


Identifier: SOP-5204	Revision: 0	 Los Alamos NATIONAL LABORATORY EST. 1943
Effective Date: October 20, 2008	Next Review Date: June 30, 2013	

Waste & Environmental Services

Standard Operating Procedure

for **ANALYTICAL DATA QUALIFICATION FOR
RESIDUAL EFFECTS OF DRILLING PRODUCTS**

APPROVAL SIGNATURES:

Subject Matter Expert:	Organization	Signature	Date
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1.0 PURPOSE AND SCOPE

This standard operating procedure (SOP) describes the assignment of data qualifiers to water-quality data that may not be reliable or representative of predrilling groundwater quality as a result of residual effects from the use of drilling products. This procedure is applicable to water-quality data reported for samples collected from deep characterization wells and that reside in the Water Quality Database (WQDB). This procedure is conducted by Los Alamos National Laboratory (LANL or Laboratory) personnel and contractors who review analytical data for drilling effects for the LANL Water Stewardship Program (LWSP) or for other specific LANL projects.

This evaluation technique is strictly a tool to identify which water-quality samples (if any) may have been impacted by drilling-related causes, and which analytical data may not be reliable and representative of predrilling groundwater as a result. This data-quality evaluation SOP is NOT for health and safety purposes.

2.0 BACKGROUND AND PRECAUTIONS

2.1 Background

This procedure conforms to the general protocol presented in the Well Screen Analysis Report, Revision 2 (WSAR Rev 2) (LANL 2007, 096330), as modified by this SOP. The evaluation process is implemented using the web-based Data Qualification Module (DQM). The DQM is accessed at https://hsr-as-p-1.lanl.gov/wqdb/Data_Qualification_index.html.

Personnel conducting tasks under this SOP require an appropriate level of authorization for use of the DQM. Authorization may be obtained from the Data Assessment Program Manager. Three levels of authorization exist:

- Data Qualification Screener – allowed to modify and save test criteria outcomes and to upload final applicable analyte drilling flags to the WQDB.
- Authenticator – same privileges as the Data Qualification Screener, plus allowed to modify DQM configuration forms for Test Threshold, Test Condition, and Well Selection.
- All other users – allowed to access and run the DQM, but cannot save results.

Personnel performing the duties of the Data Qualification Screener or the Authenticator under this SOP are required to train to it.

2.2 Precautions

This evaluation uses validated data that are acquired and reviewed following formal, approved quality assurance procedures. Groundwater monitoring is conducted as an integrated activity that uses the same personnel, basic operating procedures, laboratory analysis contracts, and data-management systems. These procedures are posted on the Laboratory's website <http://int.lanl.gov/environment/all/qa/adeq.shtml> under the category labeled "Data/Dose."

The DQM is intended to be applied only to samples for which all applicable data packages have completed routine validation. Different analytical suites may be validated at different times, but the entire set of data must be validated before implementing this procedure. Validated data records are indicated by "N" in the Prelim Flag field of the WQDB (signifying the data are no longer classified as preliminary).

3.0 EQUIPMENT AND TOOLS

None.

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4.0 STEP-BY-STEP PROCESS DESCRIPTION

4.1 Selection of Water Quality Samples

- Authenticator
1. Log onto the DQM and review sample status at least annually to identify water-quality samples that have become eligible for data qualification screening since the last review.
 [NOTE: To be eligible for data qualification under this SOP, the sample must meet the following eligibility criteria:
 - The sample was collected from a well installed either as part of the Hydrogeologic Workplan (LANL 1998, 059599) as part of the ongoing characterization effort, or as part of corrective measures.
 - The sample was collected as part of a groundwater characterization or surveillance monitoring program. This condition thus excludes data collected as part of a special study, e.g. well rehabilitation monitoring; such samples are flagged as "SS" in the FLD_QC_TYPE_CODE field in the WQDB. (The definitions for the abbreviations may be found at <http://wqdbworld.lanl.gov/> under "Lookup Tables" under the menu on the left side of the page.)
 - The sample was collected from a screen in a monitoring well tapping either an intermediate perched zone or the regional aquifer.
 - Data packages associated with the sample have completed all applicable validation and verification reviews.
 - Sufficient analytical data are available for the sample to provide an adequate technical basis for its evaluation.]
 2. Request the screener to conduct a preliminary evaluation of available water-quality samples.

