

US ECOLOGY QUALITY ASSURANCE MANUAL  
FOR  
RADIOACTIVE WASTE MANAGEMENT SERVICES

Revision 5

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US ECOLOGY  
LOUISVILLE, KENTUCKY

US ECOLOGY QUALITY ASSURANCE MANUAL  
FOR RADIOACTIVE WASTE MANAGEMENT SERVICES

APPROVAL AUTHORIZATION AND POLICY

US Ecology provides transportation, treatment, cleanup and disposal service for commercially generated radioactive waste. It is the policy of US Ecology to establish and maintain an effective Quality Assurance Program that provides assurance that services provided meet applicable codes, regulations, specifications and contractual requirements.

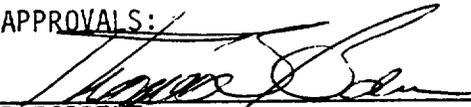
This manual is designed to comply with Federal Regulations 10 CFR 50 Appendix B "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," and 10 CFR 71, "Packaging of Radioactive Materials for Transport and Transportation of Radioactive Materials Under Certain Conditions."

US Ecology is divided into departments that provide Radioactive Management Services. Each person of the department involved in quality related work is responsible for assuring quality of his work and for the compliance with this program. The program is supplemented by Department Quality Assurance Procedures which implement day to day activities for compliance with the Quality Assurance Program.

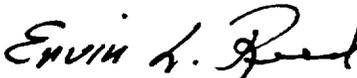
The Quality Assurance Manager reports directly to the President, and has the responsibility for assuring that an appropriate Quality Assurance Program is established and effectively executed. The Quality Assurance Manager has the authority and organizational freedom to identify quality problems; initiate, recommend or provide solutions through designated channels, and verify by auditing the satisfactory implementation and effectiveness of the Quality Assurance Program.

5	10/9/86	ELR	R. E. Sauer	General Revision of Manual
REV NO	DATE	BY	CHECKED	REVISION

APPROVALS:

  
\_\_\_\_\_  
PRESIDENT

10/9/86  
\_\_\_\_\_  
DATE

  
\_\_\_\_\_  
QA MANAGER

10-9-86  
\_\_\_\_\_  
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REVISION RECORD

US ECOLOGY INC. QUALITY ASSURANCE MANUAL

REVISION RECORD

<u>REVISION NUMBER</u>	<u>DATE</u>	<u>PAGE(S)</u>	<u>DESCRIPTION</u>
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## I. ORGANIZATION

### 1.0 PURPOSE/SCOPE

To establish the requirements for and to describe the organizational structure, responsibilities and level of authority for quality-related activities. The organizational structure and functional responsibilities are such that

- o Attainment of quality objectives is accomplished by individuals assigned responsibility for performing work to specifications.
- o Verification of conformance to established quality requirements is accomplished by those who do not have direct responsibility for specifying, producing, or expediting products.
- o Personnel in quality assurance functions have direct access to top-level management.

### 1.1 Delegation and Performance of Duties

Managers or supervisors may delegate the performance of any of their duties to those who report directly to them and are qualified to perform such duties. However, the responsibility for those duties cannot be delegated.

### 1.2 Use of Consultants

Consultants may be retained as an additional resource to provide optimum assurance that appropriate levels of quality are maintained. These personnel may be used for independent quality audits, studies of processes and systems, or other functions that are deemed necessary. US Ecology, Inc., will be responsible for the actions of all consultants and will use reasonable judgment in evaluating their recommendations.

1.3 Qualifications of Personnel Performing Quality-Related Activities

Before an employee is assigned to perform a quality-related activity, the employee's education and experience are reviewed and, if found acceptable, approved by the Quality Assurance Manager or Department Manager responsible for quality. The responsibilities and qualifications of personnel already performing quality-related activities, including inspection and testing, are periodically reviewed by the Quality Assurance Manager with the objective of ensuring continued proficiency in performance.

1.4 Authorities of Personnel Performing Quality-Related Activities

The authorities of personnel performing quality-related activities are established and documented in accordance with the US Ecology quality related program. Through the QA Program, those persons assigned quality functions are given appropriate and sufficient authority and organizational freedom to (1) identify quality problems, (2) initiate, recommend, or provide solutions to quality problems, (3) verify implementation of the solutions, and (4) prevent further processing, delivery, installation or use of nonconforming items until proper corrective action has been taken.

1.5 Organization and Responsibilities

1.5.1 President

The President has overall responsibility for the engineering, design, procurement, construction, modification, testing, operation, and quality assurance for US Ecology.

1.5.2 Quality Assurance Manager

The Quality Assurance Manager reports to the President and has responsibility for the Quality Assurance Program. The Quality Assurance Manager is responsible for the performance of audits to evaluate the status, adequacy and effectiveness of the Quality Assurance Program and ensures that corrective action is taken in areas found to be

deficient during quality assurance audits. The Quality Assurance Manager has overall responsibility to ensure training is performed for personnel in quality-related activities.

1.5.3 Chief Radiological Control and Safety Officer

The Chief Radiological Control and Safety Officer (CRC&SO) reports to the President and shall be qualified as required by the various licenses held by US Ecology. The CRC&SO is responsible for implementing the company's Radiological Control and Safety Program and maintaining radiation exposures as low as reasonably achievable.

1.5.4 Manager of Operations

The Manager of Operations reports directly to the President and is responsible for all of the disposal facility day-to-day operations.

1.5.5 Manager of Engineering

The Manager of Engineering reports to the President and is responsible for the technical content and quality of all design work. The Manager of Engineering is responsible for assuring that all design work performed by project engineers is in accordance with the Quality Assurance Program.

1.5.6 Manager of Radioactive Waste Management Services

The Manager of Radioactive Waste Management Services reports to the President and is responsible for: Assuring that all quality-related activities in his department are conducted in accordance with regulatory requirements and the requirements of this manual. Providing training in Quality Assurance Program requirements to each employee in his division directly associated with quality-related activities.

