Nebraska Department of Water, Energy, and Environment

Standard Operating Procedure (SOP)

Groundwater Division - GW

SOP Number: GW-140
Title: Chain-of-Custody Procedures for Groundwater Samples
Written Date: July 2025

Purpose: Appropriate chain of custody (COC) procedures are designed to provide adequate documentation of sample possession from sampling event, though transfers, to laboratory analysis, and sometimes even document sample disposal. This form also provides the laboratory identification of the samples, type/media, sampling dates and times, descriptions, and what tests and methods are to be run on the samples.[1,3]

Scope/Application:
This procedure is intended to document sample possession, cover what and how information should be recorded when sampling a groundwater monitoring well.

Equipment/Materials Needed:

- Ground water quality sample sets obtained, preserved, and handled as per DWEE SOPs and laboratory requirements.

- Chain-of-custody form (see Appendix A).

Procedures Text:

1. Before sampling, confer with the laboratory performing the analysis and review the chain-of-custody requirements as outlined in this SOP to ensure that they understand the procedures and requirements.

2. Obtain, preserve, and handle ground water samples as per DWEE SOPs, EPA method and laboratory requirements.

3. Immediately before or after obtaining an individual sample set, begin filling out the chain-of-custody record.

4. For specific events (e.g. point source incidents or contaminant site investigations), fill out one COC record for each site, completing one line of the upper block on the first page for each specific sample set taken. For larger sites with a large number of samples, fill out a separate COC for each the samples in each sample cooler. For larger, regional sampling events (e.g. GWMA studies), fill out a separate record(s) for each day of sampling.

5. Fill out the sections regarding the sample ID, the date and time the sample was taken, the media/ type of sample, the requested sample parameters and methods and any preservation techniques used. Remarks and notes are optional. For longer-term (e.g. GWMA) studies or sampling events for which these sections are known in advance, the forms may be pre-printed with the appropriate areas filled in.

6. Upon completion of the sampling event, transport the samples to the laboratory for analysis. If the samples are delivered to the lab by the same individual(s) who performed the sampling, the sampler is responsible for maintaining the record until the samples are delivered to the lab. If transferring the samples to a different individual for delivery, the sampler must sign on the lower block on the second page under "Relinquished By." The person transporting the samples to the lab must sign on the lower block under "Received By," and fill in the correct date and time in the space provided. If the samples are shipped via commercial carrier to the lab, the sampler must sign in the lower block on the second page under "Delivered By," and fill in the date and time in the space provided. The COC is then placed in a Ziploc type bag in the top of the cooler. The sample cooler is addressed and sealed. The sampler retains the carrier's shipping receipt as evidence. The commercial carrier's delivery tracking may, in this case, be used to further confirm the integrity of the COC and delivery.

7. Upon arrival at the lab, deliver the samples to the individual responsible for sample receipt. Confirm with this individual the analytical requirements for your samples, if you have not already done so.

8. Sign the chain-of-custody record on the lower block under relinquished by.

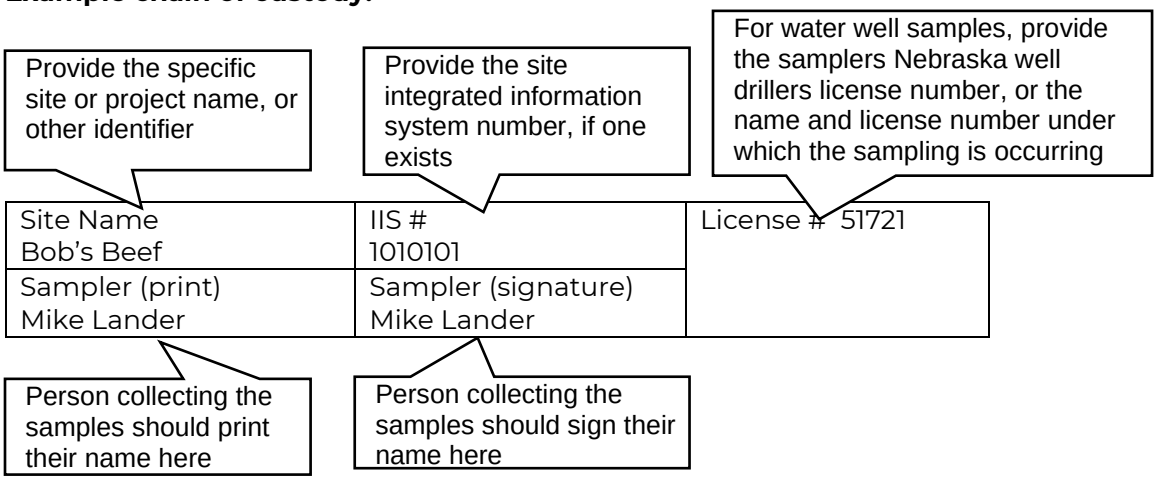
9. Ensure that the laboratory representative signs the record on the lower block on the second page under "Received By," and places the correct date and time in the spaces provided. Also, instruct the laboratory representative to fill in the laboratory numbers of the samples at an appropriate time in the space provided (NOTE: if samples are to be delivered by commercial carrier, be sure to instruct the laboratory representative to follow Steps 4-6 in your absence).