4.2 Screening of Water Quality Samples

- Data Qualification Screener
1. Log onto the DQM (https://hsr-as-p-1.lanl.gov/wqdb/Data_Qualification_index.html).
 2. From the Main Menu, call up the *Trending Form*.
 3. Use the pull-down menus to specify the location and port depth for the well screen of interest (identified by the Authenticator in step 4.1.2).
 4. Review the most recent test criteria results for that well screen, and note which test outcomes failed or were overridden and which drilling effects were found to be present.
 5. Return to the Main Menu and call up the *Data Qualification Form*.

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6. On the *Sample Selection* tab, use the pull-down menus to specify the location, port depth, and start date for the water-quality sample that is ready for initial screening and hit the **Generate Report** button.

[NOTE: This step generates an automated preliminary outcome of drilling effects present in the sample based on fail outcomes for individual test indicators.]
7. Review and verify the preliminary test outcomes for applicability, accuracy, reliability, and consistency with other indicators.
8. If a test outcome is incorrect, inaccurate, or otherwise unreliable, uncheck the box for that test.
9. Assign the appropriate Manual Override Reason and Override Action codes from the pulldown menus that appear when the test box is manually unchecked.

[NOTE: Override codes provide a means to modify automated test outcomes that may not be valid due to issues such as inadequate detection limits, the presence of a contaminant plume, or the presence of reducing conditions. Limitations of geochemical indicators due to the presence of a contaminant plume at specific well screens are presented in the pop-up table accessed by clicking on the **Plume Info** button in the upper right-hand corner of the Test Criteria page screen.]
10. After completing the initial screening of the test criteria outcomes, use the green pull-down menu to select *1 - Save for Authenticator Review* and hit the **Go** button.

4.3 Review of Test Condition Outcomes

- Authenticator
1. Log onto the DQM.
 2. From the Data Qualification Main Menu, call up the *Data Qualification Form*.
 3. Select the tab for *View Stored Records*.
 4. On the pull-down menu, select *1 - Ready for Authenticator Review* and hit the **Update Display** button.
 5. Retrieve the saved test criteria record ready for review.
 6. Review the test criteria outcomes and drilling conditions for accuracy and consistency with other information.
 7. Determine whether the results on the test criteria record warrant further technical review.
[NOTE: Examples of outcomes which may warrant further technical review are:
 - a suspected contaminant plume constituent not documented in the pop-up table, and
 - a test outcome that appears to be inconsistent with local geochemical trends.]

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8. If further technical review is warranted, submit the test criteria results to a geochemist for review, or obtain feedback from other subject-matter experts. During this process, the sample status may be saved as 2 - *Set Aside for Geochemistry Resolution*.
9. Modify test outcomes that are incorrect or unreliable by assigning appropriate Manual Override Reason and Override Action codes.
10. After completing review and approval of the test criteria record, use the green pull-down menu to select 3 - *Save for Upload to WQDB* and hit the **Go** button.

4.4 Upload of Drilling Flags

Data Qualification Screener

1. Log onto the DQM.
2. From the Main Menu, call up the *Data Qualification Form*.
3. Select the tab for *View Stored Records*.
4. On the pull-down menu, select 3 - *Ready for Upload to WQDB* and hit the **Update Display** button.
5. Retrieve the saved test criteria record for the sample reviewed and approved by the Authenticator.
6. Use the green pull-down menu to select *Run Sub Tests* and hit the **Go** button.
[NOTE: This step generates an automated list of analytes that could be affected if a given residual drilling condition is present. This step is necessary before proceeding to the next step, even if no residual drilling conditions are present in the sample.]
7. Use the green pull-down menu to select 4 - *Save as Complete - Upload Flagged Results* and hit the **Go** button.

