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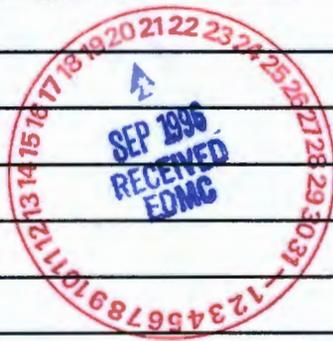
Transmittal Number: BHI-EE-01-V1-TR25

Document Number: BHI-EE-01, VOLUME 1

Title: ENVIRONMENTAL INVESTIGATIONS PROCEDURES

- Instructions:**
- (1) Remove and/or insert indicated procedure/section into manual as shown.
  - (2) Sign this form and return it to Procedures Coordination within 10 working days of receipt.

Procedure/Section Numbers and Titles	Remove		Insert	
	Rev	Date	Rev	Date
TABLE OF CONTENTS	8	06/03/96	9	09/05/96
PROCEDURE 1.2, "DATA QUALITY OBJECTIVES"	1	07/24/95	2	09/05/96



Errors and omissions are not the responsibility of Procedures Coordination. Questions concerning format/contents of this document should be referred to Sebastian Tindall at 372-9195.

Receipt Acknowledgment

I have inserted this material into the manual per the above instructions:

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 Bechtel Hanford, Inc., 3350 George Washington Way, Richland, Washington 99352  
 BHI-DC-001 (01/96)

# BHI-EE-01, Vol. 1 Environmental Investigations Procedures

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  - Section 2 Sample Management
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  - Section 3 General Sampling
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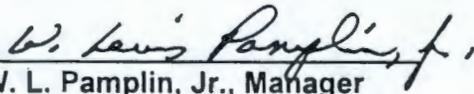
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Approved By:

  
W. L. Pamplin, Jr., Manager  
Environmental Technologies

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**1.0 PURPOSE AND SCOPE**

This procedure identifies how the Data Quality Objectives (DQO) process will be incorporated into planning for Environmental Restoration Contractor (ERC) project tasks. The DQO process will be applied to project tasks that involve the acquisition of data for making environmental restoration decisions. The process can also be used as a decision-making tool to assess the use of historical or previously acquired data.

The DQO process establishes interfaces and fosters communication with Key Decision Makers such as the U.S. Department of Energy, Richland Operations Office (DOE-RL), the Washington State Department of Ecology, the Washington State Department of Health, the U.S. Environmental Protection Agency (EPA), and other stakeholders, as appropriate. The primary objective of the DQO process is to establish a consistent, cooperative, and streamlined approach to plan environmental data acquisition before preparing ERC plans, with an emphasis on reducing cost. To meet this objective, major emphasis is placed on the maximum use of existing Hanford Site analytical and historical information, (including process knowledge), thus reducing the costly data gathering process. Agreements made through the DQO process will become the basis for preparing project task-level plans for conducting subsequent sampling and measurement activities and for conducting waste site or facility assessments.

This procedure is applicable to all ERC projects that involve engineering and environmental sampling, analysis, measurement, and supporting activities. The criteria presented in Attachment 1 will be used to identify ERC project tasks that require the DQO process. Utilizing these criteria will help to ensure that the DQO process will be appropriate to the size, cost, and importance of the project task. The underlying model for the DQO process is the scientific method which provides a uniform process for defining the purpose, information requirements, a clear statement of all assumptions, uniform documentation (complete with supporting detail), and independent peer reviews.

\*This is a complete rewrite; therefore, there are no revision bars to indicate changes.

