QUALITY ASSURANCE PROGRAM

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1. INTRODUCTION

The United States Enrichment Corporation (USEC) is required by 10 CFR 76.35(d) to submit, as part of its application for a certificate of compliance, a quality assurance program that meets the requirements of 10 CFR 76.93. USEC is required by 10 CFR 76.93 to: "establish, maintain, and execute a quality assurance program satisfying each of the applicable requirements of ASME NQA-1, 1989, "Quality Assurance Program for Nuclear Facilities," or acceptable alternatives to those requirements." Section 76.93 also states that "the Corporation shall execute the criteria in a graded approach to an extent that is commensurate with the importance to safety."

USEC's Quality Assurance Program (QAP) for the Paducah and Portsmouth Gaseous Diffusion Plants follows and satisfies the Basic Requirements and Supplementary Requirements of ASME NQA-1, 1989 as described herein.

2. REQUIREMENTS

2.1 ORGANIZATION

The organizational relationships, responsibilities, authorities, delegations, lines of communication, position locations and qualifications, and organizational charts are described in Section 6.1 in the Safety Analysis Report (SAR), Figures 2-2 and 2-3 of this program, and the following paragraphs:

Nuclear Safety and Quality

The Nuclear Safety and Quality (NS&Q) Organization performs audits, surveillance (assessments) of plant activities affecting safety, quality, and the environment, and follow-up to ensure that corrective actions have been effective. The Nuclear Safety and Quality Organization reviews selected procedures for inclusion of quality requirements, performs independent engineering assessments, and provides operational nuclear safety oversight. NS&Q also provides support functions such as vendor source verification or surveillance, receipt inspection, installation inspection, and review of procurement documents during receipt inspection.

Individual responsibilities are also identified within the various responsibility sections throughout this program.

2.2 QUALITY ASSURANCE PROGRAM

2.2.1 General

This QAP sets forth the minimum requirements for those items, activities, and services within the scope of this QAP. This QAP is established, maintained, and executed as described in this document.

Unless specifically identified within this document, USEC commits to the Basic Requirements and Supplementary Requirements of ASME NQA-1, 1989.

Those requirements of this QAP which are not fully implemented at the present time are identified in Appendix B of this document and the Plans for Achieving Compliance with NRC Regulations at the Paducah/Portsmouth Gaseous Diffusion Plants prepared and approved by DOE.

The GDPs were constructed over 40 years ago and were operated by DOE and its predecessors under different quality assurance criteria. USEC assumed responsibility for operations in accordance with the July 1, 1993 Lease Agreement, as amended, between USEC and DOE. This QAP is submitted as part of the USEC application for a certificate of compliance and governs those activities within USEC's control and responsibility for the management, operation, maintenance, and modification of the GDPs.

USEC applies quality assurance in a graded approach commensurate with the category of the structures, systems, and components (SSC), and activities and services associated with the SSCs.

This QAP has been established to achieve the required level of safety and quality in accordance with the requirements referred to in the following sections.

2.2.2 Scope

This QAP establishes a graded, three-category quality assurance program for categorizing items and activities and to establish a level of quality in accordance with the relative importance to safety.

a. Category Q

Category Q applies to the safety systems within the boundaries described in SAR Section 3.15 (Paducah) and SAR Section 3.8 (Portsmouth). QAP Sections 2.1 through 2.18 apply fully to Q items and activities.

b. Category AQ

Category AQ applies to SSCs within the boundaries described in SAR Section 3.15 (Paducah) and SAR Section 3.8 (Portsmouth). This QAP applies to AQ items and activities to the extent described in Appendix A.

c. Category NS

The remaining SSCs are categorized as non-safety (NS).

d. Discussion

SSCs are categorized Q, AQ, or NS by Engineering using established procedures. Once categorized using the graded approach methodology, SSCs are placed in SAR Section 3.15 (Paducah) or SAR Section 3.8 (Portsmouth). The Q and AQ systems and boundaries described in SAR Section 3.15 (Paducah) and SAR Section 3.8 (Portsmouth) form the basis and identify the SSCs to which this QAP is applied. Appendix A describes the extent to which QAP Sections 2.1 through 2.18 apply to AQ items and activities. For AQ-NCS and AQ items and services, it is acceptable to apply the more conservative controls normally applied to Q items and services instead of the controls described in Appendix A. This QAP does not apply to items categorized as NS.

The requirements of this QAP apply to activities affecting the ability of Q SSCs to perform their intended Q functions. These activities include designing, purchasing, fabricating, handling, receiving, shipping, storing, cleaning, erecting, installing, inspecting, testing, operating, maintaining, repairing, and modifying.

Procedures are established which ensure the requirements of this QAP are applied to Q items and activities in a graded approach. This graded approach is based on an assessment of the relative importance of an SSC to safety, taking into consideration: (1) the requirements of applicable regulations, codes, and standards; (2) the complexity or uniqueness of an item (or activity) and the environment in which it has to function, as determined by specification, design, or fabrication methods; (3) the quality history of the item in service; (4) the degree to which functional compliance may be demonstrated or assessed by testing, by inspection, and by preventive maintenance methods applied; (5) the anticipated life span of the item; (6) the degree of standardization of the item; (7) the importance of data generated; (8) reproducibility of the results; and (9) the consequence of failure.

After determining the relative importance of an SSC to safety and prior to design or procurement activities, USEC identifies and categorizes the Q function(s) to be performed by the SSC. Also, USEC identifies the design considerations and technical and quality requirements for the item, which are necessary to ensure that the Q function(s) can be performed.

The results of the application of the graded approach to quality for the Q and AQ SSCs are incorporated into specifications, procedures, instructions, drawings, and other documents which establish the requirements for item(s) or activities covered by this QAP.

The degree of independent audit given to an item or activity may also be determined on a graded approach as determined by the Nuclear Safety and Quality Manager. Consideration is given to: (1) importance to safety; (2) the previous experience or history of problem areas; (3) those activities conducted by personnel or organizations for which no previous record of past performance is available, such as past assessments or audits; and (4) information from industry problems or lessons learned.

Quality requirements to be applied to an item, process, activity, or service (as determined by the graded approach) are identified in procedures, drawings, specifications, or other appropriate documents.

2.2.3 Program Implementation

This QAP, along with associated policies, procedures, and contractual documents provide the means of communicating and documenting the program goals, objectives, requirements, and elements to all organizational levels. Refer to Figure 2-1 of this section for the hierarchy of technical documents.

This QAP is implemented through policies, procedures, instructions, specifications, drawings, procurement documents, contractual documents, and other documents. Procedures are established to ensure that these documents are consistent with the requirements of this QAP, the SAR, the Technical Safety Requirements, and regulatory requirements. These documents also provide measures which ensure that activities within the scope of this QAP are planned and accomplished under suitably controlled conditions as necessary to accomplish the goals and objectives of this QAP. The provisions contained in this QAP are applicable after the date NRC assumes regulatory oversight of the GDPs.

The terms used in this QAP are as defined in Supplement S-1 to ASME NQA-1, 1989 except the following:

The term "important to safety" is defined as follows: Those Q and AQ items and activities described in SAR Section 3.15 (Paducah) and SAR Section 3.8 (Portsmouth).

The term "non-conformance" is used in the QAP as defined in Supplement S-1 to NQA-1, 1989, except that in-service equipment failure resulting from normal use, human error, or equipment end-of-life is not considered to be a hardware non-conformance.

2.2.4 Indoctrination and Training

As an alternative to Supplement 2S-1 to ASME NQA-1, 1989, for personnel performing tests other than inspection personnel (Quality Control), the training programs described in SAR Section 6.6 provide confidence that suitable proficiency is achieved and maintained in the performance of quality affecting activities defined in this QAP. Each organization manager is responsible for assuring their personnel who perform activities affecting quality receive required indoctrination and training in accordance with the requirements of Supplement 2S-4 of ASME NQA-1, 1989. Training sessions are documented as to objective, content of the session, attendees, and date of attendance.

Training records for nondestructive examiners, auditors, and inspection personnel delineate the specific activities those personnel are qualified to perform, and the criteria used to qualify personnel in each activity. Periodic requalification is provided for such personnel who are required to maintain their proficiency.

The qualification and requalification of inspection personnel is performed in accordance with the requirements of Supplement 2S-1 to ASME NQA-1, 1989. Nondestructive examination personnel are qualified and requalified in accordance with the requirements of Supplement 2S-2 of ASME NQA-1, 1989, and SNT-TC-1A, 1980 Edition, and its applicable supplements. USEC commits to the requirements of SNT-TC-1A with the following clarifications:

a. The word "should" in the following paragraphs shall be considered "shall": 4.3(1), 4.3(2), 4.3(3), 6.3, 7.1, 7.2, 8.1, 8.1.1(1), 8.1.1(2), 8.1.1(3), 8.1.1(4), 8.1.2(1), 8.1.2(2), 8.1.3(1), 8.1.3(2), 8.1.4(1), 8.1.4(2), 8.1.4(3), 8.1.5, 8.3, 8.3.1(1), 8.3.1(2), 8.3.2(3), 8.3.4, 8.4.2, 9.7.1, 9.7.3;

b. Paragraph 8.4.4 recommends a composite grade of 80% and a grade of 70% for the general, specific, and practical or the basic method, and specific examination. USEC commits to this recommendation; and

c. Paragraph 9.7.2 provides recommended re-examination criteria. USEC commits to this recommendation.

The qualification and requalification of auditors and lead auditors is performed in accordance with Supplement 2S-3 to ASME NQA-1, 1989.

2.2.5 Review and Assessment

Management of those organizations implementing this QAP, or portions thereof, shall regularly assess the adequacy of that part of the program for which they are responsible and shall assure its effective implementation in accordance with applicable procedures.

The Nuclear Safety and Quality Manager at each GDP is responsible for the performance of internal and external audits in accordance with the requirements of Section 2.18 and Appendix A of this QAP. Audits determine the performance and effectiveness of activities required by this QAP and identify the need for any revision to this QAP. The results of audits are reported to responsible management as described in Section 2.18.3.6 and plant procedures.

An assessment of the status, adequacy, and effectiveness of this QAP is provided to the USEC Vice President, Operations, at least once every 24 months by the the NS&Q manager at each GDP. This assessment is developed from such sources as audits, self-assessments, trend data, status reports, etc.

2.3 DESIGN CONTROL

2.3.1 General

A design control system is established for Q items and related activities and services within the scope of this QAP as identified in Section 2.2. This system is in accordance with ASME NQA-1, 1989, Basic Requirement 3, and Supplement 3S-1. These requirements and controls ensure that new design and design change activities are carried out in a planned, controlled, and orderly manner, and that design requirements such as design bases, regulatory requirements and appropriate quality standards are correctly translated into design output, procurement, and procedural documents. These controls also establish provisions for verifying or checking the technical adequacy of design documents including computer codes. They also provide for the control of design changes. The design control provisions contained in this QAP are applicable to design activities taking place after the date NRC assumes regulatory oversight for the plant. Reconstitution of the design is not required; however if a deviation to the design is discovered, engineering shall resolve the deviation and as-built the drawings if necessary.

2.3.2 Responsibilities

The Engineering Manager is the plant design authority having responsibility for the implementation and execution of the design control system in accordance with the requirements of this section.

Design changes and new designs are authorized by responsible management and are reviewed (as described in SAR Section 6.2) by the Plant Operations Review Committee (PORC) prior to implementation in accordance with the provisions of 10 CFR 76.68. Management is responsible for ensuring that completed plant changes are tested and for assuring that personnel affected by the change are adequately trained as described in procedures.

2.3.3 Requirements

2.3.3.1 Design Inputs

Procedures for design input activities are established to ensure the following:

1. Design inputs, such as approach to design bases, performance requirements, regulatory requirements, codes, and standards, are identified and documented, and their selection reviewed and approved by the responsible design organization;

2. Design inputs are specified and approved on a timely basis and to the level of detail necessary to permit the design activity to be carried out in a correct manner and to provide a consistent basis for making design decisions, accomplishing design verification measures, and evaluating design changes; and

3. Changes from approved design inputs, including the reason for the changes, are identified, approved, documented, and controlled.

2.3.3.2 Design Process

Procedures are established to ensure the following:

1. Design activities are planned on a timely basis and to the level of detail necessary to permit the design process to be carried out in a correct manner and to permit verification that the design meets requirements. Design inputs are correctly translated into design documents. Design documents shall be adequate to support facility design, construction, and operation;

2. Appropriate quality standards are identified and documented and their selection reviewed, approved, and controlled. Changes from specified quality standards and reasons for the changes shall be identified, approved, documented, and controlled;

3. Design methods, materials, parts, equipment, and processes that are essential to the function of the SSC are selected and reviewed for suitability of application;

4. Applicable information derived from experience, as set forth in reports or other documentation, shall be made available to cognizant design personnel; and

5. Final design output documents including changes thereto:

   a. Are relatable to the design input by documentation in sufficient detail to permit design verification,

   b. Identify assemblies and/or components that are part of the item being designed. When such an assembly or component part is a commercial grade item, the requirements of Section 2.7.3.9 are also applied. Also, when a commercial grade item, prior to its installation, is modified or selected by special inspection and/or testing to requirements that are more restrictive than the supplier's published product description, the component part is represented as different than the commercial grade item in a manner traceable to a documented definition of the difference.

