

WP 02-EM3001

Revision 11

Administrative Processes for Environmental Monitoring and Hydrology Programs

Management Control Procedure

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APPROVED FOR USE

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INTRODUCTION ^{1, 2, 3, 4, 5}

This procedure provides the administrative guidance environmental monitoring personnel use to maintain quality control associated with environmental monitoring sampling and reporting activities. This administrative procedure does not pertain to volatile organic compound (VOC) monitoring, with the exception of Section 6.0 which pertains to the regulatory reporting review process.

The Environmental Monitoring and Hydrology (EM&H) organization is responsible for performing radiological and nonradiological environmental surveillance around the Waste Isolation Pilot Plant (WIPP) site by collecting airborne particulate, water runoff, soil, sediment, surface water, groundwater, vegetation, and biota samples at a frequency described in the current Environmental Monitoring Plan (EMP) and/or applicable permits. Samples are submitted to the appropriate laboratories for radiological and nonradiological analyses.

Information and analytical data generated by Environmental Monitoring Programs are considered Quality Records per Title 40 *Code of Federal Regulations* (CFR) Part 191, Subpart A, and are maintained in accordance with the EM&H Records Inventory and Disposition Schedule (RIDS).

The EM&H Manager will ensure that an Annual Environmental Sampling Schedule for all EM&H programs is developed, maintained, and updated as necessary. This schedule may be modified as necessary to accommodate inclement weather or unforeseen circumstances.

One or more of the following records are generated by the use of this procedure:

- Sample Tracking Logbook (see Attachment 1, Sample Tracking Logbook)
- Transmittal letters
- Data sheets
- Regulatory reports
- EM&H Manager or designee comments on draft regulatory reports

REFERENCES

BASELINE DOCUMENTS

- 40 CFR Part 191, Subpart A, "Environmental Standards for Management and Storage"
- DOE Order 5400.5, *Radiation Protection of the Public and the Environment*

- Hazardous Waste Facility Permit issued to the Waste Isolation Pilot Plant, Identification No. NM4890139088-TSDF, by the New Mexico Environment Department
- DP-831, Waste Isolation Pilot Plant Discharge Permit
- DOE/WIPP-99-2194, *Waste Isolation Pilot Plant Environmental Monitoring Plan*
- WP 13-1, Washington TRU Solutions LLC Quality Assurance Program Description

REFERENCED DOCUMENTS

- WP 02-EM.02, Integrated Sample Control Plan
- WP 02-EM3003, Data Validation and Verification of RCRA Constituents

PRECAUTIONS AND LIMITATIONS

- Care shall be exercised in following sampling protocols to prevent contamination of samples.
- Sample hold times, packaging, and preservation guidelines shall be in accordance with applicable EM&H procedures and/or analytical laboratories' recommendations.
- Only personnel with a valid qualification card or personnel working under direct supervision of qualified personnel for the specific sampling procedures may perform data entries in the corresponding EM&H Sample Tracking Logbooks.
- The actions of this procedure will be conducted only by those individuals who are qualified to perform the subprograms (e.g., groundwater surveillance, low-volume air sampling) that this procedure governs.
- Actions to take if sample results indicate the potential for exceeding a regulatory limit are found in WP 02-EM3003.

PERFORMANCE

1.0 DATA SHEET OR SAMPLE TRACKING LOGBOOK PREPARATION

- 1.1 Obtain current specific data sheets for upcoming sampling events.
- 1.2 **GO TO** Section 3.0 and develop unique sample number, and **RETURN TO** Step 1.3.

- 1.3 Record unique sample number for each sample (with labels if available) to be collected on respective data sheet.
- 1.4 Record all available data and information before sampling proceeds.
- 1.5 Check that required calibrations are current for sampling equipment.
- 1.6 Check that any required personnel health prerequisites are met.

NOTE

Actual logbook may differ from Attachment 1, depending on sampling event.