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**Data Quality Objectives****1.1 Performance Objectives**

The performance objectives, by which each project DQO process should be conducted, are as follows:

- Comply with DOE-HQ and DOE-RL directives to implement the DQO process to improve project planning.
- Comply with DOE-RL requests for increased uniformity, consistency, and sufficiency in planning, data acquisition, and reporting.
- Conduct comprehensive scoping by use of the **DQO Scoping Checklist** (Attachment 2). Using the **DQO Scoping Checklist** ensures that project task-related issues are addressed by the appropriate ERC functional support staff.
- Identify and resolve project task issues at the start of each DQO process through improved communications with and among the Key Decision Makers.
- Ensure that prudent management and technical practices are used (e.g., clear definition of requirements and objectives, use of best-available functional support, selection of adequate technical methods, inclusion of responsible decision makers).
- Ensure that plans and data satisfy regulatory requirements and avoid redundancies.
- Ensure that the DQO process is flexible and appropriate to the size, cost, and importance of the project task.
- Maximize the use of existing data and process knowledge and minimize the collection of new data.
- Document the results of the DQO process, including agreements, in a standardized **DQO Process Summary Report** (Attachment 3).
- Ensure that the results of the DQO process are incorporated in subsequent project task-planning documents, such as sampling and analysis plans (e.g., Field Sampling Plans [FSP] and Quality Assurance Project Plans [QAPjP]) and Descriptions of Work (DOW). The DQO

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results are not merely incorporated into the task planning documents, but form the foundation for these documents. The FSP, QAPjP, and DOW must clearly support the purposes, objectives, risk levels, and error tolerances defined in the DQO summary report.

**2.0 REQUIREMENTS**

The DQO process is an ERC-adopted approach to planning and coordinating data acquisition. The DQO process adopted by ERC is based on EPA guidance (EPA 1994b).

**3.0 EQUIPMENT**

None.

**4.0 PROCEDURE**

The Bechtel Hanford, Inc. (BHI) Project Engineer is responsible for implementing this procedure and ensuring that the outputs of the DQO process are incorporated into all subsequent project task-planning documents (e.g., FSP, QAPjP, DOW). However, the Project Engineer may delegate specific actions to others, such as the BHI Environmental Lead or BHI Technical Lead. Therefore, this procedure identifies a Primary Designee to act for the Project Engineer in completing specific tasks.

The DQO coordinator serves in a Quality Assurance oversight capacity verifying consistency, uniformity, and sufficiency of each project task DQO Process.

This procedure identifies actions to be taken by ERC project and functional support staff, DQO Coordinator, DQO Facilitator, and Key Decision Makers. The procedure specifies duties for the following ERC personnel: ERC Manager of Projects, BHI Project Engineer (or Primary Designee), DQO Coordinator, DQO Facilitator, and the DQO Recorder. The procedure does not provide direction to the Key Decision Makers; it only identifies the mechanisms for ERC DQO Team staff interactions with Key Decision Makers.

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### 4.1 Fiscal Year Programmatic Planning Activities

#### Responsibility

#### Action

- |   |    |   |
|---|----|---|
| ERC Manager of Projects   | 1. | Coordinate the identification of fiscal year project work activities (i.e., work scope). Develop overall list of project tasks to be conducted during the fiscal year.  |
| Project Engineer (or Primary Designee) in consultation with the DQO Coordinator | 2. | Apply the DQO criteria (Attachment 1) to the fiscal year project task list to determine the project tasks that require the DQO process. Prepare a draft list of those project tasks requiring the DQO process.  |
|   | 3. | Provide the list of project tasks slated to undergo the DQO process to the Key Decision Makers for review and feedback. Resolve any differences and finalize the list for those project tasks requiring the DQO process. Prioritize and schedule the DQO process for specified project tasks. |

### 4.2 Project Task Specific Planning Activities

#### Responsibility

#### Action

- |  |    |  |
|--|----|--|
| Project Engineer (or Primary Designee)                     | 1. | Notify the DQO Coordinator of the intent to begin planning the DQO process for a specific project task.  |
| Project Engineer (or Primary Designee) and DQO Coordinator | 2. | <p>Conduct an <b>ERC Planning Meeting</b> to establish or identify the following:</p> <ul style="list-style-type: none"> <li>• project task objectives/scope/milestones</li> <li>• Key Decision Makers</li> <li>• support needs and resources             <ul style="list-style-type: none"> <li>- facilitator</li> <li>- recorder</li> <li>- functional support</li> </ul> </li> <li>• procurement activities, if needed</li> <li>• action list that includes roles, responsibilities, and specific assignments.</li> </ul> |