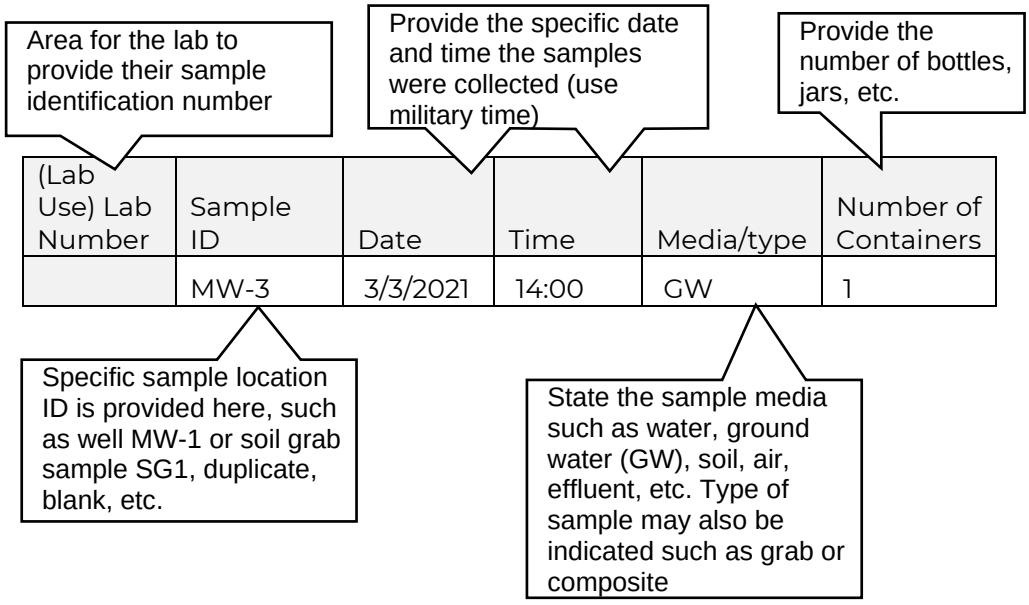
10. If delivering the samples to the lab. Follow the labs sample check in process as needed.

11. If the samples must be transferred for any reason (e.g. to another laboratory or section for specialized analyses, etc.), instruct the laboratory representative to follow the above procedure to fill out additional lines on the lower block.

12. Ensure that the lab returns the properly completed chain-of-custody record and file it with the laboratory results until it is no longer needed.

Example chain of custody:





Provide the lab method requested, such as EPA method 8260B for volatiles or EPA method 353.2 for nitrates. Requested parameters such as pH or total dissolved solids should also be indicated here.

Parameters and Lab Methods					
method 353.2 Nitrate	method 350.1 Ammonia	method 325.2 Chloride		Preservation	Remarks
X	X	X		X	Cloudy sample

Are the preservation methods as required by the lab and/ or the EPA method completed? An example would be cooling the samples to 4°C, and lowing pH with H_2SO_4.

Comments are optional, as needed

Each time the custody of the samples is transferred, a date, time, company and signature are required. As one person gives up custody, the next person accepts custody of the samples (generally the samples are in a cooler). Each person in the chain is responsible for proper handling of the samples.

Relinquished by (signature) Mike Lander	Date/ time 3/4/2021 9:15	Relinquished by (signature)	Date/ Time
(Print) Mike Lander	Company Geo Engineering Inc.	(Print)	Company
Received by: (Signature) Thomas Gardezi	Date/ time 3/4/2021 9:15	Received by: (Signature)	Date/ Time
Print Thomas Gardezi	Company Gardezi Labs	Print	Company

If the samples are to be delivered to the lab by a carrier, the COC is sealed in a Ziploc type bag with the samples (in the cooler) and addressed to the lab. The cooler is then sealed. A copy of the carriers' receipt should be retained for evidence. The commercial carrier's delivery tracking may, in this case, be used to further confirm the integrity of the COC and confirm delivery.

When a carrier delivers the samples to the lab then the lab personnel should fill in the received by line and the date and time upon receipt.
In either case, a copy of the completed COC should be delivered with the sample results to DWEE.

It is possible, but not ideal to have more than two persons receiving and relinquishing the samples. An additional form may need to be added if more than three persons receive and relinquish the samples. Generally, the fewer times the samples change hands, the better it is considered for sample integrity.

References:

1. ASTM D4840-99, Standard Guide for Chain of Custody Procedures, pages 1-8. 1999.

2. The Complete Ground-Water Sampling Field Course, Sept. 19-21, 2011, Lincoln, NE. The Nielson Environmental Field School. Instructed by David Nielson and Gillian Nielson.

3. USEPA Quality Assurance Handbook for Air Pollution Measurement Systems, Vol. II, Section 8.0, Sample Handling and Custody, pages 1-6, 12/2008

APPENDIX A. Example: Chain-of-Custody form

Site Name		IIS #		License #		Parameters and Lab Methods					
Sampler (print)		Sampler (signature)									
(Lab Use) Lab Number	Sample ID	Date	Time	Media/type	Number of Containers					Preservation	Remarks
Relinquished by (signature)		Date/ time			Relinquished by (signature)			Date/ time			
(Print)		Date/ time			(Print)			Date/ time			
Received by: (Signature)		Date/ time			Relinquished by (signature)			Date/ time			
Print		Date/ time			(Print)			Date/ time			
Additional Notes:											