Colorado Discharge Permit System (CDPS) General Permit COA-931000
Discharge Monitoring Requirements

Facilities authorized to discharge under CDPS General Permit COA-931000 for Concentrated Animal Feeding Operations (CAFOs) must monitor discharges (the introduction of a pollutant) of manure and wastewater into waters of the United States as summarized below. (See Part III.G of the General Permit for specific requirements.)

✓ Samples must be taken at the following locations:
- the discharge point(s) identified in the certification provided on page one of the general permit;
- following the retention structure; and
- prior to mixing with waters of the U.S.

If conditions are not safe for sampling, the permittee must provide documentation of why samples could not be collected and analyzed. However, once dangerous conditions have passed, a sample must be taken, if possible, from the discharge point (e.g., impoundment or tank).

✓ Discharges must be sampled and analyzed in accordance with the following methods:

- Flow (MGD)
  - Take flow measurements that are representative of the flow rate of discharge.
  - Record flows as close as possible to the beginning, middle, and end of the discharge.

- 5-day Biochemical Oxygen Demand (mg/L)
  - Take a grab sample of the discharge using a plastic, fluoropolymer (PTFE; Teflon®), or glass container. (A "grab sample" is defined as a single "dip and take" sample collected so as to be representative of the parameter being monitored.)
  - Label the sample to show the name of the facility, the location from which the sample was taken, and date and time of the sample.
  - Refrigerate the sample at ≤ 6°C.
  - Samples must arrive at a certified laboratory within 24 hours.

- Fecal coliform (colony #/100mL)
  - Take a grab sample using a glass container or plastic container made of a sterilizable material (polypropylene or other autoclavable plastic).
  - Label the sample to show the name of the facility, the location from which the sample was taken, and date and time of the sample.
  - Cool the sample to < 10°C and preserve with 0.0008% sodium thiosulfate ($Na_2S_2O_3$) if oxidants such as chlorine are present.
  - Preserve within 15 minutes of collection (unless otherwise noted in the method used).
  - Samples must arrive at a certified laboratory within 8 hours.
  - The time of sampling and efforts made to deliver the Fecal Coliform sample within 8 hours must be documented. The permittee will not be considered out of compliance if due diligence is made to deliver the sample within 8 hours.

- Nitrate-nitrogen (mg/L)
  - Take a grab sample using a plastic, fluoropolymer (PTFE; Teflon®), or glass container.
  - Label the sample to show the name of the facility, the location from which the sample was taken, and date and time of the sample.
  - Refrigerate the sample at ≤ 6°C.
  - The maximum holding time before the start of analysis is 48 hours.

- Total ammonia (mg/L as N)
  - Use a plastic, fluoropolymer (PTFE; Teflon®), or glass container.
  - Label the sample to show the name of the facility, the location from which the sample was taken, and date and time of the sample.
  - Refrigerate the sample at ≤ 6°C and add sulfuric acid (H2SO4) until pH < 2.
  - Preserve within 15 minutes of collection (unless otherwise noted in the method used).
  - The maximum holding time before the start of analysis is 28 days.

- Total suspended solids (mg/L)
  - Take a grab sample using a plastic, fluoropolymer (PTFE; Teflon®), or glass container.
  - Label the sample to show the name of the facility, the location from which the sample was taken, and date and time of the sample.
  - Refrigerate the sample at ≤ 6°C.
  - The maximum holding time before the start of analysis is 7 days.

- See Table 1 (attached) for additional monitoring protocols

- Analyze the samples in accordance with the methods specified or approved by the U.S. Environmental Protection Agency pursuant to 40 CFR Part 136, or methods approved by the Ag Program, in the absence of an appropriate method specified in or approved pursuant to 40 CFR Part 136. When requested in writing, the Ag Program may approve an alternative analytical procedure or any significant modification to an approved procedure in accordance with section 61.8(4) of the CDPS regulations (5 CCR 1002-61).