2.3.3.3 Design Analyses

Procedures for design analyses activities are established to ensure the following:

1. Design analyses are performed in a planned, controlled, and documented manner;

2. Design analyses documents are legible and in a form suitable for reproduction, filing, and retrieval;

3. Design analyses documents contain sufficient detail as to the purpose, method, assumptions, design input, references, and units such that a person technically qualified in the subject can review and understand the analyses and verify the adequacy of the results without recourse to the originator;

4. Calculations are identifiable by subject, originator, reviewer, and date or by other data such that the calculations are retrievable;

5. When computer programs are utilized for design analyses, the requirements of Section 3.1(a) of Supplement 3 S-1 of ASME NQA-1, 1989 are applied; and

6. Design analyses documents include the requirements of Section 3.1(b) of ASME NQA-1, 1989 Supplement 3 S-1.

2.3.3.4 Design Verification

Procedures for design verification activities are established to ensure the following:

1. Design verification is performed by competent individual(s) or group(s) other than those who performed the original design. The results of design verification, including the particular methods used, shall be clearly documented with the identification of the verifier clearly indicated;

2. Verifiers are knowledgeable in the areas to be verified. The verifier may be a supervisor, provided the supervisor was not directly responsible for the design (i.e., did not specify a singular design approach or rule out certain design considerations and did not establish the design inputs used in the design) or provided the supervisor is the only individual in the organization competent to perform the verification. Cursory supervisory reviews do not satisfy the intent of this verification;

3. Verification shall be performed in a timely manner. Design verification for the level of design activity accomplished shall be performed prior to release for procurement, manufacture, construction, or release to another organization for use in other design activities except in those cases where this timing cannot be met, such as when insufficient data exist. In those cases, the unverified portion of the design shall be identified and controlled. In all cases, the design verification shall be completed prior to relying upon the component, system, structure, or computer program to perform its function;

4. The extent of the design verification is a function of the importance to safety, the complexity of the design, the degree of standardization, the state of the art, past performance, and similarity with previously proven designs. Where the design has been subjected to a verification process in accordance with this QAP, the verification process need not be duplicated for identical designs. However, the applicability of standardized or previously proven designs, with respect to meeting pertinent design inputs, shall be verified for each application. Known problems affecting the standard or previously proven designs and their effects on other features shall be considered. The original

design and associated verification measures shall be adequately documented and referenced in the files of subsequent application of the design. Where changes to previously verified designs are made, design verification is performed for the changes, including an evaluation of the effects of the changes on the overall design and on any design analysis for which the design is based that are affected by the change to previously verified design; and

5. Acceptable methods of design verification are identified which include, but are not limited to, any one or a combination of the following: design reviews, alternate calculations, and qualification testing in accordance with Supplement 3S-1, Sections 4.2.1, 4.2.2, and 4.2.3 of NQA-1, 1989. Procedures identify the criteria for determining the method of design verification. Verification by testing shall demonstrate adequacy of performance under conditions that simulate the most adverse design conditions. Verification of computer programs includes appropriate testing in accordance with the requirements of Section 2.11.3.2.

2.3.3.5 Design Changes

Procedures for design change control are established to ensure the following:

1. Changes to final designs, field changes, modifications, and nonconforming items dispositioned "use-as-is" or "repair" are justified, documented, and evaluated against criteria established by the Engineering Manager;

2. Design documents, including changes thereto, are controlled in accordance with Section 5 of Supplement 3 S-1 to NQA-1, 1989 and Section 2.6 of this QAP. When a significant design change is found to be necessary because of an incorrect design, the design process and verification procedure are reviewed and modified as necessary; and

3. Changes to the plant are evaluated and processed in accordance with the provisions of 10 CFR 76.68.

2.3.3.6 Design Interfaces

Procedures for design interface control are established to ensure the following:

1. Internal and external design interfaces are identified and controlled and design efforts are coordinated among participating organizations;

2. The responsibilities for the preparation, review, approval, release, distribution, and revision of documents involving design interfaces are defined; and

3. Design information transmitted across interfaces is documented and controlled in accordance with Supplement 3S-1, Section 6 of NQA-1, 1989.

2.3.3.7 Design Documentation and Records

Design documentation and records that provide evidence that the design and design verification processes were performed in accordance with this section are collected, stored, and maintained in accordance with Supplement 3S-1, Section 7 of NQA-1, 1989, and Section 2.17 of this QAP.

2.4 PROCUREMENT DOCUMENT CONTROL

2.4.1 General

A procurement document control system is established for Q items and related activities and services within the scope of this QAP as identified in Section 2.2. The procurement document control system is in accordance with ASME NQA-1, 1989, Basic Requirement 4, and Supplement 4S-1. The procurement document control system ensures that applicable regulatory requirements, technical requirements, and QAP requirements are included or referenced in procurement documents for the procurement of items and services. This system also establishes provisions for the preparation, review, approval, and control of procurement documents, including changes thereto.

2.4.2 Responsibilities

The Engineering Manager is responsible for the preparation and maintenance of design specifications (including specifications for spare and replacement parts) and for identifying the technical and quality requirements necessary to ensure item acceptability. These specifications are subject to the requirements of Section 2.3 of this QAP. The Engineering Manager is also responsible for development of procedures that define these activities, including the criteria for developing the necessary technical and quality requirements for procurement.

The GDP Procurement and Materials Manager is responsible for procurement planning, bid evaluation, and procurement of items and services from suppliers on the approved suppliers list, when required.

2.4.3 Requirements

The requirements of Section 2.4.3.1 apply only to non-commercial grade items and services. Sections 2.4.3.2 and 2.4.3.3 apply to both commercial grade and non-commercial grade items and services.

2.4.3.1 Procurement Document Contents

Procedures governing procurement document content are established to ensure the following:

1. Procurement documents shall contain a statement of work for procurement of services, or an engineering specification for the procurement of items.

2. Procurement documents shall include technical requirements by specific reference to, (or inclusion there in of applicable parts of) drawings, specifications, codes, standards, regulations, procedures, or instructions, including revisions thereto, which describe the items or services to be furnished.

3. Procurement documents shall specify special instructions and requirements for designing, fabricating, cleaning, erecting, packaging, shipping, handling, storing, testing, inspecting, and accepting.

4. Procurement documents shall require the supplier have a documented quality assurance program that implements portions or all of the Basic Requirements of ASME NQA-1, 1989. The extent of the program required is dependent upon the type and use of the item or service being procured and its importance to safety.

5. Procurement documents shall require that the supplier incorporate applicable QA program requirements in the supplier's sub-tier procurement document. The extent of the program required is dependent upon the type and use of the item or service being procured and its importance to safety.

6. Procurement documents shall include a requirement for access to the supplier's facilities and records, for inspection or audit by the purchaser, its designed representative, and/or other authorized parties.

7. Procurement documents shall require suppliers of non-commercial grade items and services to evaluate their lower-tier suppliers that supply Q items or services within the scope of the Statement of Work or Engineering Specification.

8. Procurement documents shall identify the documentation required to be submitted for information, review, or approval as well as the time of submittal, where applicable.

9. When the purchaser requires the supplier to maintain specific quality assurance records, the procurement documents shall identify retention times, and disposition of those records.

10. Procurement documents shall specify the requirements for reporting and obtaining disposition of nonconforming items and services, as appropriate.

11. Procurement documents shall require the identification of appropriate spare and replacement parts or assemblies including associated technical and quality requirements as appropriate. Quality and technical requirements, equal to or better than the original requirements, are provided for ordering replacement parts or assemblies.

2.4.3.2 Procurement Document Review

Procedures for the review of procurement documents are established to ensure the following review are completed:

1. Documents transmitted to the supplier(s) include appropriate provisions to assure that items or services will meet the quality, technical, and administrative requirements discussed in Section 2.4.3.1.

2. Reviews are documented to provide objective evidence of satisfactory accomplishment prior to contract award.

3. Changes made as a result of the bid evaluation or precontract negotiations are incorporated into procurement documents prior to contract award. This review shall ensure the requirements of Section 3 of Supplement 4S-1 to ASME NQA-1, 1989 are satisfied.

4. The reviews and approvals required by this section are performed by personnel who have access to pertinent information and who have an adequate understanding of the requirements and the procurement documents.

2.4.3.3 Procurement Document Changes

Procedures ensure that procurement document changes are subject to the same degree of control as utilized for the preparation of the original procurement document.

2.5 INSTRUCTIONS, PROCEDURES, AND DRAWINGS

2.5.1 General

The requirements for instructions, procedures, and drawings are applied to Q items and related activities and services within the scope of this QAP as described in Section 2.2, are in accordance with ASME NQA-1, 1989, Basic Requirement 5, and this section. Measures are in place to ensure that activities affecting quality are prescribed by documented procedures, drawings, and instructions, appropriate to the circumstances, and are accomplished in accordance with these documents. These documents also include quantitative and qualitative acceptance criteria to ensure that important operations have been satisfactorily accomplished.

2.5.2 Responsibilities

The Training Manager is responsible for the system of preparation, review, approval and use of procedures and instructions in accordance with the requirements of this section of this QAP. (PORTS)

The Production Support Manager is responsible for the system of preparation, review, approval and use of procedures and instructions in accordance with the requirements of this section of this QAP. (PGDP)

The Engineering Manager is responsible for the system of preparation, review, and approval of drawings in accordance with the requirements of this section and Section 2.3 of this QAP.

Organization/Group Managers are responsible for developing and approving procedures which control functions or activities within their area of responsibility, as defined within this QAP.

All personnel are required to use and adhere to the requirements of applicable procedures, instructions, and drawings for activities within the scope of this QAP.

2.5.3 Requirements

Procedures are established to ensure the following:

1. Q activities affecting safety or quality are prescribed and performed in accordance with documented work instructions, procedures, or drawings of a type appropriate to the circumstances as described in governing procedures. These documents include or reference appropriate quantitative or qualitative acceptance criteria for determining that prescribed activities are satisfactorily performed.

2. Activities that require skills normally possessed by qualified personnel do not require detailed step-by-step delineation in a procedure but are performed in accordance with work instructions, procedures, or drawings of a type appropriate to the circumstances for the control of maintenance and modification work. The types of activities otherwise known as "skill-of-the-craft" that do not require detailed step-by-step procedures include but are not limited to: gasket replacement; trouble shooting electrical circuits; changing chart or drive speed gears or slide wires on recorders; seal replacement on small pumps; torquing of flanged covers, pipe connections, etc.; lapping and packing of manual-operated valves, erection of nonpermanent structures such as scaffolding; and rigging of chains, hoists, and slings.

3. Written procedures shall be prepared, reviewed, approved, implemented, and maintained in accordance with the Technical Safety Requirements (TSRs) and SAR Section 6.11.

2.6 DOCUMENT CONTROL

2.6.1 General

A document control system is established for Q items and related activities and services within the scope of the QAP as described in Section 2.2. The document control system is in accordance with ASME NQA-1, 1989, Basic Requirement 6, and Supplement 6S-1. This system ensures that documents defining the performance of quality-related activities are controlled so only current and correct information is available at the location where the activity is performed prior to commencing the work.

2.6.2 Responsibilities

The Plant Services Manager has the overall responsibility for the development and implementation of the document control system.

Organization Managers are responsible for (1) identifying documents to be included in the controlled document system; (2) ensuring instructions, procedures, drawings, and other specified documents are reviewed for adequacy and approved for release; (3) complying with document distribution requirements; and (4) ensuring these documents are maintained and used by personnel performing the prescribed activity.

2.6.3 Requirements

Procedures for the control of document preparation, review, approval, and issuance are established to ensure the following:

1. Identification of documents to be controlled and their specified distribution.

2. Identification of assignments of responsibility for preparing, reviewing, approving, and issuing documents.

3. Review of documents for adequacy, completeness, and correctness prior to approval and issuance.

4. Drawings depicting as-built conditions, including changes thereto, and related documentation are prepared in a timely manner and accurately reflect the actual design.

5. Document controls used to specify the current revision and any changes to instructions, procedures, specifications, drawings, and procurement documents are identified. This document control system has provisions for updating and for distribution to predetermined personnel.

6. Except for minor changes, changes to documents are reviewed and approved by the same organization that performed the initial review and approval or delegated to other qualified organizations. The reviewing organization has access to pertinent background data or information upon which to base their approval.

7. Minor changes to documents, such as inconsequential editorial corrections do not require that the revised documents receive the same review and approval as the original documents. The review and approval for minor changes is specified in procedures.