- 1.7 Review appropriate Job Hazards Analysis.
- 1.8 Record all applicable information in the logbook as it becomes available:
 - Uniquely numbered Chain-of-Custody (COC) Record
 - Uniquely numbered Request for Analysis (RFA) Form
 - Sample number
 - Date samples sent to laboratory
 - Laboratory name
 - Acknowledgment of Receipt (AOR) information or comments
 - Well name and sampling round number, if a well sample

2.0 SAMPLE TRACKING

- 2.1 Standardized forms used to document samples may include:
 - COC
 - RFA (with any precautions or special requirements for sample preservation listed)

NOTE

To ensure the integrity of samples, all samples shall be clearly and legibly labeled for traceability to data sheets, COC, and logbook from the time of collection through reporting date. The COC will be signed and dated each time custody is transferred from the qualified sampling personnel to laboratory personnel. Split or subdivided samples shall have documentation referencing the original sample identification.

2.2 Sample Custody and Handling

NOTE

If physical labeling is obliterated, hidden, or impractical, samples shall be tagged, physically separated, or procedurally controlled. Samples that have lost their identity shall not be used.

- 2.2.1 Perform maintenance on, or replace, any markings or identification labels damaged or illegible.
-

NOTE

Nonconforming or aborted samples shall be identified and documented, with disposition dictated by WP 02-EM.02. Aborted samples (e.g., air particulate samples) may be subject to analysis before discarding to ensure that no dose criteria are exceeded.

- 2.2.2 Provide protection of identification markings subject to excessive deterioration from environmental exposure.
- 2.2.3 Place samples in upright position inside a stable container for transport.
- 2.2.4 Maintain sample custody within sight of sampling personnel during sampling event; in a controlled access environment (per preservative directives) location at all other times.

2.3 Sample Shipped to Off-Site Analytical Laboratory by EM&H

NOTE

Containers used to transport samples shall have a completed and signed COC form and RFA form, inserted into a moisture proof envelope and be placed in a cooler, if cooler is shipped to contract laboratory.

- 2.3.1 Complete logbook information before shipment.
-

NOTE

Preprinted, multipart COC and RFA forms must be paired to the same COC/RFA number.

- 2.3.2 Retain at least one copy of the COC and RFA in the appropriate section of the EM&H files.
 - 2.3.3 Ship samples, with original completed COC and RFA **inside** shipping container, to off-site laboratory for analysis.
 - 2.3.4 Site Technical Representative (STR) for the laboratory, request AOR from the laboratory when the samples are supposed to have been delivered.
 - 2.3.5 **IF** an AOR is **NOT** received from the analytical laboratory, **THEN** contact the analytical laboratory to determine status of samples.
 - 2.3.6 STR, note sample(s) status on the file copy of the COC **AND** log status in a logbook.
-

NOTE

If status of samples is indeterminate, the appropriate Washington TRU Solutions LLC/Washington Regulatory and Environmental Services personnel should be notified of possible need for resampling.

- 2.3.7 Continue tracking status until AOR is received or status of samples is determined.
-

NOTE

Sample disposal (after analyses is completed) will be per the RFA.

- 2.3.8 Maintain the COC until final results for the analysis requested have been received in accordance with the Statement of Work and data validation is completed.
 - 2.3.9 Keep data packages in accordance with EM&H's RIDs.
- 2.4 Samples Analyzed On-Site or Hand Delivered to Laboratory
-

NOTE

An AOR is not required when samples are hand delivered to an analytical laboratory. The completed COC shall constitute the AOR.

- 2.4.1 Complete proper sign-offs on the original COC and RFA by personnel releasing custody and laboratory personnel who take custody of the sample.

- 2.4.2 Give original COC and RFA to laboratory personnel to keep with samples.
- 2.4.3 Place at least one copy of the signed COC and RFA in EM&H files, along with original data sheets.

NOTE

Sample disposal (after analysis is completed) will be per the RFA.

- 2.4.4 Maintain the COC until final results for the analysis requested have been received in accordance with the Statement of Work and data validation is completed.
- 2.4.5 Archive data packages in accordance with EM&H's RIDs.

3.0 SAMPLE NUMBER DEVELOPMENT

- 3.1 Determine the sample type (i.e., routine or water quality).
- 3.1.1 **GO TO** Step 3.2 to develop environmental monitoring sample numbers (i.e., all locations and media not involving wells).
- 3.1.2 **GO TO** Step 3.3 to develop water quality sample numbers for samples taken from wells.