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|--|---|
| Project Engineer (or<br>Primary Designee)<br><br>DQO Coordinator | <ol style="list-style-type: none"> <li>3. Develop project task DQO schedule and budget.</li> <li>4. Select/assign DQO Facilitator.</li> <li>5. Secure appropriate functional support staff through the ERC Functional Managers.</li> <li>6. Distribute DQO materials to individuals, as necessary. These materials include the EPA guidance (EPA 1994b), this ERC DQO procedure, and the <b>ERC DQO Workbook</b> (EPA 1993).</li> </ol> |
|--|---|

### 4.2.1 Scoping Process

#### Responsibility

Project Engineer (or  
Primary Designee) and  
DQO Facilitator

#### Action

1. Assemble the DQO Team, consisting of project task and functional support staff.
2. Coordinate with ERC Data Management to identify, assemble, and review all existing analytical data pertinent to the project task.
3. Assign elements of the **DQO Scoping Checklist** (Attachment 2) to appropriate staff to gather, review, evaluate, and summarize all existing analytical data and historical information, including process knowledge, pertinent to the project task.
4. Provide the DQO Team with the **DQO Scoping Checklist** comments received by the DQO facilitator from the Key Decision Makers during the interview process (see Sections 4.2.2.2 and 4.2.2.3).

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5. Compile **DQO Scoping Checklist** element summaries into a **DQO Scoping Summary Report**. This report should be concise and will serve as a summary of readily available project task information and data. The level of detail should be commensurate with the complexity of the project task.
6. Provide the **DQO Scoping Summary Report** to all members of the DQO Team and to the DQO Coordinator for review.
7. Brief the DQO Team on the elements of the **DQO Scoping Summary Report**.
8. Identify information/data gaps and major issues and concerns from the Scoping Process needing resolution and/or input from the Key Decision Makers.
9. Concur on the adequacy and completeness of the **DQO Scoping Checklist** and the **DQO Scoping Summary Report**.

Project Engineer and DQO  
Coordinator

**4.2.2 Interview Process****Responsibility****Action**

DQO Facilitator

1. Schedule interviews with the Key Decision Makers and appropriate project task and functional support staff. Provide the Key Decision Makers with blank copies of the **DQO Scoping Checklist** forms and, if applicable, a list of interview questions. Request input on the checklist from the Key Decision Makers. Allow sufficient time for the Key Decision Makers to review these materials and prepare for the interviews.

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2. Conduct the interviews. Obtain input from the Key Decision Makers and appropriate ERC staff on concerns, objectives, schedule constraints, lines of communication, public and Native American concerns, regulatory requirements, policies, required public interactions, the **DQO Scoping Checklist**, and other related factors that could influence the project task scope, schedule, and budget.
3. Create a working summary describing the major issues and objectives obtained during the interviews. Verify the content with interviewees. Provide the Project Engineer (and others as appropriate) with the **DQO Scoping Checklist** comments from the Key Decision Makers.
4. Brief the Project Engineer (or Primary Designee), DQO Coordinator, and other organizations (e.g., ERC Cultural Resources, BHI Legal) that have a need to be advised of the issues.
5. Identify outstanding issues and concerns from the Interview Process requiring input from and resolution by Key Decision Makers.

Project Engineer (or  
Primary Designee) and  
DQO Facilitator

#### 4.3 Global Issues Meeting

This meeting should include only the Key Decision Makers, the Project Engineer (or Primary Designee), DQO Facilitator, and key ERC DQO Team staff (as needed). The purposes of the meeting are to establish DQO process objectives, address and resolve the major issues and concerns identified during the Interview and Scoping Processes (including any related to the **DQO Scoping Checklist**), obtain DQO inputs and constraints from the Key Decision Makers, and establish end points and a schedule to complete the DQO process.