8. Obsolete or superseded documents are removed and/or replaced in a timely manner.

2.7 CONTROL OF PURCHASED ITEMS AND SERVICES

2.7.1 General

A system for the control of purchased items and services is established for Q items and services within the scope of this QAP as described in Section 2.2. The requirements for the control of purchased items and services are in accordance with Basic Requirement 7 and Supplement 7S-1 of ASME NQA-1, 1989.

2.7.2 Responsibilities

The Nuclear Safety and Quality Manager is responsible for providing the necessary QA functions to support procurement. These QA functions include review of supplier quality documentation, evaluation of supplier's QA capability, supplier audits and annual evaluations, and for the development and maintenance of an approved suppliers list. The Nuclear Safety and Quality Manager provides support functions such as source verification or surveillance, receipt inspections, installation inspections, and review of procurement documents during receipt inspections. The Nuclear Safety and Quality Manager is also responsible for developing and implementing procedures which meet the requirements of this section of the QAP.

The Engineering Manager is responsible for assisting the Nuclear Safety and Quality Manager by performing evaluations of supplier technical capabilities. The Engineering Manager is also responsible for determining the methods of acceptance to be applied to purchased items and services. The Engineering Manager is also responsible for the approval of dispositions and technical evaluations for supplier-generated nonconformances for items and services. The Engineering Manager is also responsible for providing measures which ensure the proper selection, application, methods of acceptance, and use of items.

The GDP Procurement and Materials Manager is responsible for procurement planning, bid evaluation, and procurement of items and services from suppliers on the approved suppliers list, when required.

2.7.3 Requirements

Sections 2.7.3.1 through 2.7.3.8 apply to noncommercial grade items and noncommercial grade services. The requirements of Section 2.7.3.9 are acceptable alternatives to Sections 2.7.3.1 through 2.7.3.8 for commercial grade items. The requirements of Section 2.7.3.10 are acceptable alternatives to Sections 2.7.3.1 through 2.7.3.8 for commercial grade services.

2.7.3.1 Procurement Planning

Procedures are established to ensure the following:

1. Procurement activities are planned and documented to assure a systematic approach to the procurement process.

2. Procurement planning results in the documented identification of procurement methods and organizational responsibilities.

3. Planning activities meet the requirements of Section 2 of Supplement 7S-1 to ASME NQA-1, 1989.

2.7.3.2 Supplier Selection

Procedures are established for the selection of suppliers. The selection of suppliers is based upon evaluation of the supplier's capability to provide items or services in accordance with the requirements of the procurement documents prior to award of contract. An assessment of the potential supplier's technical and quality capability is performed and documented in accordance with one or more of the following:

1. Evaluation of the supplier's history of providing an identical or similar product which performs satisfactorily in actual use. The supplier's history shall reflect current capability.

2. The supplier's current quality records are supported by documented qualitative and quantitative information which can be objectively evaluated.

3. The supplier's technical and quality capability is determined by a direct evaluation of his facility and personnel and the implementation of the supplier's quality assurance program. As an alternative to supplier quality assurance programs satisfying the applicable criteria of ASME NQA-1, 1989, supplier quality assurance programs that satisfy the applicable criteria of 10 CFR 50, Appendix B, are acceptable.

4. USEC reviews and approves the audit results of recognized industry shared supplier audits, (i.e., third party audits such as the Nuclear Industry Assessment Committee (NIAC), etc.). The review ensures that the requirements of 2.7.3.2.3 above have been met.

5. The supplier has an applicable valid "Certificate of Accreditation" issued by the National Voluntary Laboratory Accreditation Program (NVLAP) of the National Institute of Standards and Technology (NIST). When using this method, an implementation audit shall be performed in accordance with 2.18.3.2.5.

6. The supplier implements an NRC accepted quality assurance program. When using this method, an implementation audit shall be performed in accordance with 2.18.3.2.5.

7. The supplier maintains a valid ASME Code certification for the item or service being provided. When using this method, an implementation audit shall be performed in accordance with Section 2.18.3.2.5.

Upon an acceptable evaluation using any of the above methods, the supplier may be placed on the Approved Suppliers List (ASL).

2.7.3.3 Bid Evaluation

Procedures are established which provide measures for the performance of bid evaluations. These procedures ensure the requirements of Section 4 of Supplement 7S-1 to ASME NQA-1, 1989 are met prior to award of the contract.

2.7.3.4 Supplier Evaluation

Procedures governing interface with the supplier are established and conducted as early as practicable which provide measures to verify the supplier's performance. The purchaser's verification activities, however, shall not relieve the supplier of his responsibilities for verification of quality achievement. The measures include:

1. Establishing an adequate understanding between Purchaser and Supplier of the provisions and specifications of the procurement documents.

2. Requirements for the supplier to identify the methods and processes to be used by the supplier in fulfilling the requirements of the procurement.

3. Reviewing the supplier documents generated or processed during activities fulfilling procurement requirements.

4. Identifying and processing necessary change information.

5. Establishing methods for exchange of information with the supplier.

6. Establishing the extent of source surveillance and inspection activities.

The above verification activities are based on the importance to safety, complexity, and quantity of the items or services provided and are performed by personnel assigned to check, inspect, audit, or witness the activities of the supplier. These personnel meet the qualification requirements of Section(s) 2.10 or 2.18 of this program. Activities performed to verify conformance to requirements of procurement documents such as source surveillance and inspections, surveys, audits, receiving inspections, nonconformances, dispositions, and corrective actions are documented and/or recorded in accordance with procedures.

2.7.3.5 Control of Supplier Documents and Changes to Procurement Documents

Procedures are established to determine the acceptability of supplier-generated documents. These measures assure that submittal of these documents is accomplished as required by the procurement documents. These procedures provide measures for the acquisition, processing, and recorded evaluation of technical, inspection, and test data against acceptance criteria. Procedures also are established for the control and documentation of changes to procurement documents. The requirements of Section 2.4.3 are followed when changes to procurement documents are made.

2.7.3.6 Methods of Acceptance for Items

Procedures are established which govern the acceptance of items. Prior to offering the item for acceptance, the supplier shall verify that the item being furnished complies with the procurement requirements. Where required by code, regulation, or contract requirement, documentary evidence that items conform to procurement documents shall be available at the facility site prior to installation or use. Any one or more of the following methods of acceptance are used:

1. Certificate of Conformance - When this method is utilized, the following minimum criteria are met:

   a. The certificate identifies the purchased material or equipment.

b. The certificate identifies the specific procurement requirements met. The procurement requirements identified shall include any approved changes, waivers, or deviations applicable to the subject material or equipment.

c. The certificate identifies any procurement requirements that were not met, together with an explanation and means of resolving the nonconformance.

d. The certificate is authenticated by the person responsible for the quality assurance function and whose function and position is described in the purchaser's or supplier's quality assurance program.

e. The procedures used for the preparation, review, and approval of the certificate are described in the purchaser's or supplier's quality assurance program.

f. The validity of the supplier's certificates and effectiveness of certification system is verified and the interval of verification is based on the supplier's past quality performance.

2. **Source Verification** - When this method is utilized, it is performed at intervals consistent with the importance to safety and complexity of the item or service and it shall be implemented to monitor, witness, or observe activities. This method provides plans to perform inspections, examinations, or tests at predetermined points. Upon purchaser acceptance of source verification, documented evidence of acceptance shall be furnished to the receiving destination of the item, to the purchaser, and to the supplier.

3. **Receiving Inspection** - This method is utilized for all purchased items to verify conformance to procurement documents. This method verifies by objective evidence such features as proper configuration; identification; dimensional, physical, or other characteristics; freedom of damage from shipping; cleanness; and review of supplier documentation when procurement documents require the documentation to be furnished. Upon completion of receipt inspection, acceptable items are released for storage or issued for installation or use. Items determined to be nonconforming after completion of the receipt inspection are documented and processed as described in Section 2.15.

4. **Post-Installation Testing** - When this method is utilized for acceptance of non-commercial grade items, post-installation test requirements and acceptance documentation are established by the purchaser and supplier.

2.7.3.7 Acceptance of Services

Prior to offering the service for acceptance, the supplier shall verify that the service being furnished complies with the procurement requirements. Procedures allow for the acceptance of services by one or more of the following methods:

1. Technical verification of data produced.

2. Surveillance and/or audit of the activity.

3. Review of objective evidence for conformance to procurement document requirements.

2.7.3.8 Control of Supplier Nonconformances

Procedures are established to provide methods for disposition of nonconforming items and services that do not meet procurement documentation requirements. These procedures contain provisions for the following:

1. Evaluation of nonconforming items.

2. Submittal of nonconformance notice to the purchaser by the supplier. The submittal includes a recommended disposition and technical justification. The following nonconformances are submitted to the purchaser for approval of the recommended disposition:

   a. Violation of technical or material requirement.

   b. Violation of requirement of purchaser-approved supplier document.

   c. Nonconformances which cannot be corrected by continuation of the manufacturing process or by rework.

   d. Items that do not conform to the original requirements even though the item can be restored to a condition such that the capability of the item to function is unimpaired.

3. Purchaser disposition of the supplier recommendation.

4. Verification of the implementation of the disposition.

5. Maintenance of records of supplier submitted nonconformances.

2.7.3.9 Commercial Grade Items

Procedures are established governing the application and use of commercial grade items:

1. Methods for determining whether an item can be purchased as commercial grade and dedicated for use in a Q application. A commercial grade item is an item satisfying all of the following:

   a. Not subject to design or specification requirements that are unique to nuclear facilities.

b. Used in applications other than nuclear facilities.

c. Is to be ordered from the manufacturer/supplier on the basis of a specification set forth in the manufacturer's published product description (e.g., catalog).

2. The criteria and methods for identifying the critical characteristics that are essential to ensure that the item will perform its intended Q function.

3. The criteria for determining the type and depth of product acceptance and the criteria for determining the point of dedication at which time USEC assumes the responsibility for reportability. Dedication of a commercial grade item occurs after receipt when that item is designated for use in a Q application.

4. As a minimum for acceptance of commercial grade items, receipt inspection, as described in Section 2.7.3.9.9, will be performed to provide reasonable assurance that the item received is the item ordered. If designated by Engineering, based on the complexity of the item or its importance to safety, one or more of the following may also be used.

   a. Special test or inspection

   b. Commercial grade survey of supplier

   c. Source verification

   d. Acceptable supplier and item performance record

5. The selection of the method or combination of methods in 4. above is based on the following:

   a. Selected critical characteristics

   b. Available supplier information

   c. Quality history

   d. Degree of standardization

   e. Importance to safety and complexity of the item

6. Alternate commercial grade items are allowed provided the Engineering Manager provides verification that the alternate commercial grade item will perform its intended Q function.

7. Source evaluation and selection, where determined necessary by Engineering, is based on the complexity and importance to safety and shall be in accordance with the requirements of Section 3.1 of the Supplement 7S-1 of ASME NQA-1, 1989.

8. Commercial grade items are identified in the contract or purchase order by the manufacturer's published product description.

9. Receipt inspections are performed to determine that damage was not sustained during shipment, that the item received is the item ordered, that inspection and testing was performed by the supplier as required by Engineering, to ensure conformance with manufacturer's published requirements and to ensure that required documentation is received and is acceptable.

2.7.3.10 Commercial Grade Services

1. Methods for determining whether a service can be purchased as commercial grade and dedicated for use in a Q application are established and implemented. A commercial grade service is a service satisfying all of the following:

   a. Not subject to design or specification requirements that are unique to nuclear facilities,

   b. Used in applications other than nuclear facilities, and

   c. Is to be ordered from the supplier on the basis of a specification set forth in the service provider's published service description or other appropriate documents.

2. The criteria and methods for identifying the critical characteristics (critical controls) for acceptance are established. The critical characteristics (critical controls), which once selected to be verified, provide reasonable assurance that the service provided meets specified requirements.

3. In selecting the critical controls, the impact of the activities associated with the service on the safety function of plant equipment is considered.

4. Acceptance reviews will be performed, as a minimum, in accordance with Section 2.7.3.10.10 for acceptance of commercial grade services to provide reasonable assurance that the service performed is the service ordered. If designated by Engineering, based on the complexity of the service or its importance to safety, one or more of the following may also be used for acceptance in addition to the acceptance review:

a. Special tests and inspections

b. Commercial grade survey

c. Source verification

d. Acceptable supplier service performance history for the service.

5. The selection of the method or combination of methods in Section 2.7.3.10.4 above is based on the following:

a. Selected critical controls

b. Available supplier information

c. Quality history

d. Degree of standardization of the service

e. Importance to safety and complexity of the service.

6. Dedication of a commercial grade service occurs when that service is accepted in accordance with 2.7.3.10.4 above.

7. Source evaluation and selection, where deemed necessary by engineering based on complexity and importance to safety, is in accordance with the requirements of Section 2.7.3.2.