✓ Records of Discharges must include (use attached form):
- The date, type, exact place, and time of sampling or measurements;
- The individual(s) who performed the sampling or measurements;
- The date(s) the analyses were performed;
- The individual(s) who performed the analyses;
- The analytical techniques or methods used; and
- The results of such analyses.

✓ Records must be retained for a minimum of 3 years, unless extended due to any unresolved litigation regarding the discharge or when requested by the Program or Local Health Department.

✓ If the permittee, using approved analytical methods, monitors any discharge parameter more frequently than required by the permit (e.g., more than 1 grab sample/discharge is collected or flow is monitored continuously throughout the discharge), the results of such monitoring must be included in the monitoring report. Such increased monitoring frequency shall also be indicated to the Division.

✓ The permittee must submit records of discharge monitoring to the Environmental Agriculture Program at the address below and to the Local Heath Department within 30 days of the discharge.

Colorado Department of Public Health and Environment
Environmental Agriculture Program
OE - B2
4300 Cherry Creek Drive South
Denver, CO 80246-1530

Table 1: Analytical protocols for required parameters (from 40 CFR 136)						
Required Parameter	Acceptable Methods	EPA	Standard Methods (18th, 19th, and 20th)	Standard Methods Online	ASTM	AOAC, USGS, Other
Flow (MGD)	Not applicable					
5-day Biochemical Oxygen Demand (mg/L)	Method A: Dissolved Oxygen Depletion		5210 B	5210 B–01		973.44,[5] p.17.,[9] I–1578–78[1]
Fecal coliform (colony #/100mL)	Method A: Most Probable Number (MPN), 5 tube 3 dilution	p. 132[2], 1680[3], 1681[4]	9221 C E	9221 C E-99		
	Method B: Membrane filter (MF) 2, single step.	p. 124[2]	9222 D	9222 D-97	B-0050-85	
Nitrate-nitrogen (mg/L)	Method A: Ion Chromatography	300.0, Rev 2.1 (1993) and 300.1, Rev 1.0 (1997)	4110 B	4110 B–00	D4327–97, 03	993.3[5]
	Method B: Capillary Ion Electrophoresis with Indirect Ultraviolet Detection (CIE/UV)					D6508, Rev. 2[6]
	Method C: Ion Selective Electrode		4500–NO_3 –D	4500–NO_3 –D - 00		
	Method D: Colorimetric					
	1. Brucine sulfate	352.1[7]				973.50[5], 419D[1,7], p.28[8]

[1] The approved method is that cited in ''Methods for Determination of Inorganic Substances in Water and Fluvial Sediments'', USGS TWRI, Book 5, Chapter A1 (1979).
[2] USEPA. 1978. Microbiological Methods for Monitoring the Environment, Water, and Wastes. Environmental Monitoring and Support Laboratory, U.S. Environmental Protection Agency, Cincinnati, OH, EPA/600/8–78/017.
[3] USEPA. July 2006. Method 1680: Fecal Coliforms in Sewage Sludge (Biosolids) by Multiple-Tube Fermentation Using Lauryl-Tryptose Broth (LTB) and EC Medium. US Environmental Protection Agency, Office of Water, Washington, DC EPA–821–R–06–012.
[4] USEPA. July 2006. Method 1681: Fecal Coliforms in Sewage Sludge (Biosolids) by Multiple-Tube Fermentation using A–1 Medium. U.S. Environmental Protection Agency, Office of Water, Washington, DC EPA–821–R–06–013.
[5] "Official Methods of Analysis of the Association of Official Analytical Chemists,'' Methods Manual, Sixteenth Edition, 4th Revision, 1998.
[6] Method D6508, Rev. 2, ''Test Method for Determination of Dissolved Inorganic Anions in Aqueous Matrices Using Capillary Ion Electrophoresis and Chromate Electrolyte,'' available from Waters Corp, 34 Maple St., Milford, MA, 01757, Telephone: 508/482–2131, Fax: 508/482–3625.
[7] ''Methods for Chemical Analysis of Water and Wastes,'' Environmental Protection Agency, Environmental Monitoring Systems Laboratory–Cincinnati (EMSL– CI), EPA–600/4–79–020 (NTIS PB 84–128677), Revised March 1983 and 1979 where applicable.
[8] Ammonia, Automated Electrode Method, Industrial Method Number 379–75 WE, dated February 19, 1976, Bran & Luebbe (Technicon) Auto Analyzer II, Bran & Luebbe Analyzing Technologies, Inc., Elmsford, NY 10523.

