNR when developing monitoring plan.	Dredging must remove sediment to the original or native layer. Seasonal flux rate should be calculated based on a calibrated model and monitoring data. Annual load reductions are generated based on the calculated seasonal flux rate. Load reductions are generated on a prorated annual basis until the flux rate returns to pre-dredging flux rate conditions.
<u>Rivers or Streams</u> Dredging with stable stream banks, installation of appropriately wide buffer strips and supporting upland practices addressing pollutants of concern Dredging without stabilized stream banks or without supporting upland practices	2 3	WI NRCS 580 WI NRCS 582 WI NRCS 382	Appropriate methods include NRCS recession calculation. See Appendix F for detailed methods.	Dredging must remove sediment to the original or native layer. Seasonal flux rate should be calculated based on a calibrated model and monitoring data. Annual load reductions are generated based on the calculated seasonal flux rate. Load reductions are generated on a prorated annual basis until the flux rate returns to pre-dredging flux rate conditions.
Wetland Restoration	1	WI NRCS 580	Load reductions calculated by determining seasonal flux rate. Contact WDNR when developing monitoring plan.	Load Reductions are generated for land placed out of production such as the conversion of agricultural land back to wetland. Credits may not be generated by using wetlands to treat runoff. See Appendix J – Wetland Restoration for more information.

Urban Management Practice	Default Uncertainty Factor[1]	Applicable Technical Standard	Method for Calculating Pollutant Load Reductions	Notes
Infiltration Basin	2	WDNR 1003	SLAMM, P8, or Recarga	Urban practices are not to be installed in wetlands, as they will be ineffective in hydric soils with a high-water table.
Infiltration Trench	2	WDNR 1007	SLAMM, P8, or Recarga	Urban practices are not to be installed in wetlands, as they will be ineffective in hydric soils with a high-water table.
Proprietary Storm Water Sedimentation Devices	2	WDNR 1006	SLAMM	Urban practices are not to be installed in wetlands, as they will be ineffective in hydric soils with a high-water table.
Vegetated Infiltration Swales	2	WDNR 1005	SLAMM or P8	Urban practices are not to be installed in wetlands, as they will be ineffective in hydric soils with a high-water table.
Wet Detention Pond	2	WDNR 1001	SLAMM or P8	Urban practices are not to be installed in wetlands, as they will be ineffective in hydric soils with a high-water table.

[1] Uncertainty factors provided in this table are applicable to TP and TSS only.

[2] When using SnapPlus or an equivalent model to calculate load reductions, site conditions must meet modeling assumptions as described in Appendix D. These include using the same soil type and field slope when calculating pollutant loads prior to and after installation of the management practice, using the crop sequence for the field, verifying that no gully erosion is occurring, verifying that pollutant load shifting is accounted for in the calculated reductions, ensuring no applications of manure or biosolids to frozen ground, and no nutrients applied to tiled fields.

[3] Filter strips / buffer strips required adjacent to concentrated flow areas, intermittent or perennial.

[4] Grassed waterways required for concentrated flow areas.

[5] No till shall conform to WI NRCS 329 Standard; Conservation till shall conform to WI NRCS 345 Standard with a calculated STIR value of 35 or less.