8. Procurement documents are issued and controlled in accordance with the requirements of Sections 2.4.3.2 and 2.4.3.3 of this QAP.

9. Commercial grade services are identified in the purchase order by the service provider's published service description (e.g., Supplier's bulletin describing standard calibration services that are provided by the supplier) or other appropriate documents.

10. Acceptance reviews are performed to determine the service performed is the service ordered and that required documentation is received and is acceptable.

2.8 IDENTIFICATION AND CONTROL OF ITEMS

2.8.1 General

A system is established for the identification and control of Q items within the scope of the QAP as described in Section 2.2. The requirements for the identification and control of such items are in accordance with Basic Requirement 8 and Supplement 8S-1 of ASME NQA-1, 1989. This system establishes the requirements for the identification and control of such items and associated materials, consumables, parts, spare parts, components, and sub-assemblies.

2.8.2 Responsibilities

The Engineering Manager is responsible for specifying requirements for identification methods, traceability, shelf life, and operating life of items when required by codes, standards, or specifications. Engineering specifies these requirements during the generation of specifications, drawings, procurement documents, or other documents appropriate to the circumstances.

The Nuclear Safety and Quality Manager is responsible for verifying that items are correctly identified through receipt inspection.

Organization Managers are responsible for maintaining and implementing identification, traceability, and shelf life and operating life requirements for items under their jurisdiction.

The GDP Procurement and Materials Manager is responsible for receipt, delivery, storage, traceability, identification, and control of materials.

2.8.3 Requirements

2.8.3.1 Identification of Items

Procedures are established to ensure that items are identified from initial receipt and fabrication of the items up to and including installation and use to assure that only correct and accepted items are used or installed as required by applicable codes, standards, or specifications. Identification shall relate an item to an applicable design or other pertinent specifying document. Physical identification shall be used to the maximum extent possible. Where physical identification to control the item is either impractical or insufficient, physical separation, procedural controls, or other means are employed. When markings are used, measures are established to ensure that the markings are clear, legible and do not have a detrimental effect on the function or service life of the item. Markings are transferred to each part of an identified item when subdividing and are not to be obliterated or hidden by surface treatments or coatings unless other means of identification are provided.

2.8.3.2 Traceability of Items

Procedures are established for the traceability of items, when specified by codes, standards or specifications.

2.8.3.3 Limited Life Items

Procedures are established to ensure that items which have a limited operating life or shelf-life are identified and controlled to preclude use of items whose operating life or shelf-life has expired. These procedures also establish the requirements for the identification and control of items such as chemicals and reagents.

2.8.3.4 Maintaining Identification of Stored Items

Procedures are established for the control of item identification consistent with the planned duration and conditions of storage such as (1) provisions for maintenance or replacement of markings and identification records due to damage during handling or aging, (2) protection of identifications on items subject to excessive deterioration due to environmental exposure, and (3) provision of updating existing plant records.

2.9 CONTROL OF PROCESSES

2.9.1 General

A system to control processes that affect the quality of items or services is established for Q items and related services within the scope of this QAP as described in Section 2.2. The requirements for the control of special processes are in accordance with Basic Requirement 9, and Supplement 9S-1 of ASME NQA-1, 1989. This system establishes the requirements for the control of special processes used in the course of maintenance, modification, and testing activities.

2.9.2 Responsibilities

The Engineering Manager is responsible for determining special processes, providing technical requirements for identified special processes, and reviewing and concurring with all special process procedures including the utilization and application of nondestructive examination (NDE) procedures. These responsibilities are met in accordance with the requirements of this section of the QAP.

The Nuclear Safety and Quality Manager is responsible for the qualification of NDE personnel, including welder/brazer qualifications, in accordance with the requirements of this section of the QAP.

Organization/Group Managers ensure that identified special processes are performed by qualified personnel, using qualified and approved procedures or documents of a type appropriate to the circumstances.

2.9.3 Requirements

2.9.3.1 Procedures are Established to Ensure the Following:

1. Special processes that control or verify quality, such as those used in welding, heat treating, and nondestructive examination, are performed by qualified personnel using qualified procedures in accordance with specified requirements;

2. Shall assure that process parameters are controlled and that specified environmental conditions are maintained;

3. Training, testing, qualification, and certification requirements for personnel who perform or inspect special process operations (nondestructive examination personnel qualifications are described in Section 2.2.4 of this document); qualification of equipment and procedures used for special processes; documentation of process results, procedures, personnel qualification and certification; and equipment qualifications;

4. Conditions necessary for accomplishment of the process shall be included in procedures or instructions. These conditions shall include proper equipment, controlled parameters of the process, and calibration requirements; and

5. For special processes not covered by existing codes and standards or where quality requirements specified for an item exceed those of existing codes or standards, the necessary requirements for qualifications of personnel, procedures, or equipment shall be specified or referenced in the procedures or instructions.

2.9.3.2 Acceptance Criteria

Procedures are established to ensure that special process procedures include or reference the requirements of applicable codes and standards, including acceptance criteria for the process.

2.9.3.3 Records

Procedures are established to ensure that qualification records of procedures, equipment, and personnel associated with special processes are maintained, filed, and kept current in accordance with the requirements of Section 2.17.

2.10 INSPECTION

2.10.1 General

A system for inspection is established for Q items which are within the scope of this QAP as identified in Section 2.2. The requirements for inspection are in accordance with Basic Requirement 10, and Supplement 10S-1 of ASME NQA-1, 1989. This system provides measures to ensure that maintenance, repair or modification work is completed satisfactorily.

2.10.2 Responsibilities

The Nuclear Safety and Quality Manager is responsible for inspection planning, for ensuring inspections are performed, and for utilizing qualified and certified inspection personnel.

The Engineering Manager is responsible for specifying "hold" and "witness" points for inclusion in applicable work control documents. Such work control documents are developed from approved design documents, which specify the criteria for acceptance of the work.

Management establishes measures to ensure that the requirements of this section of the QAP are met.

2.10.3 Requirements

Procedures are established for governing the inspection of items and activities to ensure the following:

1. Inspections required to verify conformance of an item or activity to specified requirements shall be planned and executed.

2. Characteristics to be inspected and inspection methods to be employed shall be specified.

3. Inspection results shall be documented and shall contain information in 2.10.3.16.

4. Inspection personnel shall not report directly to the immediate supervisors who are responsible for performing the work being inspected.

5. Each person who verifies conformance of work activities for purpose of acceptance is qualified to perform the assigned inspection task in accordance with Section 2.2.4. Inspections by persons during on-the-job training for qualification shall be performed under the direct observation and supervision of a qualified person and verification of conformance shall be by the qualified person until certification is achieved.

6. If mandatory inspection hold points are required beyond which work shall not proceed without the specific consent of the designated representative, the specific hold points shall be indicated in appropriate documents. Consent to waive specified hold points shall be recorded prior to continuation of work beyond the designated hold point.

7. Planning for inspection activities shall be accomplished and documented. The documentation shall identify characteristics, methods, and acceptance criteria and provide for recording objective evidence of inspection results.

8. Where a sample is used to verify acceptability of a group of items, the sampling procedure shall be based on recognized standard practices.

9. Inspection of items in-process or under construction shall be performed for work activities where necessary to verify quality.

10. A combination of inspection and process monitoring methods, when used, shall be performed in a systematic manner to assure that the specified requirements for control of the process and quality of the item are being achieved throughout the duration of the process. Controls, where required, shall be established and documented for the coordination and sequencing of these activities at established inspection points during successive stages of the conducted process or construction.

11. Final inspection shall include the following:

    a. Final inspections shall include a records review of the results and resolution of nonconformances identified by prior inspections. The final inspection shall be planned to arrive at a conclusion regarding conformance of the item to specified requirements.

    b. Completed items shall be inspected for completeness, markings, calibrations, adjustments, protection from damage, or other characteristics as required to verify the quality and conformance of the item to specified requirements. Quality records shall be examined for adequacy and completeness if not previously examined.

    c. The acceptance of the item shall be documented and approved by authorized personnel.

    d. Modifications, repairs, or replacement of items performed subsequent to final inspection shall required reinspection or retest, as appropriate, to verify acceptability.

12. Required in-service inspection or surveillance of structures, systems, or components shall be planned and executed by or for the organization responsibility for operation as specified in the QAP, the SAR or TSRs.

13. Inspection methods for item 12 above shall be established and executed to verify that the characteristics of an item continue to remain within specified limits. Inspection methods shall include evaluation of performance capability of essential emergency and safety systems and equipment, verification of calibration and integrity of instruments and instrument systems, and verification of maintenance, as appropriate.

14. The depth and extent of inspections are determined by the significance of the Q function, and the complexity of the item or activity.

15. The identification of inspection activities and attributes is based on the complexity of the item or activity to be inspected; on mandatory inspections required by codes, standards, regulatory requirements or commitments; and inspection requirements established by the Engineering Manager.

16. Inspection records shall, as a minimum, identify (a) through (f) below:

    a. Item inspected
    b. date of inspection
    c. inspector
    d. type of observation
    e. results or acceptability
    f. reference to information on action taken in connection with nonconformances

2.11 TEST CONTROL

2.11.1 General

A system for test control is established for Q items within the scope of this QAP as described in Section 2.2. The requirements for the test control system are in accordance with Basic Requirement 11 and Supplement 11S-1 of ASME NQA-1, 1989. This system is planned and executed to assure that testing is performed to demonstrate that SSCs will perform satisfactorily in service. The system requires written test procedures identifying prerequisites with provisions for documenting and evaluating test results to assure that requirements are satisfied. This section also contains amplified requirements for testing of computer programs and associated computer systems within the scope of this QAP as described in Section 2.2 The requirements for computer program testing are in accordance with Supplement 11S-2 of ASME NQA-1, 1989.

2.11.2 Responsibilities

The Engineering Manager is responsible for providing technical criteria for plant modification testing. The Engineering Manager is also responsible for the evaluation of test results and resolution of deficiencies identified from these tests.

Management is responsible for the conduct of testing activities under their cognizance which are in accordance with procedures consistent with the requirements of this section of the QAP.

2.11.3 Requirements

2.11.3.1 Test Control

Procedures are established for the control of testing activities that provide measures that ensure the following:

1. Test requirements and acceptance criteria are based upon specified requirements contained in applicable design or other pertinent technical documents.

2. Test procedures contain the following information as appropriate to the test:

   a. Test purpose or objectives and characteristics to be tested and test methods to be employed.

   b. References and related documents.

   c. Provisions for assuring that prerequisites for a given test have been met.

   d. Adequate instrumentation is available and suitable environmental conditions are maintained.

   e. Provisions for establishing prerequisites and precautions, as applicable: calibration instrumentation, appropriate equipment, trained personnel, condition of test equipment, and the item to be tested, and provisions for data acquisition.

   f. Provisions for documenting and evaluating the test results for conformance with acceptance criteria.

   g. In lieu of written test procedures, appropriate sections of related documents, such as ASTM methods, vendor manuals, maintenance instructions, or approved drawings or travelers with acceptance criteria may be used. Such documents must include adequate instructions to assure the required quality of work.

3. Tests required to collect data, such as for siting or designing input are planned, executed, documented, and evaluated.

4. Test records contain the following information as a minimum: item tested, test date, tester or data recorder, type of observation, results and acceptability, actions taken with any deviations noted, and identification of the person evaluating the results.

2.11.3.2 Computer Program Testing

Procedures are established to provide measures to ensure the following:

1. Test requirements and acceptance criteria are provided or approved by the organization responsible for the design or use of the program to be tested unless otherwise designated in procedures.

2. Required tests, including (as appropriate) verification tests, hardware integration tests, and in-use tests, are controlled.

3. Test requirements and acceptance criteria are in accordance with applicable design or other pertinent technical documents.

4. Verification tests encompassing the range of permitted program usage as specified by the program documentation demonstrate the capability of the computer program to produce valid results. Testing of the computer program is dependent upon its complexity and may range from a single test of the completed computer program to a series of tests performed at various stages of the program development to verify correct translation between stages and proper working of the individual modules, followed by an overall computer program test. Regardless of the number of stages of tests, verification testing shall be sufficient to establish that test requirements are satisfied and that the computer program produces a valid result for its intended function. Acceptable test problem verification methods may include one or more of the following features:

   a. Hand calculations.

   b. Calculations using comparable proven programs.

   c. Empirical data and information from technical literature.

5. Operational verification testing includes the following features:

   a. Test problems are developed and documented to permit confirmation of acceptable performance of the computer program in the operating system.

   b. Test problems are run whenever the computer program is installed on a different computer, or when significant hardware or operating system configuration changes are made.

   c. Periodic in-use manual or automatic self-check routines are required and are performed for those applications where computer failures or drift can affect required performance.