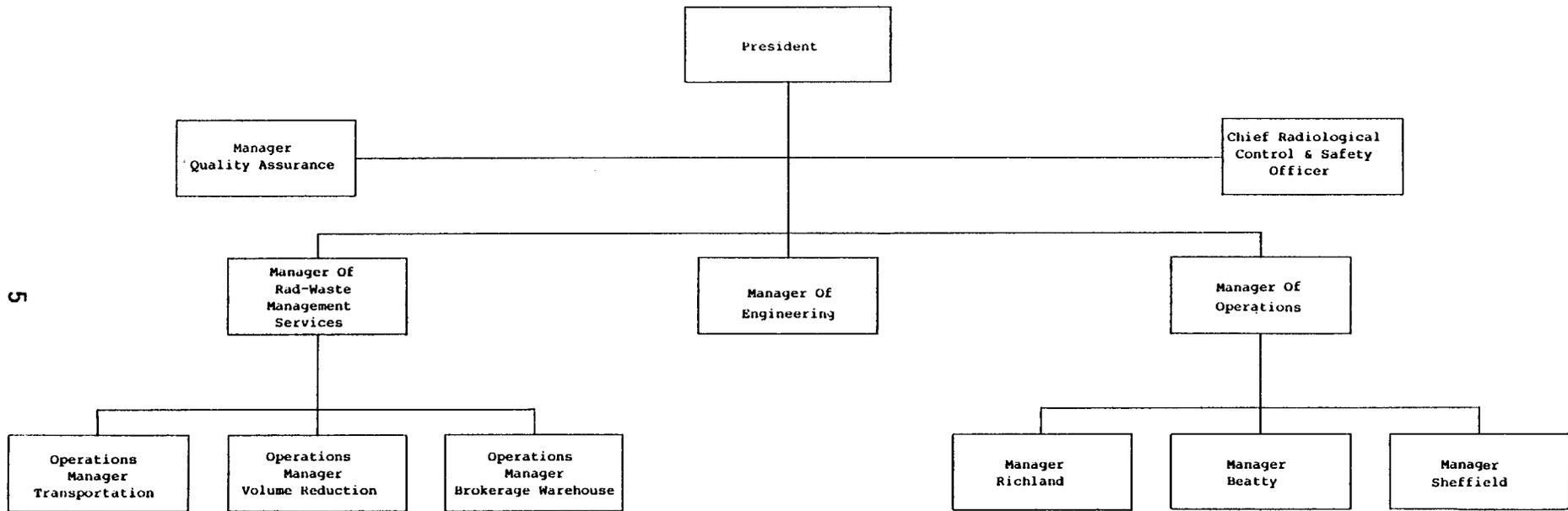
1.5.7 Facility Managers

The Facility Managers report to the Manager of Operations and are completely responsible for all quality- related activities conducted at the respective sites including waste disposal, records, safety and administrative duties.

1.5.8 Operations Managers (Transportation, Volume Reduction, Brokerage Warehouse)

The Operations Managers report to the Manager of Radioactive Waste Management Services and are responsible for directing operational activities in accordance with prescribed methods.

US ECOLOGY QUALITY ASSURANCE ORGANIZATION



5

ORGANIZATION CHART

## II. QUALITY ASSURANCE PROGRAM

### 2.0 PURPOSE/SCOPE

The US Ecology Quality Assurance Program applies to Radioactive Waste Management Services that meets the intent of applicable portions of 10 CFR 50 Appendix B and 10 CFR 71. This program is applicable to transportation and disposal services provided by US Ecology.

### 2.1 Manual Control and Distribution

2.1.1 A Controlled Manual Distribution List (Appendix A) is maintained by the Quality Assurance Manager. Copies of the manual are assigned a control number and are distributed with a transmittal letter (Appendix B) to each assigned holder on the manual distribution list. The transmittal letter is signed by the recipient and returned to the Quality Assurance Manager.

2.1.2 Failure to receive signed transmittal letters from holders of controlled manuals outside of US Ecology within 30 days will result in the manual being transferred to uncontrolled manual status.

2.1.3 Uncontrolled manuals shall not be issued to US Ecology personnel employed within the division of the manual's implementation.

### 2.2 Manual Revisions

2.2.1 Manual revisions require the approval of the Quality Assurance Manager and the President. These approvals are documented on the Approval Authorization and Policy page.

2.2.2 Copies of approved revisions are distributed to each listed holder of a controlled manual. Incorporation of the manual revisions and destruction of the superseded manual is the responsibility of the controlled manual holder. Signature and return of the transmittal letter acknowledges this.

- 2.2.3 Revisions in the manual are indicated by a vertical line in the right-hand margin of the page.
- 2.2.4 The contents of the appendices to the manual may be revised and utilized without requiring a revision to the manual provided the revision does not conflict with the intent or requirements of the manual.
- 2.2.5 Revisions of specific sections of the manual may be accomplished by the reissuing of a manual page and by so indicating the reissue on the revision record. The reissued page shall be distributed to all holders of record copies by means of receipt acknowledgment transmittal.
- 2.2.6 The Nuclear Regulatory Commission is to be notified of changes to this Quality Assurance Program that do not reduce the commitments in the program description previously accepted by the Nuclear Regulatory Commission. Approval by the NRC is not required for these types of changes and implementation may proceed. However, changes to the program description that do in fact reduce the commitments are to be submitted to and approved by the Nuclear Regulatory Commission prior to implementation. The Quality Assurance Manager is to determine if changes do or do not reduce the commitments of this quality program.

## 2.3 Procedures

- 2.3.1 Activities that affect quality are defined in appropriate procedures. The procedures state the policies and instructions necessary to fulfill the intent of the program. Procedures also provide for standard forms, lists, and checkoffs used in documenting the inspections, reviews, surveillances and audits. The procedures shall be modified or supplemented as need arises. The review, approval, issue and control of procedures is the responsibility of each department manager subject to audit by the Quality Assurance Manager.

2.3.2 Procedures assure that activities affecting quality are performed under suitably controlled conditions. Controlled conditions include the use of appropriate equipment; suitable environmental conditions for performing the activity such as adequate cleanliness; and assurance that required prerequisites for the given activity have been satisfied. Administrative procedures also assure that the need for special controls, processes, tests, and equipment to attain the required quality and the need for verification of quality by inspections, evaluation or tests is taken into account.

## 2.4 Training

2.4.1 Employees whose duties and responsibilities are related to Quality Assurance Program activities are to participate in appropriate indoctrination and training programs to assure that suitable proficiency is achieved and maintained in the work they are performing. Such training shall include Quality Assurance Program review, discussion of the overall company policies, procedures and instructions which establish the Quality Assurance Program.

2.4.2 Personnel performing inspection and examination activities are to be indoctrinated and trained to assure they are aware of the requirements which govern their activity. Inspection and examination personnel are to be qualified according to the applicable codes, standards, specifications, regulatory requirements and US Ecology department procedures.

2.4.3 Personnel involved with welding or nondestructive examination of materials, systems or components are to meet the appropriate qualifications of the ASME Boiler and Pressure Vessel Code, Nondestructive Testing Standard STN-TC-1A (Latest Edition) and certified to perform these tasks in accordance with these codes and standards.

2.4.4 Personnel performing audits of the Quality Assurance Program shall be US Ecology personnel who are independent of any direct responsibility for performance of the activities which they will audit. The Quality Assurance Manager shall provide the auditor(s) with the necessary information to perform the audit with clarity and understanding of the objectives.

2.5 Certificate of Conformance and/or Compliance

The Quality Assurance Manager is responsible for the generation and sign-off of issued Certificates of Compliance and/or Certificate of Conformance.