NOTE

An environmental monitoring sample number consists of the following:

- Two alphabetic characters, the subprogram code, which identify the sample type, followed by a dash.
 - Three alphanumeric characters, the location code, which identify the location the sample was obtained, followed by a dash.
 - Eight numeric characters which identify the year, month, and day the sample was collected, followed by a dash.
 - Numeric characters (i.e, the specification code), that identify the specific sample from a group of samples taken at one location.
-

- 3.2 Develop unique environmental monitoring sample numbers using the criteria in Steps 3.2.2 through 3.2.6.

NOTE

The subprogram code consists of two alphabetic characters, which identify the sample type.

- The first letter identifies the general subprogram (examples, A for Air, W for Water, and B for Biotic).
- The second letter specifies type of sample within the general subprogram (examples, AL for Air Low volume (LO-VOL) sampling, WS for Water Surface sampling, and BF for Biotic Fish tissue sampling).

3.2.2 Determine sample type using Table 1 - Subprogram Codes.

Table 1 - Subprogram Codes			
AH	Air Hi-vol continuous	EC	Effluent Compliance
AL	Air Lo-vol continuous	SB	Sediment Bottom
BB	Biotic Beef	SD	Soil Deep
BF	Biotic Fish	SI	Soil Intermediate
BD	Biotic Deer	SS	Soil Surface
BO	Biotic Other	WD	Water Deep
BQ	Biotic Quail	WI	Water Intermediate
BR	Biotic Rabbit	WR	Water Runoff
BV	Biotic Vegetation	WS	Water Surface

NOTE

The location code consists of three alphanumeric characters, which identify the site where the sample was collected.

3.2.3 Determine sampling location using Table 2, Location Codes, and record on field data sheet.

Table 2 - Location Codes			
BHT	<u>B</u> ottom of the <u>H</u> ill <u>T</u> ank	HIL	<u>H</u> ILL tank
BRA	<u>B</u> R <u>A</u> ntley lake	PKT	<u>P</u> o <u>K</u> er <u>T</u> rap
CBD	<u>C</u> arls <u>B</u> a <u>D</u>	RED	<u>R</u> ED tank
COW	<u>C</u> Oyote <u>W</u> ell (deionized water blank)	SEC	<u>S</u> outh <u>E</u> ast <u>C</u> ontrol
COY	<u>C</u> OYote (surface water duplicate)	SMR	<u>S</u> Mith <u>R</u> anch
EBA	<u>E</u> vaporation <u>B</u> asin <u>A</u>	SPE	<u>S</u> alt <u>P</u> ile <u>E</u> vaporation Pond

Table 2 - Location Codes

PD1	<u>P</u> ond <u>1</u>	PD2	<u>P</u> ond <u>2</u>
EEB	<u>E</u> xtension <u>E</u> vaporation <u>B</u> asin	SOO	<u>S</u> ample <u>O</u> f <u>O</u> ppportunity*
FWT	<u>F</u> resh <u>W</u> ater <u>T</u> ank	SWL	<u>S</u> e <u>W</u> age <u>L</u> agoons
IDN	<u>I</u> n <u>D</u> ia <u>N</u> tank	TUT	<u>T</u> <u>U</u> <u>T</u> tank
LST	<u>L</u> o <u>S</u> t <u>T</u> ank	UPR	<u>U</u> pper <u>P</u> ecos <u>R</u> iver
MLR	<u>M</u> i <u>L</u> l <u>s</u> <u>R</u> anch	WAB	<u>W</u> IPP <u>A</u> ir <u>B</u> lank
NOY	<u>N</u> O <u>Y</u> a tank	WEE	<u>W</u> IPP <u>E</u> ast
PCN	<u>P</u> ierce <u>C</u> anyo <u>N</u>	WIP	<u>W</u> IPP 16 sections
PEC	<u>P</u> E <u>C</u> os river	WFF	<u>W</u> IPP <u>F</u> ar <u>F</u> ield
TUT	<u>T</u> <u>U</u> <u>T</u> tank	WSS	<u>W</u> IPP <u>S</u> outh

* An SOO is taken at a location that may present itself aside from any other named location.