4.5 Records Management

Authenticator

1. Create a data package that includes the following documentation (at a minimum):
 - Summary that identifies the well screen and sampling date(s) (or range of dates) that were evaluated, and that summarizes the outcomes for those samples
 - Completed test criteria record for each sample evaluated
 - Comments, if needed, to explain the applicability of a specific manual override reason code to a test criterion
 - Listing of analytes flagged as a result of the evaluation
 - Signature lines for data authenticator and for Data Assessment Program Manager
2. Sign and date the hard copy of the data package as DQM Authenticator.

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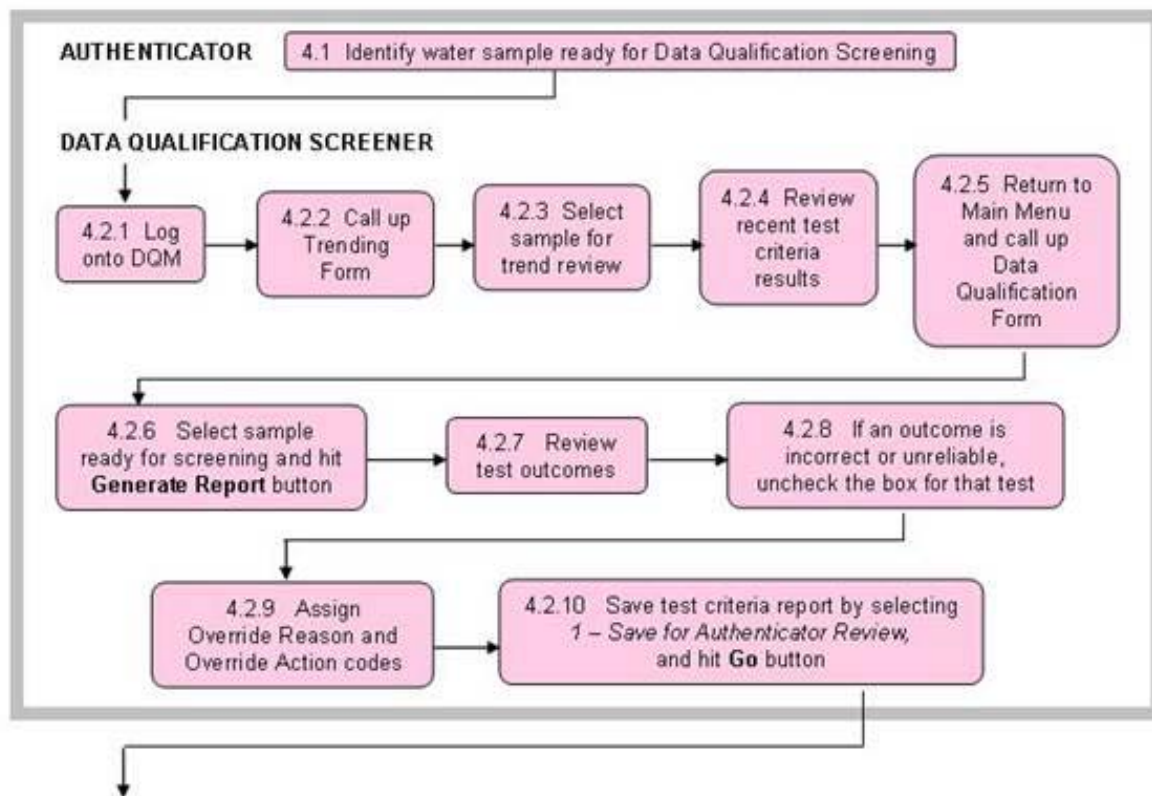
Data Assessment Program Manager 3. Review the data package for accuracy and completeness. Sign and date the data package to authenticate this record as acceptable for submission to the Records Processing Facility.

Authenticator 4. Submit the data package to the Records Processing Facility according to EP-DIR-SOP-4004, *Records Transmittal and Retrieval Process*.