2.6 Review of Quality Assurance Program

2.6.1 The Quality Assurance Manager shall conduct a review of the manual annually. The review shall include compliance with the latest regulatory requirements. The review shall also determine whether there are any conditions adverse to quality, the administration of the Quality Assurance Program, or the implementation of the procedures that reflect the requirements of the manual.

2.6.2 A general review of the manual is objective evidence of an annual program review. If no revisions are made, the Quality Assurance Manager shall write a letter to the Quality Assurance files that an annual review was performed. Revisions may be made by the reissue of a page. This constitutes a revision of a specific section and not a complete program review. A letter to the Quality Assurance files for annual review will be written with a page revision.

### III. DESIGN CONTROL

#### 3.0 PURPOSE/SCOPE

To establish the requirements, responsibilities and administrative controls for assuring that design basis and regulatory requirements are correctly translated into design documents such as drawings, specifications, calculations, procedures and applicable instructions.

#### 3.1 Description

Design control measures are established to assure that original design and design changes meet the appropriate performance and quality requirements. These design control measures are commensurate with those applicable for the original design and assure that design changes are implemented in accordance with applicable codes, standards, and regulatory requirements.

#### 3.2 General

3.2.1 Design documents shall include drawings, calculations, specifications, procedures and applicable instructions.

3.2.2 Design documents shall incorporate and meet the requirements of applicable code and regulatory requirements.

3.2.3 Design documents shall be independently verified for conformance with applicable code and regulatory requirements.

3.2.4 Changes to design documents shall be controlled and verified.

#### 3.3 Drawings

3.3.1 The responsible Project Engineer shall supervise the preparation of drawings and identify the requirements of applicable codes, standards, regulatory and contractual requirements to be included.

- 3.3.2 The drawing shall be independently reviewed and checked by another responsible engineer.
  - 3.3.3 The drawing shall be stamped by a Registered Professional Engineer if required by code and contractual requirements.
  - 3.3.4 The drawing shall be approved by the Project Engineer. He shall verify that all required reviews have been performed and the drawing is properly initialed.
  - 3.3.5 The preparer(s), reviewer/checker(s), and approver shall initial the drawing.
  - 3.3.6 At least one set of initials of the checker, reviewer, Registered Professional Engineer, or approver shall constitute an independent review.
  - 3.3.7 Revisions shall be explained in the revision block. The revised drawing shall be assigned a revision number.
  - 3.3.8 Revisions shall undergo the same review and approval process as the original. The Project Engineer shall determine which organization needs to review and approve the revision(s).
  - 3.3.9 Drawings no longer valid shall be marked void or superseded.
- 3.4 Calculations
- 3.4.1 Calculations shall be performed by cognizant Project Staff or Engineering Department engineers.
  - 3.4.2 Calculations shall have an independent review/check performed.

3.4.3 Calculations shall be done neatly with purpose, method of analysis used, and conclusions clearly identifiable.

3.4.4 A title page(s) shall be included which contains an appropriate calculation title, identifies the job and project, and the initials of the preparer and reviewer.

3.4.5 Revisions to calculations shall be identified on the calculation as a revision, and undergo the same review as the original.

### 3.5 Specifications

3.5.1 Staff engineers shall prepare specifications as necessary to support project design and procurement activities.

3.5.2 Specifications shall include, as applicable, the following information:

A. Scope of Work

B. Brief description of intended use of specification items.

C. Codes, standards, and regulatory requirements.

D. Drawings, schedules and notices

E. Technical information

F. Test, inspection and documentation requirements

G. Quality Assurance Program requirements

H. Attachments such as data sheets, engineering sketches or commercial requirements.

- 3.5.3 The specification shall be given an independent review to assure applicable code, standards, regulatory, and contractual requirements have been incorporated.
- 3.5.4 The specification shall be approved by the Project Engineer.
- 3.5.5 The title page shall be initialed by preparer, reviewer(s), and the Project Engineer.
- 3.5.6 The Project Engineer or one of the reviewers shall be qualified as an independent reviewer.
- 3.5.7 Revisions to the specification shall be clearly marked and undergo the same review and approval process as the original issue. The Project Engineer shall determine which organization needs to review and approve the revision.

3.6 Instructions/Procedures

- 3.6.1 Special procedures and instructions for testing, inspecting, or fabricating items may need to be written when not included in other design documents or available from approved and qualified sources.
- 3.6.2 The Project Engineer shall determine the need for issuing special instructions or procedures.
- 3.6.3 They shall be given an independent review to assure applicable code, standards, regulatory and contractual requirements have been incorporated. They shall be approved by Project Engineer prior to issue.
- 3.6.4 Revisions shall be clearly marked and undergo the same review and approval process as the original issue. The Project Engineer shall determine which organization needs to review and approve the revision.

3.7 Quality Assurance

3.7.1 The Quality Assurance Manager conducts audits and surveillance as required to determine that the design control and verification activities meet the requirements of the design control program.

3.7.2 The Quality Assurance Manager may issue a "Stop Work" order or a temporary hold on any part of a radioactive waste management system project. The "Stop Work" order to hold is in the form of a written letter to the President and the appropriate Project Engineer/Manager. A release to resume work is also in the form of a written letter to the above parties.

3.8 Changes such as inconsequential editorial corrections, format or incorrect data references may be made to design documents by the Quality Assurance Manager after concurrence with the originator. The incorrect data shall have one line drawn through, the correction entered and the date and initial of the Quality Assurance Manager affixed.

## IV. PROCUREMENT DOCUMENT CONTROL

### 4.0 PURPOSE

To describe the system and requirements for quality-related procurement activities by US Ecology.

### 4.1 Scope

The requirements for the procurement of items and services are to be clearly stated and documented to assure that applicable regulatory requirements, design basis, technical requirements and quality assurance criteria are included or referenced in the procurement documents.

### 4.2 Procurement

4.2.1 The procurement of materials, parts and components and services are generated through the preparation of a Purchase Order (PO). The preparation, review, approval and issuance of these procurement documents is to be in accordance with applicable procurement procedures.

4.2.2 Procurement documents are to include or reference specific design specifications for the items or services to be procured which define specific codes, standards, tests, inspections, environmental qualifications, and records to be applied and/or furnished. For standard "off-the-shelf" items, reference to the item's catalog number and identification number may be included on the procurement document in lieu of a design specification. New or revised specifications for replacement items are to be evaluated by the responsible engineering organization against the original specification for the item. The evaluation is to be in accordance with applicable engineering procedures and results in the establishment of new baseline and technical quality requirements, which are to be used for subsequent procurements.

4.2.3 Procurement documents are also to include the identification of quality assurance program requirements applicable to the items or services procured. Procurement documents also establish requirements to source audits and inspections, extension of the procurement requirements to lower tier suppliers and preparation and delivery of documentation. These requirements may be either in the form of documents attached to the PO or by incorporating them in the specific design specifications. Quality Assurance programs are to be specified by invoking the appropriate sections of 10 CFR 50, Appendix B, the appropriate ANSI standards and/or appropriate US Ecology generated quality requirements for items or services. The appropriate sections of the ASME Boiler and Pressure Vessel Code are to be invoked for items originally designed to meet ASME requirements.