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Responsibility
Action

DQO Facilitator

1. Schedule the **DQO Global Issues Meeting** with Key Decision Makers and appropriate DQO Team staff.
2. Prepare a summary of the issues and concerns identified during the Interview Process (see Section 4.2.2.5) and the Scoping Process (see Section 4.2.1.8) and prepare and distribute an agenda.
3. Provide the Key Decision Makers with a copy of the **DQO Scoping Summary Report** and the summary of outstanding issues and concerns. Allow sufficient time for the decision makers to review and prepare for the **DQO Global Issues Meeting**.

 DQO Facilitator  
and Recorder

4. Conduct the **DQO Global Issues Meeting**:
  - present project assumptions
  - summarize the interview results
  - summarize the **DQO Scoping Summary Report** results
  - identify outstanding issues/data gaps needing resolution
  - identify the Key Decision Makers' DQO process objectives and regulatory requirements
  - obtain inputs and constraints to the DQO process
  - clarify technical support needs.

 Project Engineer (or  
Primary Designee)

5. Arrange for site visits, as needed.

 DQO Facilitator and  
Project Engineer (or  
Primary Designee)

6. Document the results of the **DQO Global Issues Meeting**, with primary emphasis on agreement statements and action items.

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7. Distribute the meeting minutes to **Global Issues Meeting** attendees for concurrence on issue resolutions. Proceed to Step 4.4 when issue resolution is achieved.

**4.4 7-Step DQO Process Meetings**

The purpose of the DQO process meetings is to implement the 7-step DQO process (EPA 1994b) with the Key Decision Makers. The DQO Facilitator's role is to promote/moderate communications, keep the DQO Team focused on the pertinent issues, act in an unbiased manner, and remain independent of technical/organizational positions. The role of the Project Engineer is to support the Key Decision Makers, present the project **DQO Scoping Summary Report**, explain positions and alternatives, and engage technical support to address issues. The number of participants in individual meetings should be minimal and limited to necessary attendees. Functional support staff should be available, as needed, during relevant portions of meetings. The primary goals of the meetings are to resolve issues and formulate agreement statements concerning data needs and sampling requirements. An internal DQO process meeting (see Section 4.4.1) can be used to develop proposed agreement statements, but only the Key Decision Makers (in an external DQO process [see Section 4.4.2]) can make formal, approved, interagency agreements.

The decision to conduct an internal versus external DQO process is made by the Project Engineer, with concurrence from the Key Decision Makers.

**4.4.1 Internal DQO Process**

In some instances, it may be desirable for the ERC DQO Team to conduct an internal DQO process. The objectives of the internal process are to utilize the scientific and engineering expertise of the ERC in a cost-effective manner, identify alternative sampling and analysis approaches, compile cost comparisons, and prepare for external DQO process meetings with Key Decision Makers. The DQO Team, with input from the Key Decision Makers obtained at the **Global Issues Meeting**, will then develop "strawman" decisions using the 7-step DQO process. The internal DQO process may include the DOE-RL Key Decision Maker and DOE-RL technical support staff. The results of the internal DQO process will be presented to the Key Decision Makers for consideration during an external DQO process.

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In other cases, it may not be appropriate to first conduct an internal DQO process, but rather to involve the Key Decision Makers at the outset through an external DQO process (see Section 4.2.2).

**Responsibility****Action**

DQO Facilitator

1. Schedule the internal DQO process meetings.
2. Circulate an attendance list at each meeting and retain the list as a record.
3. Present the meeting agenda and confirm meeting objectives.
4. Present a summary of the **Global Issues Meeting**, including the following:
  - issues and concerns
  - inputs and constraints
  - schedule.
5. Conduct the meetings using the 7-step EPA DQO process, as appropriate. Evaluate whether the existing data (including process knowledge) are sufficient to make project task decisions. Consider the use of statistical software packages in the meeting (EPA 1994a; see also EPA 1987). Use the **DQO Scoping Summary Report** as a resource during the project task DQO process.
6. Record meeting notes (e.g., action items, agreement statements, assigned actions, due dates).