6. Test procedures or plans specify the following as applicable: required tests and test sequence, required ranges of input parameters, identification of the stages at which testing is required, criteria for established test cases, requirements for testing logic branches, requirements for hardware integration, anticipated output values, acceptance criteria, reports to be generated during the test, records of test results to be generated, standard formatting and conventions of electronic media generated, and provisions for the documentation and evaluation of test results by a responsible authority to assure that test requirements are met.

7. Verification test records identify the following: computer program tested, computer hardware used, test equipment and calibrations if applicable, date of test, tester or data recorder, simulation models used if applicable, test problems, results and acceptability, actions taken in correction (with any deviations noted), and the person evaluating the test results.

8. In-use test records identify the following: computer program tested, computer hardware used, test equipment and calibrations, where applicable, date of test, tester or data recorder and the acceptability.

2.12 CONTROL OF MEASURING AND TEST EQUIPMENT

2.12.1 General

A system is established for the control of measuring and test equipment (M&TE) used for measurement, test, and calibration of Q items within the scope of this QAP as described in Section 2.2. The requirements for the control of measuring and test equipment are in accordance with Basic Requirement 12 and Supplement 12S-1 of ASME NQA-1, 1989. This system establishes measures that ensure that tools, gauges, instruments, reference and transfer standards, nondestructive test equipment, and other measuring and testing devices used in activities affecting quality are properly controlled, calibrated, and adjusted at specified intervals to maintain equipment performance within required limits.

This system also establishes measures to ensure that devices and standards used for measurement, tests, and calibration activities are of the proper type, range, accuracy, and tolerance to accomplish the function of determining conformance to specified requirements.

2.12.2 Responsibilities

The Maintenance Manager has the overall responsibility for the calibration control system for M&TE. The calibration control system meets the requirements of this section of the QAP.

Organization/Group Managers are responsible for implementation of the calibration control system for M&TE under his/her cognizance.

2.12.3 Requirements

Procedures are established for the control of M&TE to ensure the following:

1. A list of devices (and their assigned location) is established to identify those items within the calibration control system. This identification listing includes, as a minimum, the due date of the next calibration and any use limitations (when it is calibrated for limited use). Calibration controls are not necessary for rulers, tape measures, levels, and other such devices if the commercial equipment provides adequate accuracy.

2. M&TE is calibrated at specified intervals or prior to use against certified equipment having known valid relationships to nationally recognized standards. If no nationally recognized standard exists, the bases for calibration are documented.

3. The method and interval for calibration for each item shall be defined, based on the type of equipment, stability characteristics, required accuracy, intended use, and other conditions affecting measurement control.

4. When M&TE is found to be out of calibration, an evaluation is made and documented as to the validity of previous inspection and test results and of the acceptability of items previously inspected or tested. Out-of-calibration devices are tagged or segregated and are not used until recalibrated. When M&TE is consistently found to be out of calibration, it is repaired or replaced. Also, calibrations are performed when the accuracy of the equipment is deemed suspect by personnel performing measurements and tests.

5. M&TE is properly handled and stored to maintain accuracy.

6. Records are maintained and equipment is suitably marked to indicate its calibration status.

2.13 HANDLING, STORAGE, AND SHIPPING

2.13.1 General

A system is established for the handling, shipping, and storage of Q items identified as within the scope of this QAP as described in Section 2.2. This system is in accordance with Basic Requirement 13 and Supplement 13S-1 of ASME NQA-1, 1989. This system provides the requirements for item handling, storage, and shipping, to prevent damage, loss, or deterioration.

2.13.2 Responsibilities

The Engineering Manager is responsible for specifying the requirements for handling, storage, shipping, cleaning, packaging, and on site movement of items in specifications, drawings, instructions, procedures, procurement documents, and/or other appropriate documents, in accordance with requirements of this section of the QAP.

Organization/Group Managers have the responsibility for the proper handling and on-site movement of items under their cognizance from the point of issuance through installation and use. These activities are accomplished in accordance with procedures consistent with the requirements of this section of the QAP.

The GDP Procurement and Materials Manager has the responsibility for the proper handling, storage, and on-site movement of items under his/her cognizance (i.e., upon receipt, during storage, and to the point of issuance). These activities are accomplished according to procedures consistent with the requirements of this section of the QAP.

The Nuclear Safety and Quality Manager is responsible for selectively verifying that items are properly handled, stored, and shipped.

2.13.3 Requirements

1. Procedures identify requirements for the handling, storage, cleaning, packaging, shipping, and preservation of items. These requirements are established during the generation of procurement, design, and shipping documents to prevent damage, loss, or deterioration. Periodic inspections are provided to verify compliance with storage requirements and to prevent deterioration;

2. Procedures document the training and experience requirements for operators of special handling and lifting equipment;

3. Procedures provide measures for the identification, control, use, and qualification of special handling equipment. These procedures also include inspection and testing requirements, with specified time intervals, to assure adequate maintenance of special handling tools and equipment;

4. Procedures designate the methods of controlling stored items;

5. Procedures or procurement documents specify cleaning operations that must be performed prior to preservation, packaging, storing, or installing items; and

6. Procedures and procurement documents specify the requirements for marking, and labeling of items to identify, maintain, and preserve the item, including indication of the presence of special environments or the need for special controls.

2.14 INSPECTION, TEST, AND OPERATING STATUS

2.14.1 General

A system for identifying inspection, test, and operating status of SSCs is established for those Q items within the scope of this QAP as described in Section 2.2. The requirements for identification of the inspection, test, and operating status are in accordance with Basic Requirement 14 of ASME NQA-1, 1989 and this section. This system provides assurance that contractors and on-site organizations identify the inspection, test, and operating status of Q SSCs by suitable methods of identification or in associated records. These controls are required to prevent the inadvertent use of nonconforming, inoperative, or malfunctioning items, and to readily verify that required tests and inspections have been performed.

2.14.2 Responsibilities

The Nuclear Safety and Quality Manager is responsible for providing a status-indicating system for inspections performed in accordance with the requirements of this section of the QAP.

Organization/Group Managers participating in testing and operational activities of the facilities are responsible for the development and implementation of status indicating systems which are consistent with the requirements of this section of this QAP.

2.14.3 Requirements

1. Procedures are established to ensure that the status of inspection and test activities are either marked or labeled on the item or in documents traceable to the item. This activity is required where it is necessary to assure that required inspections and tests are performed, and to assure that items which have not passed the required inspections and tests are not inadvertently installed, used, or operated;

2. Procedures require that status indicators, such as physical location and tags, markings, work controlling documents, stamps, inspection records, or other suitable means are utilized when required. Procedures identify the authority for the application and removal of tags, markings, labels, and stamps; and

3. Procedures also provide measures for indicating the operating status of systems and components, such as by tagging valves and switches, to prevent inadvertent operation.

2.15 CONTROL OF NONCONFORMING ITEMS

2.15.1 General

A system is established for the control of nonconforming Q items and related activities and services within the scope of this QAP as described in Section 2.2. This system is in accordance with Basic Requirement 15 and Supplement 15S-1 of ASME NQA-1, 1989. The system establishes the requirements for identification, segregation, disposition, prevention of inadvertent installation or use, documentation, and notification to affected organizations for items which do not conform to specified requirements.

2.15.2 Responsibilities

Personnel participating in Q quality affecting activities within the scope of this QAP are responsible for reporting and documenting nonconforming items or related activities and services.

The GDP Procurement and Materials Manager is responsible for implementation of the nonconformance control system for materials which meet the requirements of this section of the QAP until the materials are issued for installation or use.

The Engineering Manager is responsible for providing documented technical justification for the acceptability of nonconforming items dispositioned "use-as-is" or "repair." This manager is also responsible for applying the design control measures of Section 2.3 of this QAP to those nonconformances to design requirements that are dispositioned "use-as-is" or "repair," and for ensuring that as-built records reflect the accepted deviation.

The Plant Shift Superintendents (PSS) are responsible for evaluating identified and reported nonconformances for impact on system operability and reportability to the NRC.

2.15.3 Requirements

Procedures are established to provide measures for the control of Q items and related activities and services that do not conform to specified requirements. These measures ensure the following:

1. Nonconforming items are identified in a manner that does not adversely affect the end use of the item, by markings, tagging, and other appropriate methods. The identifications shall be legible and easily recognizable. When identification of the item is not practical, the container, package, or segregated storage area is identified;

2. Nonconforming items are segregated, when practical, by placing them in a clearly identified and designated area until properly dispositioned. When segregation is impractical or impossible due to physical conditions such as size, weight, or access limitations, other measures are employed to preclude inadvertent use of the item;

3. Nonconforming characteristics are reviewed and dispositions are recommended. Further processing, delivery, installation or use of the nonconforming item is controlled pending an evaluation and approved disposition by authorized personnel, and notification to affected organizations is provided;

4. Nonconforming items or services are evaluated to determine whether reporting is required;

5. Nonconforming items or services identified by suppliers are reviewed to determine applicability and to initiate corrective action if required;

6. The responsibility and authority for the evaluation and disposition of nonconforming items is defined. The personnel performing evaluations to determine the disposition have demonstrated competence in the specific area they are evaluating, have an adequate understanding of the requirements, and have access to pertinent background information;

7. The disposition of nonconforming items is identified and documented. Technical justification for the acceptability of nonconforming items dispositioned "repair" or "use-as-is" are also documented;

8. Nonconformances to design requirements dispositioned "use-as-is" or "repair" are subject to design control measures as described in Section 2.3. The as-built records, if such records are required, reflect the accepted deviation. This as-built requirement applies only to those as-built conditions captured after the effective date of this QAP; and

9. Repaired or reworked items are reexamined in accordance with applicable procedures and with the original acceptance criteria unless the nonconforming item disposition has established alternate acceptance criteria.

2.16 CORRECTIVE ACTION

2.16.1 General

A corrective action system is established for those Q items and related activities and services within the scope of the QAP as described in Section 2.2. This system is in accordance with Basic Requirement 16 of ASME NQA-1, 1989 and this section. This system establishes measures which ensure that conditions adverse to quality are identified and corrected as soon as practical. The system also ensures that, in the case of significant conditions adverse to quality, the cause of the condition is determined, and corrective action is

taken to preclude recurrence. These actions are documented and reported to appropriate levels of management. This system also ensures that follow-up actions are taken to verify implementation of the corrective action.

2.16.2 Responsibilities

The Nuclear Regulatory Affairs Manager is responsible for development, maintenance, and implementation of the corrective action system. This manager is also responsible for verifying that adverse conditions are reviewed and assessed by appropriate levels of management.

Organization/Group Managers are responsible for evaluating and performing assigned corrective actions in a timely manner in accordance with procedures that implement the requirements of this section of the QAP. They are also responsible for assuring the identification and documentation of conditions adverse to quality in accordance with applicable procedures.

2.16.3 Requirements

Procedures for the corrective action process are established to ensure the following:

1. Conditions adverse to quality are promptly identified and corrected as soon as practical;

2. For significant conditions adverse to quality, the cause of the condition is determined and corrective action is taken to preclude recurrence; and

3. The identification, cause, and corrective action for significant conditions adverse to quality are documented and reported to appropriate levels of management; follow-up action is taken to verify implementation of the corrective action.

2.17 QUALITY ASSURANCE RECORDS

2.17.1 General

A records management system is established for Q items and related activities and services within the scope of this QAP as described in Section 2.2. The records management system is in accordance with Basic Requirement 17 and Supplement 17S-1 of ASME NQA-1, 1989. The records management system provides measures to control quality assurance records.

2.17.2 Responsibilities

The Plant Services Manager is responsible for the development, maintenance, and implementation of the records control system consistent with the requirements set forth in this section of the QAP.

Organization/Group Managers are responsible for (1) identifying quality assurance records initiated by their organization/group including those received from suppliers of items and services; (2) controlling the records within their jurisdiction; and (3) transferring records, for which their group previously had record copy responsibility, to the Plant Services Manager for retention consistent with governing procedures meeting the requirements established in this section of the QAP.

2.17.3 Requirements

Procedures for the identification and control of quality assurance records are established to ensure the following:

1. Applicable design specifications, procurement documents, test procedures, operational procedures or other documents specify the records to be generated, supplied, or maintained. These documents are designated to become records and are legible, accurate, and complete;

2. Methods of authentication or validation of documents as records are identified;

3. Documents shall be considered valid records only if stamped, initialed, or signed and dated by authorized personnel or otherwise authenticated;

4. Establishment of a records indexing and classification system, including record retention times, and the location of the record within the record system, which meets the requirements of the Technical Safety Requirements document, the provisions of 10 CFR Part 76, and other regulatory requirements;

5. Methods are established to permit identification between the record and the item(s) or activity(ies) to which it applies;

6. Corrections to records are approved by the originating organization and the corrections include the date and the identification of the individual authorized to issue the correction;

7. Establishment of a record receipt control system which meets the requirements of Supplement 17S-1, Section 3 of ASME NQA-1, 1989;

8. Requirements for records storage, preservation, and safekeeping satisfy the requirements of Supplement 17S-1, Sections 4.1, 4.2, and 4.3 of ASME NQA-1, 1989;

9. Quality Assurance records are stored in facilities which meet the requirements of Supplement 17S-1, Section 4.4 of ASME NQA-1, 1989, except as noted in Appendix C of this QAP;

10. Record requirements for procured services or non-commercial items are identified in applicable procurement documents. These documents contain provisions for the following:

    a. Assuring that supplier methods for the collection, storage, and maintenance of records is commensurate with the above requirements,

    b. Identification of required records and the required retention periods,

    c. A record index which includes sufficient identifying information for record retrieval,

    d. A record submittal plan,

    e. The availability, accessibility, and if applicable, the disposition criteria of records retained by the supplier, and

    f. The accessibility of the supplier's records prior to final transfer to the purchaser and the method of transmittal.