4.2.4 The responsible organization, as identified in US Ecology department procedures for procurement activities, is to review all procurement documents to assure that the required quality requirements (including hold points for surveillance and/or inspection) are imposed on suppliers/contractors.

#### 4.3 Changes to Procurement Documents

Changes to procurement documents are to have the same degree of control and review as imposed on the original documents.

Changes such as inconsequential editorial corrections, format, quantity and item part number, when all quality and technical requirements are identical to those specified in the procurement documents, may be made by the Quality Assurance Manager or department manager after concurrence with originator. The incorrect data shall have one line drawn through, the correction entered and the date and initial of the Quality Assurance Manager affixed.

## V. INSTRUCTIONS PROCEDURES AND DRAWINGS

### 5.0 PURPOSE

Instructions, procedures and drawings shall be established to control activities that affect quality.

#### 5.1 Scope

Each department of US Ecology is responsible for developing, issuing and using formal instructions, procedures and drawings for performing activities affecting quality.

#### 5.2 Description

5.2.1 Instructions, procedures, or drawings shall include appropriate qualitative and/or quantitative acceptance criteria for determining that important activities have been satisfactorily accomplished.

5.2.2 Instructions, procedures, or drawings for fabrication, installation, testing and operation shall dictate step-by-step instructions with enough detail necessary for performing the task or function.

5.2.3 Each department manager is responsible for determining the need for issuing and revising instructions and procedures related to each department's scope of activities.

#### 5.3 Quality Assurance

5.3.1 The Quality Assurance Manager shall review and approve all procedures and instructions that detail activities within the scope of the Quality Assurance Program.

5.4.2 The Quality Assurance Manager shall conduct or have conducted surveillances and audits to verify that appropriate instructions, procedures and drawings exist and are being properly implemented in accordance with the requirements of this manual.

## VI. DOCUMENT CONTROL

### 6.0 PURPOSE/SCOPE

To establish the requirements and responsibilities for review, approval, and issue of quality-related documents. The documentation may include, but not be limited to, the customer contract documents, instructions, procedures, specifications, manuals and drawings, including changes thereto, which prescribe activities affecting quality.

#### 6.1 Responsibilities

Each US Ecology department originating documents which prescribe activities affecting quality is responsible for the establishment of document control procedures.

#### 6.2 Identification

Documents are to be identified by a title related to their purpose and applicability. The status of documents are identified on document lists, distribution lists and/or on the revision record block of the document.

#### 6.3 US Ecology Document and Distribution Lists

Document and distribution lists are to be maintained by each US Ecology Department responsible for control of the document. These lists are to identify the revision status of the document and are to be reviewed and updated by the organization responsible for maintaining their status. These lists are available to individuals using the document to assure they are using the current document. Recorded copies of revised documents shall be stamped superseded.

#### 6.4 Changes

6.4.1 Changes to controlled documents are to be reviewed and approved by the same organization which performed the original review unless otherwise specified in procedures applicable to the affected activity.

6.4.2 Obsolete or superseded documents are to be destroyed or marked to prevent the use of outdated inappropriate documents.

6.5 Verification

The Quality Assurance Manager is responsible for ensuring that the methods utilized to control the entries, releases and status of design documents are sufficient and consistent with the requirements of this manual and applicable procedures.

## VII. CONTROL OF PURCHASED MATERIAL, EQUIPMENT, AND SERVICES

### 7.0 PURPOSE

To establish the requirements and responsibilities for assuring that quality-related purchased materials, equipment, and services conform to procurement requirements.

#### 7.1 Scope

The purchase of materials, equipment and services is controlled to assure that, whether purchased directly or through vendors, the materials, equipment and services which affect quality conform to procurement documents.

Procurement control includes provisions for source evaluation and selection, objective evidence of quality furnished by the contractor, surveillance and audit at the source, and examination of products upon delivery. The depth and necessity of procurement controls depend upon the uniqueness and complexity of the item/service, procurement frequency with the same supplier, and past supplier performance for the specific item or services covered by the procurement document.

#### 7.2 Description

Procurement controls have been established to assure that all material, equipment and services purchased conform to procurement and Quality Assurance Program requirements. This assurance is accomplished by controlling the selection of procurement sources, source inspection, receipt inspection and the review and approval of vendor documentation submitted.

#### 7.3 Qualification of Vendors

The ability of each vendor to produce technically acceptable material, equipment and/or services with adequate quality is to be verified prior to issue of a purchase order.

7.3.1 A vendor may be qualified on the following basis:

- A. Audit by US Ecology of the vendor's quality control system.
- B. A review and evaluation of the vendor's quality control program description documents.
- C. A review and evaluation of vendor's historical performance.
- D. A review and evaluation of audits, surveys and inspections performed by other utilities, supplier evaluation services, or ASME. The survey/audit performed by others shall be evaluated for applicability to the quality requirements imposed by the procurement document.
- E. Evaluation of the vendor's/contractor's history of providing a product/service which performs satisfactorily in actual use. Evaluation information includes: experience of users of identical or similar products/services of the prospective vendor/contractor; and/or procurements records that have been accumulated in connection with previous procurement activities and operating experiences. This method is not applicable to ASME procurements.

7.3.2 An Approved Vendor's List (AVL) is maintained by each department of US Ecology. The AVL identifies those vendors/contractors that have been evaluated and approved to furnish materials, equipment or services. Active vendors shall be evaluated at a minimum of every three years. This is based upon the vendors' performance to supply quality materials, equipment and services and to fulfill procurement requirements.

#### 7.4 Vendor Quality Assurance Programs

When the procurement documents require the vendor to have a formal quality assurance program, the manual must be submitted, and reviewed and approved by the Quality Assurance Manager.

#### 7.5 Vendor Quality Assurance Documents

In those cases where the procurement documents require the vendor to provide documentation for the material, equipment and services provided, these documents are reviewed after submittal for compliance to the procurement requirements. They then become a part of the project permanent record file.

#### 7.6 Inspection

Inspection, when required for the quality control of purchased material, equipment, and services, shall meet the requirements of Section X of this manual. This is to include source inspection and receipt inspection.

#### 7.7 Spare Parts

Spare parts are to be purchased to the original design requirements or to those specified by a properly reviewed and approved revision to the design requirements. The applicable quality assurance requirements and documentation requirements for spare parts are to be included in the procurement documents.

#### 7.8 Storage

Material and equipment are to be handled and stored as described in operating procedures and Section XIII of this manual.

## VIII. IDENTIFICATION AND CONTROL OF MATERIALS, PARTS AND COMPONENTS

### 8.0 PURPOSE

To establish the requirements for a program of identification and control of materials, parts and components such that traceability is assured and the use of incorrect or defective items is prevented.