DQO Recorder,  
DQO Facilitator

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Responsibility
Action

DQO Facilitator

7. Maintain the agenda and progress through the appropriate seven steps of the EPA guidance (EPA 1994b). Use the **ERC DQO Workbook** (EPA 1993), as appropriate, as a process tool to develop agreement statements and supporting rationale.  
  
**NOTE:** Using the **ERC DQO Workbook** (EPA 1993) to capture inputs and decisions will aid significantly in preparing the **DQO Process Summary Report**.
8. Ensure that the attendees are involved in the meetings.
9. If a major (previously unidentified) issue develops, inform the attendees. Determine if the new issue can be incorporated or is to be deferred.
10. If major policy issues block progress, determine what part of the agenda can be completed. Schedule additional meetings to resolve outstanding issues.
11. Summarize results and seek confirmation at the end of each meeting for agreements and action items.
12. Document alternative positions and related justifications that are jointly developed.
13. Complete summary meeting minutes. Record attendees, agreements, lessons learned, and action items. Distribute an informal draft to attendees for review. Revise as agreed. At a minimum, the meeting minutes need to reflect the steps of the DQO process and record any data needs, sampling requirements, and agreements.

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### Responsibility

### Action

Project Engineer (or Primary Designee) and DQO Facilitator

14. At the conclusion of the internal DQO process, prepare a draft **DQO Process Summary Report**, using the format presented in Attachment 3. This report will be submitted as a "straw man" decision document to the Key Decision Makers for their consideration during the external DQO process.

DQO Coordinator and Project Engineer

15. Review the draft **DQO Process Summary Report** with the DOE-RL DQO Coordinator.

#### 4.4.2 External DQO Process

An external DQO process primarily involves the Key Decision Makers and selected members of the ERC DQO Team. An external DQO process may be initiated at the beginning of the project task (see Section 4.4.2.2) or may follow an internal DQO process (see Section 4.4.2.1).

**4.4.2.1 Internal to external process.** In those instances where an internal DQO process has been completed, the following apply:

### Responsibility

### Action

DQO Facilitator

1. Schedule the external meeting(s).

Project Engineer or Primary Designee

2. Deliver the draft **DQO Process Summary Report** to the Key Decision Makers for their review to prepare for the external DQO process meeting(s).

DQO Facilitator

3. Conduct external DQO process meetings in a streamlined manner using the draft **DQO Process Summary Report** as a guide for external DQO decisions (see Section 4.4.1, Internal DQO Process, Steps 1-13, for further guidance).

**4.4.2.2 External Direct Process.** In those instances where the Key Decision Makers have agreed to participate from the outset in an external DQO process, refer to Section 4.4.1, Internal DQO Process, and complete Steps 1-13.

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**4.5 Documentation, Report Evaluation, and Project Task DQO Tracking**

This section presents ERC documentation requirements, DQO process evaluation considerations, and ERC provisions for tracking DQO process progress.

**4.5.1 Documentation and Report Evaluation**

Project Engineer (or  
Primary Designee) with  
DQO Facilitator

1. At the conclusion of the external DQO process, prepare a decisional draft **DQO Process Summary Report**. Use the format provided in Attachment 3 to demonstrate the use of appropriate steps from the DQO process and the formulation of agreement statements. Each DQO Step 2 (Identify the Decision) must have a discrete end point, either as an agreement statement or a decision rule.

The **DQO Process Summary Report** may vary depending on whether the report is a stand-alone document or an attachment to another plan, whether minutes are attached, or whether the report is intended to be a brief summary or a detailed documentation of rationale. Document the occasions when process steps were not completed and explain why.

DQO Coordinator and  
Project Engineer

2. Review the decisional draft **DQO Process Summary Report** with the DOE-RL DQO Coordinator. Apply criteria for the evaluation of the report, including the following:

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- definition of parameters (e.g., completion criteria, measures of precision/accuracy, number of measurements, waste streams, process knowledge, regulatory criteria, milestones)
- completed appropriate DQO steps
- adequacy of data acquisition plans/needs
- potential cost savings documented
- potential schedule savings documented
- regulatory compliance documentation
- clearly stated agreements and decision rules.

