NC DENR/DWQ LABORATORY CERTIFICATION

LABORATORY NAME:		CERT #:	
PRIMARY ANALYST:		DATE:	
NAME OF PERSON COMPLETING CHECKLIST (PRINT):			
SIGNATURE OF PERSON COMPLETING CHECKLIST:			

Parameter: **Ammonia Nitrogen (NH_3-N)**
Method: **Ion Selective Electrode (ISE)**

METHOD OF ANALYSIS:			PREP METHOD:
	Standard Methods 18th Edition: 4500-NH_3 F ☐		Standard Methods 18th Edition: 4500-NH_3 B ☐
	Standard Methods 19th Edition: 4500-NH_3 D ☐		Standard Methods 19th Edition: 4500-NH_3 B ☐
	Standard Methods 20th Edition: 4500-NH_3 D ☐		Standard Methods 20th Edition: 4500-NH_3 B ☐
	Standard Methods 21st Edition: 4500-NH_3 D ☐		Standard Methods 21st Edition: 4500-NH_3 B ☐
	Standard Methods Online 4500-NH_3 D-97 ☐		Standard Methods Online 4500-NH_3 B-97 ☐

SM Editions 20th and 21st are equivalent to the online versions (4500-NH_3 D-97 and 4500-NH_3 B-97)

Equipment:

	Specific Ion Meter (Model):		Distillation Apparatus
	Ammonia-selective electrode (Model):		Magnetic stirrer with TFE-coated stirring bar

	PLEASE COMPLETE CHECKLIST IN INDELIBLE INK	Y	N	EXPLANATION
	PRESERVATION and STORAGE			
1	Are samples preserved at the time of collection with H_2SO_4 to pH of <2? [40 CFR 136 Table II.]			
2	What action is taken if not properly preserved? [15A NCAC 2H .0805 (a) (7) (N).]			
3	Is the pH of Ammonia samples checked to document pH <2? [40 CFR 136 Table II.]			
4	Are samples checked for residual chlorine? [SM 4500-NH_3 A. (2).]			
5	What action is taken if chlorine is present? [15A NCAC 2H .0805 (a) (7) (N).]			
6	Are samples iced to above freezing but ≤ 6 ºC during shipment? [40 CFR 136 Table II.]			
7	Are samples refrigerated above freezing but ≤ 6 ºC during storage? [40 CFR 136 Table II.]			
8	Are Ammonia samples analyzed within 28 days of collection? [40 CFR 136 Table II.]			
	PROCEDURE			
9	Are Ammonia samples distilled before analysis? [40 CFR 136 Table IB.]			
10	If distillation is not performed, is an annual distillation comparison study on file? [NC WW/GW LC Policy February 2006.]			
11	**Date of distillation study:**			
12	Is the distillation apparatus steamed out until there are no traces of ammonia prior to use? [SM 4500-NH_3 B. (4) (a).]			
13	How is the distillation apparatus steamed out? [SM 4500-NH_3 B. (4) (a).]			
14	What sample volume is distilled? [SM 4500-NH_3 B. (4) (b).]			
15	How is the sample prepared for distillation? [SM 4500-NH_3 B. (4) (b).]			
16	How is the distillate collected? [SM 4500-NH_3 B. (4) (c).]			
17	How much distillate is collected? [SM 4500-NH_3 B. (4) (c).]			
18	What sample volume is analyzed? [SM 18th 4500-NH_3 F. (4) (e). SM 19th, 20th, 21st 4500-NH_3 D. (4) (e).]			
19	Are samples allowed to come to room temperature before analysis? [SM 18th 4500-NH_3 F. (4) e. SM 19th, 20th, 21st 4500-NH_3 D. (4) (e).]			
20	Are all readings made with constant stirring limited in speed to minimize possible loss of ammonia from the solution? [SM 18th 4500-NH_3 F. (4) (e). SM 19th, 20th, 21st 4500-NH_3 D. (4) (e).]			