### 8.1 Scope

US Ecology shall ensure that quality-related materials, parts and components are controlled and identified by its vendors and that US Ecology department procedures provide for the control of materials, parts and components after receipt.

### 8.2 Procurement Documents

8.2.1 The procurement documents for the services of subcontractors or fabricators delegates to them the requirement of establishing and executing a material control program or to utilize a program established by US Ecology for the identification and control of materials, parts and components procured and fabricated by them. The methods employed by the subcontractor or fabricator are subject to the approval of US Ecology for compliance to the requirements of the Quality Assurance Program. Materials, parts and components are to be identified by the vendor in accordance with the applicable design standards, codes and/or instructions specified in the procurement documents.

8.2.2 The responsible discipline engineer ensures that the procurement documents for each purchase order define the requirements for identification of equipment items. Methods of marking shall not be detrimental to the intended function of items.

### 8.3 Identification

- 8.3.1 Materials, parts and components are to be identified by the vendor or subcontractor in accordance with the applicable design standards, codes and/or instructions specified in the procurement documents.
- 8.3.2 Materials, parts and components are to be identified and/or tagged at each US Ecology facility in accordance with applicable department procedures. These established methods identify the status of and provide traceability to the item throughout storage and release.
- 8.3.3 Identification of materials, parts and components is accomplished by either marking or tagging the item or through records traceable to the item.
- 8.3.4 Physical identification is used to the maximum extent possible. Where physical identification is either impractical or insufficient, physical separation, procedural controls or other appropriate means are to be employed in accordance with approved procedures.
- 8.3.5 When identification markings are employed, the markings are to be clear, unambiguous and indelible, and applied in such a manner as not to affect the integrity or function of the item. Markings are also to be transferred to each piece of material (plate, barstock, tubing, etc.) when subdivided. Large quantities of small items may be identified by applying markings or tags to their shipping packages, boxes or other suitable containers.
- 8.3.6 Identification markings are to be recorded on records or as-built documents if current markings are to be hidden or subject to obliteration by surface treatment or coatings during fabrications, installation, repair or modifications.

#### 8.4 Control

Each department receiving materials, parts and components is to verify that they are properly identified while under their control. Quality Assurance personnel, through their surveillance and inspection activities, assure that compliance to these requirements are being met. Quality Assurance personnel, through their audit activities also assure that materials, parts and components are being identified in accordance with this manual.

#### 8.5 Defective or Incorrect Items

Defective or incorrect materials, parts and components identified by US Ecology personnel are to be handled in accordance with Section XV of this manual and department procedures for non-conformances and corrective action. Defective or incorrect items are to be tagged with a "hold tag" affixed to the item or otherwise identified per established procedures.

Defective or incorrect items are to be stored in segregated areas except for those items installed or which, due to their size, weight configuration, etc., are impractical or impossible to store in the designated controlled storage area.

## IX. CONTROL OF SPECIAL PROCESSES

### 9.0 PURPOSE/SCOPE

Quality-related special processes, whether performed or contracted by US Ecology, shall be controlled to assure that welding, heat treating, nondestructive examination, coating, plating and chemical cleaning, are performed by qualified personnel and procedures that meet the requirements of applicable codes, specifications and standards.

### 9.1 General

9.1.1 Special processes are those activities which require interim in-process controls in addition to final inspection to assure quality and include such activities as welding, nondestructive examination, heat tracing, coating, plating and chemical cleaning.

9.1.2 The requirements for welding and nondestructive examination are to comply with the applicable portions of the ASME Boiler and Pressure Vessel Code or for structural welds, the AWS Structural Steel Code D1.1, and the American Society of Nondestructive Testing (ASNT-TC-1A).

9.1.3 Technically qualified US Ecology personnel are to establish the procedures and qualification requirements for special processes not covered by existing codes or standards.

### 9.2 Qualification

9.2.1 Special process procedures for welding and nondestructive examinations are to be qualified prior to use to assure compliance to applicable codes, standards or specifications. These qualifications are to be documented.

9.2.2 Personnel responsible for the performance and verification of special processes are to be qualified and/or certified according to applicable codes, standards, specifications, regulatory guides. These qualifications and certifications are to be documented.

### 9.3 Records

The results of special processes are to be documented, reviewed, approved and stored in accordance with appropriate procedures and as addressed in other sections of this manual.

### 9.4 Verification

Performance of special processes in accordance with applicable codes, standards, specifications and procedures is verified by quality assurance personnel through their audit activities.

## X. INSPECTIONS

### 10.0 PURPOSE/SCOPE

To establish the requirements for inspections which provide assurance that fabrication, installation, modification, repair and operational activities for quality-related components, systems and structures conform to the applicable specifications, instructions, procedures, drawings, or other technical requirements.

### 10.1 General

10.1.1 For contractual activities, the applicable procurement documents shall specify the requirements for inspection criteria based upon applicable codes and standards, safety and quality considerations, and the complexity, uniqueness or degree of standardization of an item. The vendor or subcontractor may be required to submit their records of personnel qualifications and inspection procedures for review and approval by US Ecology.

10.1.2 Inspections relating to normal operating activities for each department of US Ecology shall be controlled to assure the inspections are performed in accordance with applicable design documents, codes, standards, specifications and procedures.

10.1.3 Personnel performing inspections to verify quality shall be qualified for the task. When inspection requires specialized qualifications and skills, the personnel performing the inspection are to meet applicable codes and standards.

### 10.2 Control Of Inspections

10.2.1 Inspections are to be performed in accordance with approved written procedures, which set forth the requirements and acceptance limits and specify the inspection responsibilities. If inspections require

detailed written procedures to perform the task, the procedures are to contain, as a minimum, the following:

- A. Qualitative and/or quantitative acceptance criteria;
- B. Prerequisites for performing the inspections and any limiting conditions;
- C. Identification of any special equipment and tools required to perform the inspection;
- D. A step-by-step description of the method of inspection, examination, measurement or test to be performed; and
- E. Identification of those inspection results to be documented. Inspection forms or checklists are to be used as an aid in documenting the inspection activity to assure quality requirements have been met.

10.2.2 Inspection hold points, when required, shall be addressed in applicable procurement documents and department procedures. Customer hold points, when required, shall be included in the applicable procurement documents or department instruction and procedures for operational activities.

10.2.3 Inspection responsibilities, requirements, information and acceptance criteria for the work activity are to be identified in appropriate, approved documents e.g. procedures, checklists, instructions, etc.

10.3 Documentation

10.3.1 Inspections are to be performed and the results documented. Records are to contain objective evidence that the inspections were performed in accordance with instructions, procedures or drawings to verify requirements, show acceptance or identify rejection and identify the inspector.

10.3.2 Records are to be maintained in accordance with Section XVII of this manual.

10.4 Nonconformances

Nonconformance items when found as a result of inspection shall be in accordance with Section XV of this manual.