**NOTE:** The agreement statements and cost savings are major objective measures of success for the process. A demonstration of technical and managerial prudent practices is a subjective measure of success.

Project Engineer (or  
Primary Designee)

3. Submit the decisional draft **DQO Process Summary Report** to the Key Decision Makers for review. If necessary, schedule a meeting to resolve comments. Revise the report, as needed.
4. Issue the final **DQO Process Summary Report** and secure approval signatures from the Key Decision Makers.
5. Provide copies of the approved final **DQO Process Summary Report** to ERC project task staff for their use as a definitive specification for preparing subsequent project planning documents (e.g., FSPs, QAPjPs, DOWs). Agreement statements must be incorporated in subsequent planning efforts and reports. Deviations from agreement statements must be agreed to by the Key Decision Makers and must be documented.

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6. Maintain and control a DQO records package (see Section 7.0 and BHI-MA-02, Procedure 1.7). Formal DQO records disposition should be completed within one year of completing the DQO project task.

#### 4.5.2 DQO Project Tracking

Project Engineer (or Primary Designee)

1. Ensure that subsequent project plans and reports reflect agreements made in approved final **DQO Process Summary Reports**.
2. If changes in DQO agreements are proposed, obtain and document Key Decision Maker approvals.

## 5.0 REFERENCES

BHI-MA-02, *ERC Project Procedures*, Procedure 1.7, "ERC Records Management," Bechtel Hanford, Inc., Richland, Washington.

DOE, 1988, *Radioactive Waste Management*, DOE Order 5820.2A, U.S. Department of Energy, Washington, D.C.

EPA, 1994a, *Data Quality Objectives Decision Error Feasibility Trials (DQO/DEFT)*, Version 4.0, U.S. Environmental Protection Agency, Washington, D.C.

EPA, 1994b, *Guidance for the Data Quality Objectives Process*, EPA QA/G-4, U.S. Environmental Protection Agency, Washington, D.C.

EPA, 1993, *Data Quality Objectives Process for Superfund Workbook*, 9355.9-01A, EPA 540-R-93-078, PB94-963204, U.S. Environmental Protection Agency, Washington, D.C.

EPA, 1987, *Methods for Evaluating the Attainment of Clean-up Standards*, Volume 1: Soils and Solid Media, EPA 230/02-89-042, U.S. Environmental Protection Agency, Washington, D.C.

Grumbly, Thomas, P., September 7, 1994, *Institutionalizing the Data Quality Objectives Process for EM's Environmental Data Collection Activities*, Department of Energy, Washington, D.C.

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**Data Quality Objectives****6.0 FORMS**

Records Inventory Disposition Schedule (Form A-6000-348)

Report of Records Holdings (Form A-6100-459)

**7.0 RECORDS**

The following are mandatory project records. These records should be coordinated and maintained through BHI Document and Information Services.

1. Approved, final **DQO Process Summary Report**
2. Meeting attendance lists
3. Approved **DQO Scoping Checklist**.

**8.0 ATTACHMENTS**

1. Criteria for Initiating Data Quality Objectives Process
2. DQO Scoping Checklist
3. DQO Process Summary Report Format

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**ATTACHMENT 1  
CRITERIA FOR INITIATING DATA QUALITY OBJECTIVES PROCESS  
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The criteria for initiating the DQO process for collection of data for environmental restoration project tasks, including decontamination and decommissioning project tasks, are based on satisfying applicable or relevant and appropriate requirements (ARARs) related to identification and remediation of contaminant discharges to the environment. The DQO process should also be used to support additional legal and compliance requirements for collection of data relating to monitoring releases to the environment (air, soil, groundwater, surface water/runoff, and bodies of water), protection of the public, protection of the environment, identification and management of regulated dangerous waste materials, and the remediation/disposal/management of radioactive wastes (DOE 1988). The DQO process is identified within ERC as primarily pertaining to decisions related to individual operable units, facilities, or structures.