11. The storage system provides for retrieval of information in accordance with planned retrieval times based upon the record type. A list is maintained designating those personnel who have access to the files within the storage system;

12. Single copy records shall only be allowed out of permanent storage if they cannot be copied and then only for a maximum of 90 days.

2.18 AUDITS

2.18.1 General

An audit system is established for Q items and activities and services within the scope of this QAP as described in Section 2.2. The audit system is in accordance with Basic Requirement 18 and Supplement 18S-1 of NQA-1, 1989. This system establishes planned and periodic audits to verify the compliance and the effectiveness of this QAP in meeting quality requirements. Audit personnel have sufficient authority and organizational freedom to make the audit process meaningful and effective. Audits are executed in accordance with established procedures and are performed by personnel having no direct responsibilities in the areas being audited.

Internal audits of selected aspects of operational activities are performed with a frequency commensurate with their importance to safety and in such a manner as to assure that audits of activities within the scope of this QAP, as described in Section 2.2, are completed within specified time periods.

External audits of selected suppliers and service contractors, in keeping with the procurement and service activities, are performed to verify and evaluate their Quality Assurance Programs, procedures and activities to ensure that they are complying with applicable aspects of this QAP and procurement requirements. This includes verification that the suppliers and contractors similarly review and audit the quality assurance programs of their suppliers as required.

2.18.2 Responsibilities

The Nuclear Safety and Quality Manager is responsible for the development, maintenance, scheduling and performance of the internal audit and external supplier audit system consistent with the requirements of this section of the QAP.

Audited organizations are responsible for providing assistance as required during the planning and performance of audits, for providing access to facilities, personnel, documents, and records, as required, and for ensuring that requests for corrective action are promptly answered and that actions taken to correct any discrepancy are adequate and timely.

2.18.3 Requirements

2.18.3.1 Training and Qualification

1. Audit personnel shall be provided with appropriate training such that they are competent to perform the required audits; and

2. Auditors and lead auditors shall meet the training and experience requirements as described in Section 2.2.4. Technical specialists may participate as audit team members provided they receive the required indoctrination and guidance during the audit.

2.18.3.2 Scheduling

1. Internal and external audits are scheduled in a manner to provide coverage and coordination with ongoing QAP activities.

2. Audits are scheduled at a frequency commensurate with the status and importance of the activities.

3. The audit schedules are reviewed periodically and revised as necessary to assure coverage is maintained current.

4. Regularly scheduled audits are supplemented by additional audits or surveillance (assessment) of specific subjects when necessary to provide adequate coverage.

5. An implementation audit for initial evaluation of suppliers, when required by 2.7.3.2, may be scheduled and performed after award of the contract when sufficient time has lapsed for implementing their QA Program, and they are performing the functions as defined in their QA program, codes, standards, and other contract documents.

6. External audits of approved non-commercial grade suppliers are scheduled and performed at least once every three years from the date of the last acceptable supplier evaluation. The following alternatives apply:

   a. Approved non-commercial grade suppliers, if used infrequently, do not require re-audit every three years. However, they shall be audited prior to use if their QAP approval has lapsed.

   b. Suppliers of services do not require external audit if they perform work to the USEC QAP and procedures under USEC supervision. Otherwise, external audit is required for suppliers of services.

   c. Third party audits allowed by 2.7.3.2.4 are acceptable for triennial supplier re-audit.

7. Approved, non-commercial grade suppliers' performance is evaluated annually in the years between audits. External audits of non-commercial grade suppliers, after award of a contract, are not necessary for procurement actions when the items or services are all of the following: (1) relatively simple and standard in design, manufacture, and test; (2) subject to standard or automated inspections or tests of the end product to verify quality characteristics after delivery; and (3) such that receiving inspection does not require operations that could adversely affect the integrity, function or cleanness of the items.

2.18.3.3 Audit Plan

The auditing organization shall develop and document an audit plan for each audit. The plan is required to identify the audit scope, requirements, audit personnel, activities to be audited, organizations to be notified, applicable documents, schedule, and applicable written procedures or approved checklists, of questions covering the items to be audited.

2.18.3.4 Personnel and Selection of Audit Team

1. Measures are established for the selection of the audit team, and audit team familiarization prior to the beginning of each audit. These measures ensure consideration is given to special abilities, specialized technical training, prior experience, personal characteristics, and education when personnel are selected as audit team members;

2. The selected auditors shall be independent of any direct responsibility for performance of the activities which they will audit and, in the case of internal audits, personnel having direct responsibility for performing the activities being audited are not involved in the selection of the audit team;

3. The audit team shall contain one or more auditors and shall have an individual appointed to lead the team who organizes and directs the audit, coordinates the preparation and issuance of the audit report, and evaluates the responses; and

4. Measures are established for audit team preparation prior to initiation of the audit, particularly that pertinent information including policies, procedures, standards, instructions, codes, regulatory requirements, and prior audit reports, is available for review by the auditors for formulation of the checklist and the conduct of the audit.

2.18.3.5 Audit Performance

Audits shall be performed in accordance with the requirements of Supplement 18S-1, Section 4 of ASME NQA-1, 1989.

2.18.3.6 Reporting

1. The audit report is signed by the audit team leader. The report should be issued within 30 days of the post-audit conference. The audit report is distributed to responsible management of both the auditing and the audited organizations.

2. The audit report shall include the following information, as appropriate:

   a. Description of the audit scope;

   b. Identification of the auditors;

   c. Identification of persons contacted during audit activities;

   d. Summary of audit results, including a statement of the implementation effectiveness of the quality assurance program elements which were audited;

   e. Description of each reported adverse audit finding in sufficient detail to enable corrective actions to be taken by the audited organization (Audit findings are processed as required by QAP Section 2.16, "Corrective Action.")

2.18.3.7 Response and Follow-Up Action

1. Management of the audited organization or activity shall investigate adverse audit findings, identify and schedule corrective action, identify and schedule measures to prevent recurrence, and notify the appropriate organization in writing of the actions taken or planned. The adequacy of the written audit responses is evaluated by or for the auditing organization; and

2. Follow-up action shall be taken to verify that corrective action is completed as scheduled.

2.18.3.8 Records

Audit records include audit plans, audit reports, written replies, and record of completion of corrective action.

Hierarchy of Technical Documents

Federal (CFRs), State, and Local Regulations

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Certificate of Compliance Includes:

- Technical Safety Requirements
- Safety Analysis Report
- Fundamental Nuclear Material Control Plan
- Security Plan
- Emergency Plan
- Quality Assurance Program
- Radioactive Waste Management Program
- Depleted Uranium Management Plan
- Nuclear Safety Programs
- Nuclear Criticality Safety Program
- Compliance Plan

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USEC Policies

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Procedures

Note 1. Listed documents are for information, not all documents are included in the scope of the quality program.
Note 2. Not all layers of documents need to be present to flow down requirements to a lower level document.

Figure 2-1. Hierarchy of technical documents.

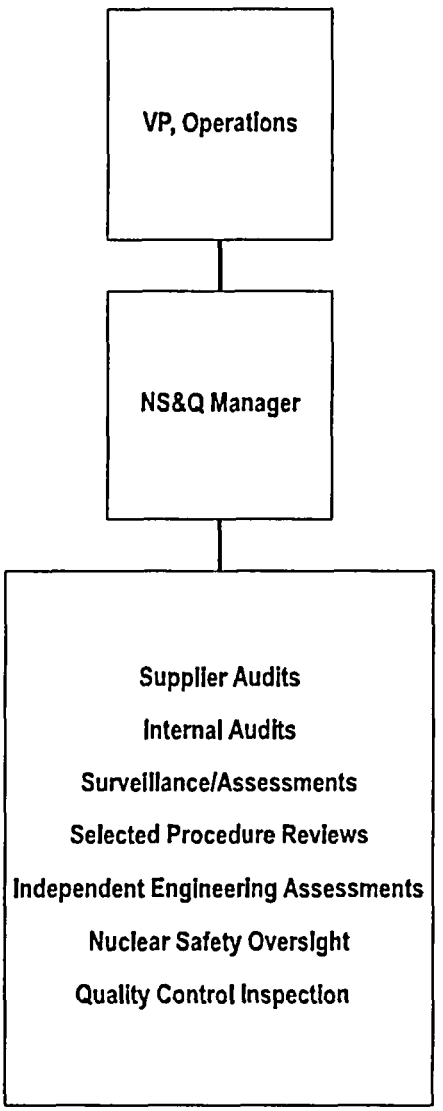

Figure 2-2. Nuclear Safety and Quality Organization

Figure 2-3. Deleted

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Appendix A

AUGMENTED QUALITY PROGRAM

This Appendix describes the extent to which QAP Sections 2.1 through 2.18 apply to AQ items and activities or describes alternatives. Section 3.15 of the Paducah Safety Analysis Report and Section 3.8 of the Portsmouth Safety Analysis Report describe the AQ systems and boundaries to which this appendix applies. Appendix A, Section 1 describes the QAP applicability for Nuclear Criticality Safety. Section 2 describes the QAP applicability for the remaining AQ systems. Section 3 describes the quality requirements for AQ structures.

AQ items and activities are important to safety. Sections 1, 2, and 3 describe the extent of applicability of the Q quality assurance program or provide alternatives to Q requirements.

Appendix A (AQ-NCS)

Section 1

AQ - Nuclear Criticality Safety

The following elements as specified below apply to those SSCs identified in NCSAs/NCSEs as being relied upon for the criticality safety of an operation as described in SAR Section 5.2.2.8.

1.1 QAP Organization

Section 2.1 "Organization" of the Q program applies.

1.2 Quality Assurance Program

Section 2.2 "Quality Assurance Program" of the Q program applies.

1.3 Design Control

Section 2.3 "Design Control" of the Q program applies.

1.4 Procurement Document Control

Section 2.4 "Procurement Document Control" of the Q program applies.

1.5 Instructions, Procedures, and Drawings

Section 2.5 "Instructions, Procedures, and Drawings" of the Q program applies.

1.6 Document Control

Section 2.6 "Document Control" of the Q program applies.

1.7 Control of Purchased Items and Services

Section 2.7 "Control of Purchased Items and Services" of the Q program applies.

1.8 Identification and Control of Items

Section 2.8 "Identification and Control of Items" of the Q program applies.

1.9 Control of Processes

Section 2.9 "Control of Processes" of the Q program applies.

1.10 Inspection

Section 2.10 "Inspection" of the Q program applies.

1.11 Test Control

Section 2.11 "Test Control" of the Q program applies.

1.12 Control of Measuring and Test Equipment

Section 2.12 "Control of Measuring and Test Equipment" of the Q program applies.

1.13 Handling, Storage, and Shipping

Section 2.13 "Handling, Storage, and Shipping" of the Q program applies.

1.14 Inspection, Test, and Operating Status

Section 2.14 "Inspection, Test, and Operating Status" of the Q program applies.

1.15 Nonconformance Control

Section 2.15 "Nonconformance Control" of the Q program applies.

1.16 Corrective Action

Section 2.16 "Corrective Action" of the Q program applies.

1.17 Quality Assurance Records

Section 2.17 "Quality Assurance Records" of the Q program applies.

1.18 Audits

Section 2.18 "Audits" of the Q program applies.

Appendix A

Section 2

AQ - Other SSCs

The following elements apply as specified below for AQ SSCs (except NCS) contained within the boundaries discussed in SAR Section 3.15 (Paducah) and SAR Section 3.8 (Portsmouth).

2.1 Organization

Section 2.1 "Organization" of the Q program applies.

2.2 Quality Assurance Program

Section 2.2 "Quality Assurance Program" of the Q program applies with the following alternatives:

1. Training for AQ activities differ from training for Q activities in the rigor and formality for individual SAT elements, and includes as a minimum:

   a. Conduct of needs/job analysis and identification of tasks for training - The needs/job analysis is an informal table-top discussion or a subject matter expert interview to identify training needs.

   b. Development of learning objectives - The learning objective is a single overall terminal objective rather than a breakdown of multiple enabling or learning objectives tied back to the overall objective.

   c. Development of lesson plans and training guides - The lesson plan development and approval process is less formal and limited to technical reviews in lieu of additional instructional technologist review and approval.

   d. Evaluation of trainee mastery of learning objectives - The evaluation of trainee mastery of learning objectives is determined by the needs/requests of line management. Written performance evaluations are not required.

   e. Evaluation of the effectiveness of training - The evaluation of the effectiveness of training is determined by the needs/requests of line management. Formal assessments and surveys are not required.