## XI. TEST CONTROL

### 11.0 PURPOSE/SCOPE

To establish the requirements for test control which provide assurance that fabrication, installation modifications, repair and operational activities for quality related components, systems and structures conform to the applicable specifications, instructions, procedures, drawings, or other technical requirements.

### 11.1 General

- 11.1.1 For controlled activities, the applicable procurement documents shall specify the requirements for testing based upon the applicable codes, standards, safety and quality considerations, and the complexity, uniqueness of degree of standardization of an item. The vendor or subcontractor may be required to submit their records of personnel qualifications and test procedures for review and approved by US Ecology.
- 11.1.2 Testing relating to normal operating activities for each department of US Ecology shall be controlled to assure the tests are performed in accordance with applicable design documents, codes, standards, specifications and procedures.
- 11.1.3 Personnel performing tests to verify quality shall be qualified for the task. When testing requires specialized qualifications and skills, the personnel performing the tests are to meet applicable codes and standards.
- 11.1.4 Each Department Manager of US Ecology is responsible for training and documenting training of US Ecology personnel who perform quality-related testing.
- 11.1.5 For normal operating activities the requirements for given tests are to be included in the test procedure/

instructions. Evidence is to be available to assure the following minimum requirements are met:

- A. Test equipment and measuring devices are calibrated in accordance with the requirements of Section XII of this manual and are functioning properly;
- B. Test personnel have been qualified to perform the test in accordance with the requirements of this manual; and
- C. Appropriate witness and hold-point notifications have been provided.

## 11.2 Documentation

11.2.1 Test results are to be documented in accordance with the applicable procedures/instructions. Test documents are to contain at least the following:

- A. Identity of the item tested.
- B. Date of test.
- C. As-found condition.
- D. Identification of individuals performing test.
- E. Test results.
- F. Corrective actions performed if any.
- G. As-left condition.

11.2.2 Test results are to be evaluated by responsible department personnel per plant procedures to assure that test objectives and inspection requirements have been

satisfied. Nonconforming conditions are to be identified and controlled in accordance with Section XV of this manual.

11.2.3 Test results are to provide objective evidence that the testing was performed in compliance with the approved procedures. Test records are to be maintained for retention in accordance with Section XVII of this manual.

11.3 Test Status - Quality Assurance

The US Ecology Quality Assurance Manager shall conduct periodic audits and surveillance to test programs and results to ensure compliance with applicable codes, standards, and Quality Assurance Program.

## XII. CONTROL OF MEASURING AND TEST EQUIPMENT

### 12.0 PURPOSE/SCOPE

To establish the requirements to assure that devices used for measurements, tests and calibration are identified, controlled and calibrated against reference standards and to assure accuracy is maintained within the limits specified by the inspection and test requirements.

### 12.1 General

- 12.1.1 For contracted activities, the applicable procurement documents shall specify the requirements for control of measuring and test equipment. The vendor or subcontractor may be required to submit documentation to verify that measuring and test equipment are controlled and calibrated in accordance with procurement requirements.
- 12.1.2 Measuring and test equipment used for normal operating activities by each US Ecology department shall be controlled. Each department manager is responsible for establishing and maintaining lists of measuring and test equipment under their control that require periodic calibration.
- 12.1.3 Calibration procedures are to be established for control of measuring and test equipment. These procedures are to conform to recognized codes, standards, local, state and federal regulations, and are to be referenced on the calibration reports.
- 12.1.4 Measuring and test equipment are to be properly controlled, calibrated and adjusted at specific intervals or prior to use to assure the necessary accuracy of calibrated equipment. Calibration intervals are to be based upon the type of equipment, manufacturer's

recommendations, stability and reliability characteristics, required accuracies, use and other conditions affecting calibration.

12.1.5 Reference standards used in the calibration of measuring and test equipment are to be traceable to the National Bureau of Standards or, if nonexistent, to accepted industry standards.

12.1.6 When measuring and test equipment are found to be out of calibration, an evaluation of the validity of previous inspection and test results and the acceptability of items previously inspected or tested is to be made and documented by written report in accordance with approved procedures. If any piece of measuring and test equipment is consistently found to be out of calibration, it is to be repaired or replaced.

12.1.7 Recalibration per approved procedures is to be performed when the accuracy of either installed or calibrated equipment is questionable.

## 12.2 Equipment Identification

12.2.1 The measuring and test equipment list is to contain sufficient information to uniquely identify each item listed and is to include as a minimum, calibration intervals and tolerance.

12.2.2 Each item listed on the measuring and test equipment list is to be tagged, labeled or otherwise identified per plant procedures in such a manner that clearly identifies the equipment and its calibration status and provides traceability to the calibration records.

12.2.3 Measuring and test equipment found to be out of calibration is to be tagged and segregated from acceptable

equipment in accordance with plant procedures until repaired and recalibrated.

### 12.3 Records

Calibration documentation is to be maintained to verify calibration status, condition, accuracy and out of tolerance trends of the equipment.

### XIII. HANDLING, STORAGE AND SHIPPING

#### 13.0 PURPOSE/SCOPE

Activities for handling, storage and shipping, including packaging and preservation of materials and equipment, are to be performed in accordance with established procedures, instructions or drawings. The requirements for handling, storage and shipping for vendors and subcontractors shall be established per applicable procurement documents.

#### 13.1 General

13.1.1 Instructions for preservation are to be provided for items subjected to deterioration or damage through exposure to air, moisture, or other environments during fabrication, processing, assembly, and interim storage periods. Items are to be cleaned, preserved and packaged as required to preclude deterioration and prevent damage. When maintenance of specific internal or external environments is necessary, they are to be included in special packaging instructions and maintenance procedures.

13.1.2 Procurement documents assure that any special cleaning, preserving, handling, packaging or shipping requirements for purchased material or equipment are taken into account.

13.1.3 For critical, sensitive, perishable or high-value articles, recommendations for their handling, storage, packaging, shipping and preservation are to be requested from the supplier per the procurement documents and furnished to US Ecology prior to or upon receipt of the item.

#### 13.2 Shipping Controls

13.2.1 Shipping requirements are to be specified in the procurement documents. Suppliers' compliance to these requirements are to include controls to assure that items are complete and assembled as required: items have been

preserved and packaged in accordance with the procurement documents; items have been marked and identified in accordance with specifications and procurement documents; items have been loaded for shipment in such a manner as to prevent damage; and required documentation is complete and furnished in accordance with the procurement documents.

#### 13.2.2 Handling

Radioactive material is to be shipped and stored as specified in US Ecology's operating licenses and other appropriate regulatory documents. The CRC&SO is responsible for assuring that radioactive sources and instruments containing radioactive sources are shipped, stored and handled per these requirements and site operational procedures.