The T. Grumbly, DOE-HQ, memo of September 7, 1994, recommends that project tasks with the following attributes should utilize the DQO process: Waste Management, Environmental Restoration, Facility Transition and Management, Decontamination and Decommissioning (D&D), and Technology Development.

**Criteria for Project Task Inclusion in the DQO Process:**

Will the project task:

1. Develop specific closure standards, performance standards, or measures of protection?
2. Verify compliance with cleanup goals, closure standards, performance standards, ARARs, release standards, or discharge standards?
3. Demonstrate attainment of dangerous or radioactive waste containment?
4. Collect data to support risk assessment (human health or ecological) efforts, which include the following: establishing environmental pathways, flux rates, dilutions, hazard analysis, estimating cancer or health risks, and toxicity determinations?
5. Involve feasibility studies, remedial investigations, limited field investigations, closure plans, sampling and analysis plans, or other waste/site characterization activities where data acquisition is required?

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**Data Quality Objectives**

**ATTACHMENT 1  
CRITERIA FOR INITIATING DATA QUALITY OBJECTIVES PROCESS  
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6. Monitor programs to establish regulatory compliance?
7. Involve evaluations of waste containment or contaminant migration under current or future site conditions?
8. Collect engineering design data for the remediation of dangerous or radioactive wastes?
9. Involve waste management issues such as the development of waste profiles, waste classifications, waste acceptance criteria, waste site designations, or documentation of historical waste process knowledge?
10. Determine requirements for acquiring data for post-closure compliance monitoring?
11. Involve data collection/evaluation to support waste site reclassification efforts?
12. Involve waste identification/evaluation/classification for facility cleanout (D&D)?
13. Potentially reduce project costs through retrospective examination/evaluation (e.g., modification of baseline monitoring programs)?
14. Potentially reduce analytical or site remediation costs?
15. Establish bases for demonstration and regulatory agency acceptance of innovative technologies or alternative approaches for compliance (e.g., field screening methods)?

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**Data Quality Objectives****ATTACHMENT 1****CRITERIA FOR INITIATING DATA QUALITY OBJECTIVES PROCESS**

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**Criteria for Project Task Exclusion from the DQO Process**

Will the project task:

1. Involve data collection for emergency response actions due to spills or other unplanned contaminant releases to the environment?
2. Involve uncontaminated solid waste designated for disposal in municipal landfills?
3. Involve well-defined, containerized *Resource Conservation and Recovery Act* or *Comprehensive Environmental Response, Compensation, and Liability Act* wastes with Material Safety Data Sheets (MSDS), and prior characterization data?

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**Data Quality Objectives**

**ATTACHMENT 2  
DQO SCOPING CHECKLIST  
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The following items will be considered by the Project Task DQO Team as a basis for DQO planning and project task decisions. The Project Engineer (or Designee) will make staff assignments to gather, review, evaluate, and summarize findings for each applicable checklist element. For any element determined by the Project Engineer not to be applicable, supporting documentation will be included in the summary for that element.

**PROJECT TITLE:**

Aspect	Rationale	Person Assigned Action
1.	Project assumptions (especially assumptions that could result in project failure).	
2.	Identification of the regulatory pathway, phase, and logic (e.g., <i>Resource Conservation and Recovery Act [RCRA]</i> pathway, RCRA Facility Investigation Phase).	
3.	Identification of regulatory, legal, agreement, and statute obligations and constraints (e.g., <i>Hanford Federal Facility Agreement and Consent Order [Tri-Party Agreement]</i> milestones, Applicable or Relevant and Appropriate Requirements, Waste Acceptance Criteria requirements).	
4.	Development of ERC legal positions or interpretations (to be determined by BHI Legal).	
5.	Identification of regulatory quantitative limits (e.g., Maximum Contaminant Levels, <i>Model Toxic Control Act A&amp;B</i> , Cleanup Levels and Risk Calculation [CLARC II]).	