Table 1: Analytical protocols for required parameters (from 40 CFR 136)						
Required Parameter	Acceptable Methods	EPA	Standard Methods (18th, 19th, and 20th)	Standard Methods Online	ASTM	AOAC, USGS, Other
	2. Nitrate-nitrite N minus Nitrite N (see tests for Nitrate-nitrite N and Nitrite N)					
Total ammonia (mg/L as N)	Method A: Manual - Distillation followed by either:	350.1, Rev. 2.0 (1993).	4500–NH_3 B	4500–NH_3 B–97		973.49[5]
	1. Nesslerization		4500–NH_3 C (18th only)		D1426–98, 03 (A)	973.49[5], I–3520–85[9]
	2. Titration		4500–NH_3 C (19th and 20th) and 4500–NH_3 E (18th	4500–NH_3 C–97.		
	3. Electrode		4500–NH_3 D or E (19th and 20th) and 4500–NH_3 F or G (18th).	4500–NH_3 D or E–97.	D1426–98, 03 (B)	
	Method B: Automated - phenate	350.1 60, Rev. 2.0 (1993).	4500–NH_3 G (19th and 20th) and 4500–NH_3 H (18th)	4500–NH_3 G–97		I–4523–85[10]
	Method C: Automated - electrode					Other[8]
	Method D: Ion chromatography				D6919–03	
Total suspended solids (mg/L)	Method A: Gravimetric, 103-105 °C post washing of residue		2540 D	2540 D–97		I–3765–85[2]

[9] American National Standard on Photographic Processing Effluents, April 2, 1975. Available from ANSI, 25 West 43rd St., New York, NY 10036.
[10] Fishman, M. J., et al. ''Methods for Analysis of Inorganic Substances in Water and Fluvial Sediments,'' U.S. Department of the Interior, Techniques of Water- Resource Investigations of the U.S. Geological Survey, Denver, CO, Revised 1989, unless otherwise stated.

CDPS General Permit COA-931000 Discharge Monitoring Recordkeeping and Reporting Form

Please complete this form for each discharge location and event

Facility Name: _____ Permit Certification Number: _____

Contact Person: _____ Contact Phone: _____

Date of Discharge: _____ Location of Discharge: _____

Time of Discharge: Begin time: _____ AM or PM End time: _____ AM or PM

SAMPLE/MEASUREMENT INFORMATION

Sample/Measurement Date: _____ Sample Time: _____ AM / PM (circle) Measurement Time: _____ AM/PM

Sample location (describe the exact place of sampling):

_____

_____

Measurement location (describe the exact place of measurement):

_____

_____

Individual(s) Performing Sampling/Measurement:

_____

Type of sample: ☐ Grab* ☐ Other (specify): _____

*Grab sample is defined as a single "dip and take" sample collected so as to be representative of the parameter being monitored.

PARAMETERS (check to indicate the following parameters were monitored):

Flow (MGD): ☐ Beginning of discharge ☐ Middle of discharge ☐ End of discharge

☐ BOD_5 (mg/l) ☐ Total Suspended Solids (TSS) (mg/l) ☐ Fecal Coliform (colony #/100ml)

☐ Nitrate, as N (mg/l) ☐ Total Ammonia (mg/l as N)

ANALYSIS

Date(s) Analyses Performed: _____ Lab(s) Performing Analyses: _____

Analytical Techniques or Methods Used:

_____

_____

RESULTS

Flow:

Beginning of discharge: _____ MGD Middle of discharge: _____ MGD End of discharge: _____ MGD

Chemical/bacterial parameters: Please attach properly labeled laboratory results

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

_____ _____

Name and Official Title (Print or Type) *Phone Number*

_____ _____

Signature *Date Signed*