### 13.3 Receiving

13.3.1 Materials and equipment are to be received per approved procedures. As part of the inspection activity, received materials and equipment are to be inspected for damage, deterioration, cleanliness and proper identification and markings per approved procedures for receipt inspection.

13.3.2 Results of the receiving inspection and disposition of the material or equipment are to be documented on receiving inspection records. Nonconforming items are to be handled in accordance with approved procedures and Section XV of this manual.

### 13.4 Storage Controls

13.4.1 Materials and equipment which have completed the receiving process are to be stored based on the level of storage specified on the procurement documents or related design documents.

13.4.2 Storage control procedures are to be established which include, as a minimum, provisions for the following: controlled access and usage of the storage area; cleanliness and good housekeeping controls; fire protection; protection from environmental hazards; and segregation of hazardous materials.

13.4.3 Only items which have completed the receiving process are to be placed in a controlled storage area. Records of the item's location are to be provided to identify those items currently in storage and to facilitate inspection and maintenance planning. Issuance of items from storage for installation or use are to be documented and controlled in accordance with approved procedures.

13.4.4 Items identified as requiring maintenance during storage are to be maintained in accordance with a documented maintenance program.

13.4.5 Storage areas are to be monitored by individuals responsible for the storage areas so that the integrity and security of stored items is effectively maintained. Inspections and examinations under the control of the department manager are to be performed and documented on a periodic basis to assure that the integrity of the items and their containers are being maintained. Periodic audits under the control of the Quality Assurance Manager are also performed to assure compliance to storage requirements.

### 13.5 Handling Controls

13.5.1 Special handling requirements are to be specified in the procurement documents and approved procedures to protect the quality of items susceptible to handling damage. Special tools and equipment are to be provided to handle

these items, and are to be controlled and maintained per written procedure to assure safe and adequate handling.

- 13.5.2 Special handling tools and equipment are to be inspected and tested at specific times in accordance with written procedures to verify that the handling tools and equipment are adequately maintained. Inspection and test status of these handling tools and equipment are to be controlled in accordance with the applicable sections of this manual.

#### XIV. INSPECTION TEST AND OPERATING STATUS

##### 14.0 PURPOSE

The requirements and responsibilities shall be established for identifying the inspection, testing and operating status of materials, parts, components and assemblies to assure that only items which have passed the required inspections and tests are installed, used or operated.

##### 14.1 Scope

The requirements for inspection, test and operating status for contracted activities shall be stated in applicable procurement documents. The requirements for control of inspection, tests and operating status for quality-related activities by US Ecology shall be per approved operating procedures.

##### 14.2 General

14.2.1 For contracted activities the responsible project engineer states in the procurement documents any requirements for the identification of inspection and test status and the control or verification of the status indicators. The vendor or subcontractor may be required to submit documentation to verify that a program has been established and is documented.

14.2.2 Established procedures provide assurance that the inspection, test and operation status of materials, parts and equipment are identified during the receiving, installation, and operating processes.

14.2.3 The Quality Assurance Manager and department managers are responsible that requirements for inspection and test status not imposed on the vendor and subcontractor are adequately addressed in US Ecology procedures and instructions.

14.2.4 The Quality Assurance Manager and department managers are responsible for the establishment of procedures and instructions to control inspection, tests and operating status. This is to assure the removal from service, in-process status, and return to service of equipment, components and systems for maintenance, modifications, repairs, test or inspection are controlled. These controls are to assure that US Ecology personnel are aware of equipment or system conditions and to prevent their inadvertent use.

14.2.5 Indication of the status of test inspections performed may be by the use of inspection tags, equipment tags and logs.

## XV. NONCONFORMING ITEMS

### 15.0 PURPOSE

To establish the requirements and responsibilities for the positive identification, segregation, and disposition of materials, parts, or components that do not meet applicable technical and quality requirements of design specifications, purchase orders or drawings and to prevent the inadvertent use to the nonconforming item.

### 15.1 Scope

Procedures shall be established and implemented to prevent the inadvertent use or installation of nonconforming materials, parts and components, and to assure that nonconforming items are identified, controlled, dispositioned and corrected. For quality-related procurement activities, the procurement documents shall require the vendor to have a program for reporting nonconformances.

### 15.2 Definition

A nonconforming item is any material, part, or component which does not meet technical and quality requirements of drawings, design specifications, codes, or purchase order.

### 15.3 General

15.3.1 Nonconformances are controlled in accordance with approved procedures.

15.3.2 When nonconforming items are discovered during US Ecology inspections, tests, or daily operating activities, the inspector or operating personnel shall give a detailed description on a nonconformance report.

15.3.3 Nonconforming items are to be identified and controlled to prevent their inadvertent use. They shall be tagged and/or moved to a segregated area clearly marked for nonconforming items.

15.3.4 The nonconformance report shall be sent to a cognizant individual in the organization having authority for disposition. The responsible individual shall confer, as appropriate, with interfacing groups to determine cause and recommend disposition. The Quality Assurance Manager or department manager responsible for quality assurance shall review the disposition for adequacy and compliance with code and purchase order requirements.

15.3.5 The disposition for nonconformance found shall be either "USE AS IS," "REPAIR" or "SCRAP."

#### 15.4 Quality Assurance

The Quality Assurance Department shall audit nonconformances for compliance with the Quality Assurance Program and to evaluate for adverse trends. Adverse trends shall require corrective action to reverse such trends.

## XVI. CORRECTIVE ACTION

### 16.0 PURPOSE/SCOPE

Corrective action measures are to be established to assure that conditions adverse to quality and safe operation of a radioactive waste reduction system are promptly identified and corrected to prevent recurrence. Procedures shall be developed to control documenting and reporting adverse quality to appropriate management personnel.

### 16.1 General

16.1.1 All US Ecology personnel are responsible for identifying and reporting to supervisory personnel conditions adverse to quality.

16.1.2 Means of reporting adverse conditions are by use of inspection reports, nonconformance reports, corrective action reports and audits.

16.1.3 The responsible organization to which the corrective action document is addressed is to evaluate the adverse condition and to document the action taken for resolution.

16.1.4 Adverse quality conditions shall be brought to the attention of the Quality Assurance Manager. Adverse conditions will be evaluated for a potential trend that affects quality. The Quality Assurance Manager shall enact program changes to reverse such conditions that could affect quality.

### 16.2 Verification

Periodic surveillance and audits are to be performed and documented by Quality Assurance personnel to verify implementation of corrective action in accordance with the Quality Assurance Program and approved procedures.

## XVII. QUALITY ASSURANCE RECORDS

### 17.0 PURPOSE/SCOPE

17.1 Requirements and responsibilities shall be established so that documentation covering design, construction, procurement, fabrication, inspection, maintenance, nonconformance and corrective action, test and audit activities is to be filed and stored to provide objective evidence of quality-related activities and to assure ability to reconstruct significant events.

Quality records are to include design documents, construction and fabrication documents, inspections, and test results, personnel training and qualification records, procedures, and other objective evidence of quality-related activities.