5.0 DEFINITIONS

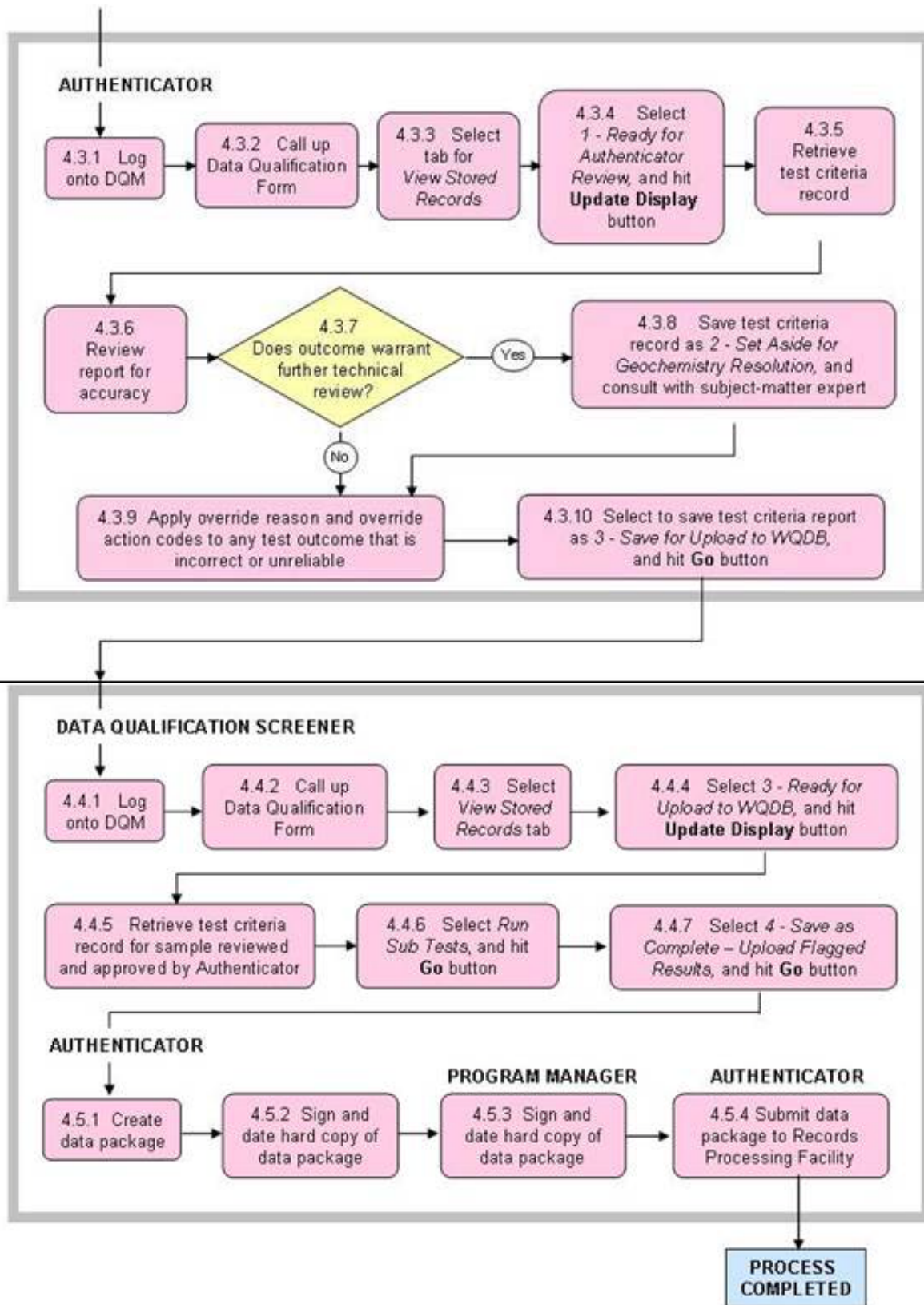
None.

6.0 PROCESS FLOW CHART



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7.0 ATTACHMENTS

None.

8.0 REVISION HISTORY

Revision No. <i>[Enter current revision number, beginning with Rev.0]</i>	Effective Date <i>[DCC inserts effective date for revision]</i>	Description of Changes <i>[List specific changes made since the previous revision]</i>	Type of Change <i>[Technical (T) or Editorial (E)]</i>
0	10/20/08	New Document	N/A

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