NOTE

The date consists of eight numbers specifying the year, month, and day as follows:

- The year, expressed as four digits (e.g., 1999)
- The month and day, expressed as two digits, with "0" preceding any single-digit number
- No spaces are used between the numbers (e.g., September 1, 1999, would be 19990901)

3.2.4 Determine sampling date.

NOTE

The specification code is used to identify a particular sample from a group of samples of a particular type collected at a single location and on the same date. This numeric code consists of two numbers separated by a decimal point:

- The first number isolates the sample from all other samples in the group.
- The second number indicates the number of samples in the group.

Examples: 2.10 - indicates sample number 2 of a group of 10, taken from the same location and date (i.e., 10 replicate samples)

1.1 - indicates one sample was taken at that location and date.

3.2.5 Determine sample specification.

NOTE

If AL-SMR-19990901-1.1 was a complete routine sample number, it would be defined as follows:

AL	Air Low volume (subprogram)
SMR	Smith Ranch (location)
19990901	September 1, 1999 (sample collection date)
1.1	One sample collected (specification)

3.2.6 Compile the unique routine sample number using the following criteria in descending order:

- [A] Subprogram code from Table 1, followed by a dash
- [B] Location code from Table 2, followed by a dash
- [C] Eight digit date code, followed by a dash
- [D] Sample specification code

3.3 Develop unique water quality final sample numbers using the criteria in Steps 3.3.1 through 3.3.5.

NOTE

For WQSP (water quality sampling program) wells, only "WQ" is to be used (e.g., WQ6a is the sample from well WQSP-6A).

The subprogram code for groundwater is "GW."

No hyphens are to be used in the well numbers (e.g., SNL-15 will be SNL15).

3.3.1 Determine well name.

NOTE

The water bearing formation is designated by a one or two letter abbreviation for the formation name (examples, "C" for the Culebra; "M" for the Magenta; "DL" for the Dewey Lake Formation).

3.3.2 Determine name of formation yielding sample water.

NOTE

The sampling round number is designated with the letter "R" followed by a number. A sampling round is one sampling event where the well is purged and a final sample is taken for analysis.

3.3.3 Determine sampling round number.

NOTE

The specific analysis number identifies samples designated for specific analysis and is denoted by the letter "N" followed by a number. There may be more than one sample bottle for each specific analysis number requiring multiple labels with the same water quality sample number.

3.3.4 Determine specific analysis number.

NOTE

An example of a complete water quality sample number is as follows:

GW-WQ6A-DL-R7-N5

GW	Groundwater
WQ6A	Well WQSP-6A
DL	Dewey Lake Formation
R7	Sampling round 7
N5	Sample number 5

- 3.3.5 Compile the unique water quality sample number using the following criteria in descending order, separating each field with a hyphen:

[A] Subprogram name GW

[B] Well name

[C] Name of formation yielding sample water

[D] Sampling round number

[E] Specific analysis number

4.0 QUALITY ASSURANCE/QUALITY CONTROL IMPLEMENTATION

4.1 Data Sheet Verification

NOTE

Data sheets will have a specific section, or the stamping "CHECK-PRINT" designated on them, for the reviewer to sign or initial, and date. The reviewer shall be qualified for that field process and shall be independent of the data collector.

Unverified data used outside EM&H for information only must be marked or noted as "INFORMATION ONLY," "PRELIMINARY," or "DRAFT."

- 4.1.1 Originator, complete the original documentation.

NOTE

The review in Step 4.1.2 must be performed by an individual other than the Originator.

4.1.2 Reviewer, check-print for the following:

- All corrections single-lined out, dated, and initialed
- Complete entries
- Correct mathematical calculations

4.1.3 Reviewer, if discrepancies are found, resolve discrepancies with originator or qualified designee.

4.1.4 Originator or designee, make corrections on any mistakes found as a result of the check-print verification, and return work to reviewer.