### 17.2 Responsibility

17.2.1 Each department manager is responsible for the establishment, implementation and maintenance of the records management program to be used and for ensuring that documentation retention requirements comply with applicable technical specifications, codes and regulations.

17.2.2 Quality Assurance personnel are to periodically audit quality-related records and records filing and storage procedures to assure that the records management program is properly implemented. Audits are to be performed as outlined in Section XVIII of this manual.

### 17.3 Documentation Retention

#### 17.3.1 Lifetime Quality Assurance Records

Lifetime records are defined as those which meet one or more of the following criteria:

- A. Those which would be of significant value in demonstrating capability for safe operation.

- B. Those which would be of significant value in maintaining, reworking, repairing, replacing or modifying the item.
- C. Those which would be of significant value in determining the cause of an accident or malfunction of an item.
- D. Those which provide required data for inspections and tests performed.

Lifetime quality-related records are to be maintained for the life of the particular item while it is in service or stored for future use as prescribed in applicable plant procedures for document retention and disposition.

17.3.2 Nonpermanent records are defined as those which meet all of the following criteria:

- A. Those of no significant value in demonstrating capability for safe operation.
- B. Those of no significant value in maintaining, reworking, repairing, replacing or modifying the item.
- C. Those of no significant value in determining the cause of an accident or malfunction of an item.
- D. Those which do not provide data inspection and testing.

Nonpermanent records are to provide evidence that an activity was performed in accordance with the applicable requirements and be retained for specified periods as directed by the applicable procedures for document retention and disposition.

17.3.3 Categories of permanent and nonpermanent records are to be maintained and their appropriate retention periods are described in approved procedures.

17.4 Storage Preservation and Safekeeping

Storage of records is in a suitable environment to prevent or minimize deterioration or damage. Special facilities for the storage of records or multiple sets of records will be provided when required by contract. The Quality Assurance Manager or his designee is responsible for the final collection, storage, preservation and safekeeping of the quality records required by this manual, the applicable codes and standards, and the contract.

17.5 Retrieval

The records are stored and maintained such that they are identifiable and retrievable.

17.6 Disposition

In the absence of contractual obligations, the quality assurance records are segregated into two classifications at the end of the retention period. Lifetime records include the as-built documents, inspections reports, test reports and other documents as determined to be of significant value to the facility. The lifetime records are maintained for the life of the particular item. The remaining records are the nonpermanent records which may be disposed of.

## XVIII. AUDITS

### 18.0 PURPOSE

18.1. A comprehensive system of planned and periodic audits is to be provided to assure and verify compliance with all aspects of the Quality Assurance Program. Audits are planned and performed in accordance with written procedures, plans and checklists.

18.2 The audit program is to include provisions to determine the compliance with and effectiveness of the Quality Assurance Program in controlling structures, systems, components and activities in accordance with the rules set forth in applicable codes, standards and regulations,.

### 18.3 Audit Personnel

18.3.1 The Quality Assurance Manager is assigned auditing responsibilities within this Quality Assurance Program and is responsible for the selection and assignment of auditors for internal audits. Each department manager of US Ecology is responsible for vendor and subcontractor audits. Each department manager may request that the audit of a vendor or subcontractor be performed by the Quality Assurance Manager. In both cases the Quality Assurance Manager has overall responsibility for audits. Auditors are to be independent of any direct responsibility for performance of the activity which is to be audited and are not to report to a management representative who has direct responsibility for the activity being audited.

18.3.2 Auditors assigned auditing responsibilities are to have experience and training commensurate with the scope, complexity and/or special nature of the activities to be audited. When audit assignments are made, considerations are given to special abilities, specialized technical training, prior pertinent expertise, personal

characteristics, education and capabilities. Training of internal auditors is the responsibility of the Quality Assurance Manager. Each department manager is responsible for training vendor/subcontractor auditors.

18.3.3 Audit personnel are provided appropriate training to assure their competence for performing the required audits. Proficiency of audit personnel is maintained by one or more of the following methods:

- A. Regular, active participation in the audit process.
- B. Review and study of codes, standards, procedures and instructions.
- C. Participation in training or orientation programs.

18.3.4 Vendor/Subcontractor

The determination of the requirement for and the frequency of vendor and subcontractor audits is based on:

- A. The quality assurance requirement for the materials, equipment and/or services.
- B. The quantity and value of materials, equipment and/or services.
- C. The annual volume of business between US Ecology and the vendor or subcontractor.

This determination is made by the department manager and Quality Assurance Manager.

18.3.5 Internal Audits

Internal audits are conducted, at a minimum, annually at each department of US Ecology. Audits shall also be

performed when there is a significant change made in the functional areas of the Quality Assurance Program. Audits will be performed at any time in any area upon request of the President, department manager or Quality Assurance Manager.

18.3.6 Periodic review of each US Ecology audit program is to be performed by the Quality Assurance Manager or appointed representative.

18.4 Audit Implementation

18.4.1 Audit plans and checklists are to be prepared by the auditor performing the audit. Checklists are to be used during the audit to assure that all requirements of the activity audited are addressed during the audit and that those procedures and instructions issued to control the audited activity are adequate.

18.4.2 Upon completion of an audit, a written report is to be prepared which includes at least the following items:

- A. Description of audit scope and date.
- B. Identification of the auditor(s)
- C. A summary of audit results.
- D. Details of nonconformances or programmatic deficiencies.
- E. Recommendations for correcting nonconformances or improving the Quality Assurance Program as appropriate.

18.4.3 Deficiencies identified as a result of an internal audit are to be recorded on an Audit Finding Report (AFR) by the

auditor and issued to the department head responsible for the area audited for corrective action. The department head or his assigned designee is to provide prompt corrective action to the deficiencies identified and documented on the AFR and action taken or to be taken to prevent recurrence. Appropriate follow-up including re-audits by the assigned audit group is conducted in the deficient areas to verify proper and timely implementation of corrective action commitments. Follow-up actions are to be documented on the AFR.

18.4.4 Audit results and findings related to external audits conducted by audit personnel are to be recorded and distributed to the Quality Assurance Manager and department manager and a designated representative of the audited organization. Deficiencies are to be recorded on an AFR, and the audited organization is to describe actions taken to correct the deficiencies and prevent recurrence on the AFR. Corrective actions are to be verified by Quality Assurance personnel and documented on the AFR.

18.4.5 The Quality Assurance Manager shall receive a copy of all audit reports and audit finding reports for internal and external audits.

#### 18.5 Contractor Audits

When contracted activities require the contractor to perform audits, the requirements will be stipulated in the procurement documents.

#### 18.6 Records

Internal audit reports which include checklists and audit finding reports shall be maintained as part of the permanent quality assurance record.

External audit reports shall be maintained as part of each divisions permanent records.

All records shall be maintained in accordance with Section VI of this manual and applicable procedures.