2.3 Design Control

2.3.1 General

A design control system is established for AQ items and related activities and services within the scope of this Appendix as identified in Section 2.2. This system is based on ASME NQA-1, 1989, Basic Requirement 3, and Supplement 3S-1. These requirements and controls ensure that new design and design change activities are carried out in a planned, controlled, and orderly manner, and that design requirements such as design bases, regulatory requirements and appropriate quality standards are correctly translated into design output, procurement, and procedural documents. These controls also establish provisions for verifying or checking the technical adequacy of design documents including computer codes. They also provide for the control of design changes. The design control provisions contained in this Appendix are applicable to design activities taking place after the date NRC assumes regulatory oversight for the plant. Reconstitution of the design is not required; however if a deviation to the design is discovered, engineering shall resolve the deviation and as-built the drawings if necessary.

2.3.2 Responsibilities

The Engineering Manager is the plant design authority having responsibility for the implementation and execution of the design control system in accordance with the requirements of this section.

Design changes and new designs are authorized by responsible management and are reviewed (as described in SAR Section 6.2) by the Plant Operations Review Committee (PORC) prior to implementation in accordance with the provisions of 10 CFR 76.68. Management is responsible for ensuring that completed plant changes are tested and for assuring that personnel affected by the change are adequately trained as described in procedures.

2.3.3 Requirements

2.3.3.1 Design Inputs

Procedures for design input activities are established to ensure the following:

1. Design inputs, such as approach to design bases, performance requirements, regulatory requirements, codes, and standards, are identified and documented, and their selection reviewed and approved by the responsible design organization;

2. Design inputs are approved on a timely basis and to the level of detail necessary to permit the design activity to be carried out in a correct manner and to provide a consistent basis for making design decisions, accomplishing design verification measures, and evaluating design changes; and

3. Changes from approved design inputs, including the reason for the changes, are identified, approved, documented, and controlled.

2.3.3.2 Design Process

Procedures are established to ensure the following:

1. Design activities are planned on a timely basis and to the level of detail necessary to permit the design process to be carried out in a correct manner and to permit verification that the design meets requirements. Design inputs are correctly translated into design documents;

2. Appropriate quality standards are identified and documented and their selection reviewed, approved, and controlled including changes thereto;

3. Design methods, materials, parts, equipment, and processes that are essential to the function of the SSC are selected and reviewed for suitability of application; and

4. Final design output documents including changes thereto are:

   a. Relatable to the design input by documentation in sufficient detail to permit design verification,

   b. Identify assemblies and/or components that are part of the item being designed.

2.3.3.3 Design Analyses

Procedures for design analyses activities are established to ensure the following:

1. Design analyses are performed in a planned, controlled, and documented manner;

2. Design analyses documents are legible and in a form suitable for reproduction, filing, and retrieval;

3. Design analyses documents contain sufficient detail as to the purpose, method, assumptions, design input, references, and units such that a person technically qualified in the subject can review and understand the analyses and verify the adequacy of the results without recourse to the originator;

4. Calculations are identifiable by subject, originator, reviewer, and date or by other data such that the calculations are retrievable;

5. When computer programs are utilized for design analyses, the requirements of Section 3.1(a) of Supplement 3 S-1 of ASME NQA-1, 1989 are applied; and

6. Design analyses documents include the requirements of Section 3.1(b) of ASME NQA-1, 1989 Supplement 3 S-1.

2.3.3.4 Design Verification

Procedures for design verification activities are established to ensure the following:

1. Design verification is performed by competent individual(s) or group(s) other than those who performed the original design;

2. Verifiers are knowledgeable in the areas to be verified. The verifier may be a supervisor, provided the supervisor was not directly responsible for the design (i.e., did not specify a singular design approach or rule out certain design considerations and did not establish the design inputs used in the design);

3. Design verification is completed prior to relying upon the component, system, structure, or computer program to perform its function;

4. The extent of the design verification is a function of the importance to safety, the complexity of the design, the degree of standardization, the state of the art, past performance, and similarity with previously proven designs. Where changes to previously verified designs are made, design verification is performed for the changes, including an evaluation of the effects of the changes on the overall design and on any design analysis for which the design is based; and

5. Acceptable methods of design verification are identified which include, but are not limited to, any one or a combination of the following: design reviews, alternate calculations, and qualification testing. Procedures identify the criteria for determining the method of design verification. Verification by testing shall demonstrate adequacy of performance under conditions that simulate the most adverse design requirements. Verification of computer programs includes appropriate testing in accordance with the requirements of Section 2.11.

2.3.3.5 Design Changes

Procedures for design change control are established to ensure the following:

1. Changes to final designs, field changes, modifications, and nonconforming items dispositioned "use-as-is" or "repair" are justified, documented, and evaluated against criteria established by the Engineering Manager;

2. Design documents, including changes thereto, are controlled in accordance with Section 5 of Supplement 3 S-1 to NQA-1, 1989 and Section 2.6 of this Appendix. When a significant design change is found to be necessary because of an incorrect design, the design process and verification procedure are reviewed and modified as necessary; and

3. Changes to the plant are evaluated and processed in accordance with the provisions of 10 CFR 76.68.

2.3.3.6 Design Interfaces

Procedures for design interface control are established to ensure the following:

1. Internal and external design interfaces are identified and controlled and design efforts are coordinated among participating organizations;

2. The responsibilities for the preparation, review, approval, release, distribution, and revision of documents involving design interfaces are defined; and

3. Design information transmitted across interfaces is documented and controlled.

2.3.3.7 Design Documentation and Records

Design documentation and records that provide evidence that the design and design verification processes were performed in accordance with this section are collected, stored, and maintained in accordance with Section 2.17.

2.4 Procurement Document Control

2.4.1 General

A procurement document control system is established for AQ items and related activities and services within the scope of this Appendix as identified in Section 2.2. This system is based on ASME NQA-1, 1989, Basic Requirement 4, and Supplement 4S-1. The procurement document control system ensures that applicable regulatory requirements, technical requirements, and QAP requirements are included or referenced in procurement documents for the procurement of items and services. This system also establishes provisions for the preparation, review, approval, and control of procurement documents, including changes thereto.

2.4.2 Responsibilities

The Engineering Manager is responsible for the preparation and maintenance of design specifications (including specifications for spare and replacement parts) and for identifying the technical and quality

requirements necessary to ensure item acceptability. These specifications are subject to the requirements of Section 2.3 of this Appendix. The Engineering Manager is also responsible for development of procedures that define these activities, including the criteria for developing the necessary technical and quality requirements for procurement taking into consideration the importance to safety.

The GDP Procurement and Materials Manager is responsible for purchasing activities and for ensuring that items are procured in accordance with the technical and quality requirements specified by engineering.

2.4.3 Requirements

AQ items and services are procured as commercially available in accordance with the criteria in this section and Section 2.7 of this Appendix.

2.4.3.1 Procurement Document Contents

Procedures governing procurement document content are established to ensure the following:

1. Items are purchased by reference to the manufacturers part number and nomenclature unless other technical requirements are specified by Engineering, taking into consideration the importance to safety. When specified by Engineering, technical requirements are included in procurement documents by specific reference to drawings, specifications, codes, standards, regulations, procedures, or instructions, including revisions thereto, that describe the items or services to be furnished. Procurement documents identify any special instructions and requirements for designing, fabricating, cleaning, erecting, packaging, shipping, handling, storing, testing, inspecting, and accepting.

2. Services are purchased by reference to the service provider's published service description unless other technical requirements are specified by engineering in a statement of work. When specified by engineering, the statement of work is included in procurement documents.

3. Procurement documents specify appropriate quality requirements needed to ensure acceptability and useability of the items or services being procured.

4. Procurement documents identify the documentation required to be submitted for information, review, or approval. The identification of technical and quality requirements equal to or better than the original requirements are provided for ordering replacement parts or assemblies.

2.4.3.2 Procurement Document Review

Procedures for the review of procurement documents are established to ensure the following:

1. A review of procurement documents and changes thereto shall be made to assure that documents transmitted to the prospective supplier(s) include appropriate provisions to assure that items or services will meet the specified requirements;

2. Changes made as a result of the bid evaluation or precontract negotiations are incorporated in procurement documents. The review of these changes are completed prior to contract award. This review shall ensure the requirements of Section 3 of Supplement 4S-1 to ASME NQA-1, 1989 are satisfied; and

3. The reviews and approvals required by this section are performed by personnel who have access to pertinent information and who have an adequate understanding of the requirements and the procurement documents.

2.4.3.3 Procurement Document Changes

Procedures ensure that procurement document changes are subject to the same degree of control as utilized for the preparation of the original procurement document.

2.5 Instructions, Procedures, and Drawings

Section 2.5 "Instructions, Procedures, and Drawings" of the Q program applies.

2.6 Document Control

Section 2.6 "Document Control" of the Q program applies.

2.7 Control of Purchased Items and Services

2.7.1 General

A system for the control of purchased items and services is established for AQ items and services within the scope of this Appendix as described in Section 2.2. This system is based on Basic Requirement 7 and Supplement 7S-1 of ASME NQA-1, 1989.

2.7.2 Responsibilities

The Nuclear Safety and Quality Manager is responsible for providing the necessary QA functions to support procurement as described in this section. The Nuclear Safety and Quality Manager provides support functions such as source verification or surveillance, receipt inspections, installation inspections, and review of procurement documents during receipt inspections. The Nuclear Safety and Quality Manager is also responsible for developing and implementing procedures which meet the requirements of this section.

The Engineering Manager is responsible for assisting the Nuclear Safety and Quality Manager by performing evaluations of supplier technical capabilities. The Engineering Manager is also responsible for the approval of dispositions and technical evaluations for supplier-generated nonconformances for items when required by purchasing documents. The Engineering Manager is also responsible for providing measures which ensure the proper selection, application, methods of acceptance, and use of items.

The GDP Procurement and Materials Manager is responsible for purchasing items in accordance with the technical requirements specified by engineering and for providing a support function for the performance of standard receiving inspection of AQ items when specified by the Engineering Manager in accordance with 2.7.3.2.1i of the Appendix of the QAP. The GDP Procurement and Materials Manager is also responsible for ensuring that personnel assigned to perform these standard receiving inspections have received appropriate indoctrination and training according to Section 2.2.4 of the QAP and that procedures are in place according to Section 2.5 of the QAP. The standard receiving inspection (non-technical) may be performed by GDP Procurement and Materials or Nuclear Safety and Quality as determined by management and as described in appropriate corporation and/or site procedures.

2.7.3 Requirements

AQ items and services are procured in accordance with the requirements of this section.

2.7.3.1 Changes to Procurement Documents

The requirements of Section 2.4.3.3 are followed when changes to procurement documents are made.

2.7.3.2 Application, Use and Methods of Acceptance for Items and Services

Procedures are established which govern the application, use and acceptance of items and services. Engineering specifies the use, acceptance criteria and method of acceptance for procured items and services in accordance with the following:

1. Engineering specifies methods used to accept items and services. Methods include one or more of the following:

   a. Receipt Inspection (Technical) - Note: done for all AQ items except when 1.i. below is the only method specified. Receipt inspections include the attributes as described below in paragraph 6 of this section,
   b. Acceptance review, (done for all services)
   c. Post-installation test, (items or services)
   d. Supplier survey, (items or services)
   e. Source verification, (items or services)
   f. Acceptable supplier and item performance record, (items or services)
   g. Certificate of Compliance, (items or services)
   h. Special test, and (items or services)
   i. Standard Receipt Inspection (Non-Technical) - Note: This method is used when application of the graded approach (based on the complexity and safety significance) indicates that the attributes described in paragraph 7 below provide reasonable assurance of the item's quality. This method can be used for acceptance of consumables, commodity items, and other standardized items. (items only)

2. The selection of the method or combination of methods in Section 2.7.3.2.1 above is based on the following:

   a. Importance to safety and complexity of the item or service,
   b. Selected critical characteristics or controls,
   c. Available supplier information,
   d. Quality history,
   e. Degree of standardization

3. Alternate items are allowed provided the Engineering Manager provides verification that the alternate item will perform its intended AQ function.

4. Procurement documents are issued and controlled in accordance with the requirements of Section 2.4 of this Appendix.

5. Acceptance reviews determine that the service performed is the service ordered and that required documentation is received and is acceptable.

6. Receipt inspections (Technical) determine that inspection and testing are performed as required, ensure conformance with manufacturer's published requirements, and ensure that required documentation is received and is acceptable.