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### ATTACHMENT 2 DQO SCOPING CHECKLIST (Page 2 of 4)

#### PROJECT TITLE:

Aspect	Rationale	Person Assigned Action
6. Identification of <i>National Environmental Policy Act</i> needs and constraints (e.g., clearances, surveys, impact analyses).		
7. Identification of cultural and biological constraints (e.g., clearances, surveys).		
8. Waste management requirements (applicable procedures, waste acceptance criteria, Land Disposal Requirements treatment standards).		
9. Air quality constraints.		
10. Health physics risks, hazards and As Low As Reasonably Achievable needs (e.g., isotopic profiles).		
11. Milestone requirements (e.g., Tri-Party Agreement, RCRA permit, ERC project schedules).		
12. Availability and summation of all data available, historical information, waste inventories, contaminant analyses and concentration ranges, drilling records, geophysical data, background values, monitoring measurements, ecological reports (e.g., Hanford Environmental Information System [HEIS] data, data files).		
13. Evaluation and summary of process knowledge (e.g., historical baselines).		

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DQO SCOPING CHECKLIST  
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**PROJECT TITLE:**

Aspect	Rationale	Person Assigned Action
14.	Identification of potential data uses and users (e.g., data analysis plans, models, Waste Information Data System, HEIS, decision makers, public).	
15.	List of contaminants of concern (e.g., process knowledge, Records of Decision lists, Limited Field Investigation/Qualitative Risk Assessment reports, RCRA Part A Permit Application).	
16.	List of potential investigation method alternatives.	
17.	List of potential remedial design criteria and alternative data needs.	
18.	Maps and diagrams.	
19.	Cost-estimating tools and documents (e.g., cost-estimating support, Micro Computer Aided Cost Estimating System).	
20.	List of analytical methods and detection limits (e.g., Test Methods for Evaluating Solid Waste [SW-846], Toxic Characteristic Leaching Procedure, field screen).	

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**ATTACHMENT 2  
DQO SCOPING CHECKLIST  
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**PROJECT TITLE:**

<b>Aspect</b>	<b>Rationale</b>	<b>Person Assigned Action</b>
21.	Risk assessment models, pathways, receptors, parameters, and fate and transport parameters.	
22.	Radiation detection methods and detection limits.	
23.	List of proposed agreements to be achieved (e.g., issues to be resolved).	

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 Project Engineer

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 Date of Completion

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**ATTACHMENT 3  
DQO PROCESS SUMMARY REPORT FORMAT****TABLE OF CONTENTS****EXECUTIVE SUMMARY**

- 1.0 Scope and Objectives
  - 1.1 Project Objectives
  - 1.2 Data Quality Objectives
  - 1.3 Exclusions
- 2.0 Facility and Project Background
  - 2.1 Physical Description
  - 2.2 Discharges and Process Knowledge
  - 2.3 Plan for Project Task Action
  - 2.4 Existing Sources of Data
- 3.0 Participants and Responsibilities
- 4.0 Project Task Scoping and Issues Summary
  - 4.1 Scoping Summary Report
  - 4.2 Scoping Process Issues
  - 4.3 Interview Process Issues
  - 4.4 Global Issues Meeting Summary
- 5.0 DQO Process Summary
  - 5.1 DQO Step 1 State the Problem
  - 5.2 DQO Step 2 Identify the Decision(s)
  - 5.3 DQO Step 3 Identify Inputs to the Decision(s)
  - 5.4 DQO Step 4 Define the Boundaries of the Decision(s)
  - 5.5 DQO Step 5 Develop a Decision Rule(s)
  - 5.6 DQO Step 6 Specify Tolerable Limits on Decision Errors (Uncertainty)
  - 5.7 DQO Step 7 Optimization
- 6.0 Summary of DQO Outputs
  - 6.1 For use in FSPs
  - 6.2 For use in QAPjPs
  - 6.3 For use in DOWs
- 7.0 Cost and Schedule Savings
- 8.0 Lessons Learned