NOTE

Calculations cannot be changed after final resolution of check-print corrections.

4.1.5 Reviewer, sign or initial, and date all check-printed pages.

NOTE

Steps 4.1.6 through 4.1.8 may be performed by any qualified personnel.

4.1.6 Deliver samples to laboratory per Steps 2.3 or 2.4, as applicable.

4.1.7 Enter data in logbook.

4.1.8 Secure data packages and logbook in fire-rated cabinet.

5.0 LOG KEEPING

5.1 Start a new logbook each calendar year for each EM&H sampling procedure, closing out the existing logbook after sampling event(s) and logbook reviews are complete.

5.2 Personnel performing logbook data entries, sign and/or initial each entry made (section or page).

5.3 Enter data into the logbook as soon as reasonably possible.

- 5.4 Draw a single diagonal line through the remaining portion of the current logbook page, then enter **NO FURTHER ENTRIES**, and initial and date on the diagonal line.
- 5.5 Maintain logbooks in secure, fire-rated cabinets.

NOTE

Completed logbooks must be reviewed to ensure they are adequately maintained and legible.

- 5.6 After satisfactory review, write "Logbook Reviewed by" on first page of the logbook, and sign and date.

6.0 REGULATORY REPORTING REVIEW PROCESS

NOTE

All EM&H regulatory reports must undergo sufficient review by the EM&H Manager or designee prior to delivery to the Carlsbad Field Office and regulatory agencies. Regulatory submittals should be thoroughly researched, well reasoned, and free of mistakes.

- 6.1 Author, prepare the draft regulatory report in accordance with regulatory requirements.
- 6.2 Author, or designee, checkprint all backup data and review calculations for accuracy – making corrections when necessary.
- 6.3 Author, provide draft report, attachment(s) and backup documentation along with "reviewers' guidelines" to a qualified reviewer.

NOTE

A qualified reviewer must be the department manager or designee and must have the technical credentials to review the work product.

NOTE

Reviewers' guidelines may be written or provided verbally to the reviewer, but should address the following elements, depending on the complexity of the document. Those items marked with "(optional)" are for reports that tend to provide more interpretation than mere presentation of data:

- What issue or subject matter is addressed by the document?
 - What research was performed to prepare the draft work product?
 - What were the methods of data collection and where do any back-up calculations and references reside?
 - What are the programmatic and/or regulatory drivers for the work product (optional)?
 - What portions of the draft document warrant critical examination (optional)?
 - What portions of the document may likely be challenged (optional)?
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6.4 Reviewer, evaluate the quality of the draft report, attachment(s), and supporting documentation and prepare written comments to ensure the following goals are achieved:

- Contents meet regulatory requirements for report.
- Report is accurate, complete, and consistent with other related documents.
- Organization, design, and conceptual components are clear.
- When applicable, arguments are amply supported by evidence.
- Data processing and usage are adequately explained.
- Graphics are used effectively.
- Plain language is employed.
- Grammar and punctuation are correct.

NOTE

In preparing comments, the reviewer is encouraged to offer alternative text when there are differences of opinion rather than making broad statements such as "rewrite to clarify."

NOTE

When the review is complete, the following questions should be answered in the reviewer's mind:

- The research performed by the author was adequate.
 - When applicable, persuasive reports, or portions of reports, have a clearly defined subject, focus, and thesis of any argument.
 - When applicable, there are no conceptual gaps in the reasoning of the document.
 - Data have been appropriately validated.
 - Calculations are correct and verified.
 - Conclusions are properly supported by the evidence provided.
 - Information is consistent with that used in other documents or, if not, the inconsistency is justified.
 - Examples and illustrations are used when appropriate and are effective.
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- 6.5 Reviewer, provide written comments to the author on the report and meet with the author to discuss any comments that may not be self-explanatory.
- 6.6 Author, resolve written comments and produce final draft report.
- 6.7 EM&H Manager, review the final draft product along with review comments to assure comments were appropriately resolved.
- 6.8 Author, ensure that the initial draft regulatory report and written review comments are maintained along with correspondence and accompanying final report in EM&H records.