21	Is 10N NaOH added to all blanks, standards, and samples to raise the pH above 11 **after** immersing the electrode? [SM 18th 4500-NH_3 F. (4) (e). SM 19th, 20th, 21st 4500-NH_3 D. (4) (e).]			
22	Is 10N NaOH/EDTA used in place of the NaOH if the presence of silver or mercury is possible? [NC WW/GW LC Policy based upon SM 19th, 20th, 21st 4500-NH_3 D. (4) (b).]			
23	Is the volume of 10N NaOH added to the blanks, standards, and samples documented? [SM 18th 4500-NH_3 F. (4) (e). SM 19th, 20th, 21st 4500-NH_3 D. (4) (e).]			
24	If a different volume of NaOH is added to the sample than to the calibration standards, is a correction made to the result? [NC WW/GW LC Policy based upon SM 19th, 20th, 21st 4500-NH_3 D. (5).]			
25	Is the adjusted pH verified and documented? [SM 18th 4500-NH_3 F. (4) (e). SM 19th, 20th, 21st 4500-NH_3 D. (4) (e).]			
26	How is the adjusted pH verified? [SM 18th 4500-NH_3 F. (4) (e). SM 19th, 20th, 21st 4500-NH_3 D. (4) (e).]			
	QUALITY ASSURANCE			
27	What is your laboratory's reporting limit? [15A NCAC 2H .0805 (a) (7) (l).]			
28	**List the values of standards used for the <u>daily</u> calibration:** [15A NCAC 2H .0805 (a) (7) (l).]			
29	Are curves plotted using Ammonia concentration versus potential (mV) developed? [SM 18th 4500-NH_3 F. (4) (c). and SM 19th, 20th, 21st 4500-NH_3 D. (4) (c).]			
30	Is the slope documented? [15A NCAC 2H .0805 (a) (7).]			
31	What is the acceptable slope range? [Manufacturer's instruction manual]			**Slope generally obtained:**
32	Is a reagent blank analyzed after calibration, but before samples are analyzed? [SM 4500-NH_3 B. (3) (a).]			
33	Is the blank concentration less than or equal to ½ of the lowest calibration standard concentration? [NC WW/GW LC Policy]			
34	What corrective action is taken if the blank is not acceptable? [15A NCAC 2H .0805 (a) (7) (F).]			
35	What is the concentration of the daily mid-range verification standard? [NC WW/GW LC Policy 01/28/08.]			
36	What corrective action is taken if the mid-range standard varies by more than 10%? [NC WW/GW LC Policy 01/28/08.]			
37	Is the blank and mid-range standard analyzed after every tenth sample and at the end of each sample group to check for carry-over and calibration drift? [NC WW/GW LC Policy 01/28/08.]			
38	Does the laboratory analyze a second source verification standard daily? [15A NCAC 2H .0805 (a) (7) (B).]			
39	What is the acceptance criterion for the second source standard? [15A NCAC 2H .0805 (a) (7).] [NC WW/GW LC Policy based upon 15A NCAC 2H .0805 (a) (7) (B), (a) (7) (F), and SM 20th Edition - Method 1020 B. (2) and (5).]			
40	At what frequency is a Matrix Spike (MS) analyzed? [NC WW/GW Policy based upon SM 1020 B.]			
41	How is the MS prepared? [NC WW/GW LC Matrix Spike Technical Assistance.]			
42	What is the acceptance criterion for MS recovery? [SM 1020 B.]			
43	What corrective action does the laboratory take if the MS results are outside of established control limits? [NC WW/GW LC Matrix Spike Technical Assistance and 15A NCAC 2H .0805 (a) (7) (F).]			
44	At what frequency are duplicates and/or Matrix Spike Duplicates (MSD) analyzed? [15A NCAC 2H .0805 (a) (7) (C).]			
45	What is the acceptance criterion for duplicates and/or MSD? [15A NCAC 2H .0805 (a) (7).]			
46	What corrective action does the laboratory take if the duplicate and/or MSD results are outside of established control limits? [15A NCAC 2H .0805 (a) (7) (F).]			
47	Does the laboratory have a SOP procedure and associated QA manual? [15A NCAC 2H .0805 (a) (7).]			
48	What is the most recent review/revision date of the SOP? [15A NCAC 2H .0805 (a) (7).]			

49	Is the data qualified on the Discharge Monitoring Report (DMR) or client report if Quality Control (QC) requirements are not met? [NC WW/GW LC policy 6/26/2008 based upon 15A NCAC 2B .0506 (b) (3) (J).]			.

Additional Comments: _____

_____

_____

_____

_____

_____

Inspector: _____ Date: _____