7. Standard Receipt Inspections (Non-Technical) determine the following:

   a. the item is clean and damage was not sustained during shipping,
   b. the item received was the item ordered as identified on the contract or purchase order in the description and amount,
   c. the material received is packaged as required on the contract or purchase order including marking and tagging of shipping containers and individual items,
   d. commercial documentation (bill of lading, invoice, shipping invoice, etc.) as applicable to the item received is complete,
   e. special commercial shipping requirements as required on the contract or purchase order have been met (e.g., plastic enclosures to maintain cleanliness, anti-static enclosures, etc.), and
   f. simple dimensional checks, which do not require use of M&TE, may also be required.

2.8 Identification and Control of Items

2.8.1 General

A system is established for the identification and control of AQ items within the scope of the Appendix as described in Section 2.2 of this Appendix. This system is based on Basic Requirement 8 and Supplement 8S-1 of ASME NQA-1, 1989. This system establishes the requirements for the identification and control of such items and associated materials, consumables, parts, spare parts, components, and sub-assemblies.

2.8.2 Responsibilities

The Engineering Manager is responsible for specifying requirements for identification methods, traceability, shelf life, and operating life of items when required by codes, standards, or specifications. Engineering specifies these requirements during the generation of specifications, drawings, procurement documents, or other documents appropriate to the circumstances.

Organization Managers are responsible for maintaining and implementing identification, traceability, shelf life and operating life requirements for items under their jurisdiction.

The GDP Procurement and Materials Manager is responsible for receipt, delivery, storage, identification, traceability, and control of materials.

2.8.3 Requirements

2.8.3.1 Identification of Items

Procedures are established to ensure that items are identified from initial receipt and fabrication of the items up to and including installation and use to assure that only correct and accepted items are used or installed. Where physical identification to control the item is either impractical or insufficient, physical separation, procedural controls, or other means are employed. When markings are used, measures are established to ensure that the markings are clear, legible and do not have a detrimental effect on the function or service life of the item. Markings are transferred to each part of an identified item when subdividing and are not to be obliterated or hidden by surface treatments or coatings unless other means of identification are provided.

2.8.3.2 Traceability of Items

Procedures are established for the traceability of items, when specified by codes, standards or specifications.

2.8.3.3 Limited Life Items

Procedures are established to ensure that items which have a limited operating life or shelf-life are identified and controlled to preclude use of items whose operating life or shelf-life has expired. These procedures also establish the requirements for the identification and control of items such as chemicals and reagents.

2.8.3.4 Maintaining Identification of Stored Items

Procedures are established for the control of item identification consistent with the planned duration and conditions of storage such as (1) provisions for maintenance or replacement of markings and identification records due to damage during handling or aging, (2) protection of identifications on items subject to excessive deterioration due to environmental exposure, and (3) provision of updating existing plant records.

2.9 Control of Processes

Section 2.9 "Control of Processes" of the Q program applies.

2.10 Inspection

2.10.1 General

A system for inspection is established for AQ items which is within the scope of this Appendix as identified in Section 2.2. This system is based on ASME NQA-1, 1989, Basic Requirement 10, and Supplement 10S-1. This system provides measures to ensure that maintenance, repair or modification work is completed satisfactorily.

2.10.2 Responsibilities

The Nuclear Safety and Quality Manager is responsible for inspection planning, for ensuring inspections are performed when required by documents or procedures, and for utilizing qualified and certified inspection personnel.

The Engineering Manager is responsible for specifying "hold" and "witness" points for inclusion in applicable work control documents. Such work control documents are developed from approved design documents, which specify the criteria for acceptance for the work.

2.10.3 Requirements

Procedures for the inspection of AQ items and activities ensure the following:

1. Inspection for acceptance shall be performed by persons other than those who performed or directly supervised the work or activity being inspected.

2. Inspection for acceptance following maintenance or repair is accomplished by Post Maintenance Testing and/or Functional Testing as a minimum. Engineering specifies additional inspection requirements taking into consideration the importance to safety, and applicable codes, standards, and other commitments.

3. Personnel performing Post Maintenance Testing and/or Functional Testing are qualified to perform the specific operation or maintenance tasks, based on knowledge of the specific operation or maintenance requirements. Quality control personnel performing inspection are trained and qualified in accordance with Section 2.2.

4. Inspection hold points are established to ensure that work does not bypass required inspections. These hold points are established in work control documents. Work shall not proceed beyond an inspection hold point without specific consent of the designated inspection representative. Consent to waive hold points is recorded prior to continuation of work beyond the designated hold point.

5. Inspection activities are performed to verify the quality and conformance of the item to specified requirements.

6. The identification of inspection activities, including inservice inspection, and attributes are based on the importance to safety and the complexity of the item or activity to be inspected; on mandatory inspections required by codes, standards, regulatory requirements, and commitments; and on inspection requirements established by the Engineering Manager. The depth and extent of inspections are determined by the importance to safety and complexity of the item or activity.

7. Final inspection consist of Post Maintenance Testing and/or Functional Testing for the specific item involved. Where necessary, engineering identifies additional final inspection requirements.

8. Repairs, replacements, and modifications performed subsequent to final inspection require reinspection or retest, as appropriate, to verify acceptability.

9. Inspection and test requirements are identified in either maintenance procedures or work control documents and include acceptance criteria specified by engineering. Inspections are documented. The documentation identifies the acceptance criteria, and provides for the recording of the objective evidence of the inspection results.

10. Where a sample is used to verify acceptability of a group of items, the sampling procedure is documented and clearly identifies the sampling basis (typically based on recognized standard/practices).

11. Work control documents specify the minimum documentation requirements for inspection as follows:

    a. item inspected
    b. date of inspection
    c. inspector
    d. type of observation
    e. results or acceptability
    f. reference to information on action taken in connection with nonconformances

2.11 Test Control

Section 2.11 "Test Control" of the Q program applies.

2.12 Control of Measuring and Test Equipment

Section 2.12 "Control of Measuring and Test Equipment" of the Q program applies.

2.13 Handling, Storage, and Shipping

2.13.1 General

A system is established for the handling, shipping, and storage of AQ items identified as within the scope of this Appendix as described in Section 2.2. This system is in accordance with Basic Requirement 13 and Supplement 13S-1 of ASME NQA-1, 1989. This system provides the requirements for item handling, storage, and shipping, to prevent damage, loss, or deterioration.

2.13.2 Responsibilities

The Engineering Manager is responsible for specifying the requirements for handling, storage, shipping, cleaning, packaging, and on-site movement of items in specifications, drawings, instructions, procedures, procurement documents, and/or other appropriate documents, in accordance with requirements of this section of the Appendix.

Organization/Group Managers have the responsibility for the proper handling and on-site movement of items under their cognizance from the point of issuance through installation and use. These activities are accomplished in accordance with procedures consistent with the requirements of this section of the Appendix.

The GDP Procurement and Materials Manager has the responsibility for the proper handling, storage, and on-site movement of items under his/her cognizance (i.e., upon receipt, during storage, and to the point of issuance). These activities are accomplished according to procedures consistent with the requirements of this section of the Appendix.

2.13.3 Requirements

1. Procedures identify requirements for the handling, storage, cleaning, packaging, shipping, and preservation of items. These requirements are established during the generation of procurement, design, and shipping documents to prevent damage, loss, or deterioration. Periodic inspections are provided to verify compliance with storage requirements and to prevent deterioration.

2. Procedures document the training and experience requirements for operators of special handling and lifting equipment.

3. Procedures provide measures for the identification, control, use, and qualification of special handling equipment. These procedures also include inspection and testing requirements, with specified time intervals, to assure adequate maintenance of special handling tools and equipment.

4. Procedures designate the methods of controlling stored items.

5. Procedures or procurement documents specify cleaning operations that must be performed prior to preservation, packaging, storing, or installing items.

6. Procedures and procurement documents specify the requirements for marking, and labeling of items to identify, maintain, and preserve the item, including indication of the presence of special environments or the need for special controls.

2.14 Inspection, Test, and Operating Status

Section 2.14 "Inspection, Test, and Operating Status" of the Q program applies.

2.15 Nonconformance Control

2.15.1 General

A system is established for the control of nonconforming AQ items and related activities and services within the scope of this Appendix as described in Section 2.2. This system is in accordance with Basic Requirement 15 and Supplement 15S-1 of ASME NQA-1, 1989. The system establishes the requirements for identification, segregation, disposition, prevention of inadvertent installation or use, documentation, and notification to affected organizations for items which do not conform to specified requirements.

2.15.2 Responsibilities

Personnel participating in AQ quality affecting activities within the scope of this Appendix are responsible for reporting and documenting nonconforming items or related activities and services.

The GDP Procurement and Materials Manager is responsible for implementation of the nonconformance control system for materials which meet the requirements of this section of the QAP until the materials are issued for installation or use.

The Engineering Manager is responsible for providing documented technical justification for the acceptability of nonconforming items dispositioned use-as-is or repair. This manager is also responsible for applying the design control measures of Section 2.3 to those nonconformances to design requirements that are dispositioned "use-as-is" or "repair," and for ensuring that as-built records reflect the accepted deviation.

The Plant Shift Superintendents (PSS) are responsible for evaluating identified and reported nonconformances for impact on system operability and reportability to the NRC.

2.15.3 Requirements

Procedures are established to provide measures for the control of AQ items and related activities and services that do not conform to specified requirements. These measures ensure the following:

1. Nonconforming items are identified in a manner that does not adversely affect the end use of the item, by markings, tagging, and other appropriate methods. When identification of the item is not practical, the container, package, or segregated storage area is identified.

2. Nonconforming items are segregated, when practical, by placing them in a clearly identified and designated area until properly dispositioned. When segregation is impractical or impossible due to physical conditions such as size, weight, or access limitations, other measures are employed to preclude inadvertent use of the item.

3. Nonconforming characteristics are reviewed and dispositions are recommended. Further processing, delivery, installation or use of the nonconforming item is controlled pending an evaluation and approved disposition by authorized personnel, and notification to affected organizations is provided.

4. Nonconforming items or services identified by suppliers are reviewed to determine applicability and to initiate corrective action if required.

5. The responsibility and authority for the evaluation and disposition of nonconforming items is defined. The personnel performing evaluations to determine the disposition have demonstrated competence in the specific area they are evaluating, have an adequate understanding of the requirements, and have access to pertinent background information.

6. The disposition of nonconforming items is identified and documented. Technical justification for the acceptability of nonconforming items dispositioned "repair" or "use-as-is" are also documented.

7. Nonconformances to design requirements dispositioned "use-as-is" or "repair" are subject to design control measures as described in Section 2.3. The as-built records, if such records are required, reflect the accepted deviation. This as-built requirement applies only to those as-built conditions captured after the effective date of this Appendix.

8. Repaired or reworked items are reexamined in accordance with applicable procedures and with the original acceptance criteria unless the nonconforming item disposition has established alternate acceptance criteria.

2.16 Corrective Action

Section 2.16 "Corrective Actions" of the Q program applies.

2.17 Quality Assurance Records

Section 2.17 "Quality Assurance Records" of the Q program applies.

2.18 Audits

2.18.1 General

An audit system is established for AQ items and activities and services within the scope of this Appendix as described in Section 2.2. The audit system is in accordance with Basic Requirement 18 and Supplement 18S-1 of NQA-1,1989. This system establishes planned and periodic audits to verify the compliance and the effectiveness of this Appendix in meeting quality requirements. Audits are executed in accordance with established procedures and are performed by personnel having no direct responsibilities in the areas being audited.

Internal audits of selected aspects of operational activities are performed with a frequency commensurate with their safety significance and in such a manner as to assure that audits of activities within the scope of this Appendix, as described in Section 2.2, are completed within specified time periods.

Required external audits of suppliers of services are performed to verify compliance with applicable quality assurance requirements and procurement document requirements. External audits of suppliers of items is not required.

2.18.2 Responsibilities

The Nuclear Safety and Quality Manager is responsible for the development, maintenance, scheduling and performance of internal and external audits consistent with the requirements of this section.

Audited organizations are responsible for providing assistance as required during the planning and performance of audits, for providing access to facilities, personnel, documents, and records, as required, and for ensuring that requests for corrective action are promptly answered and that actions taken to correct any discrepancy are adequate and timely.

2.18.3 Requirements

2.18.3.1 Training and Qualification

1. Audit personnel shall be provided with appropriate training such that they are competent to perform the required audits; and

2. Auditors and lead auditors shall meet the training and experience requirements as described in Section 2.2.4. Technical specialists may participate as audit team members provided they receive the required indoctrination and guidance during the audit.

2.18.3.2 Scheduling

1. Internal and external audits are scheduled in a manner to provide coverage and coordination with ongoing QAP activities.

2. Audits are scheduled at a frequency commensurate with the status and importance of the activity.

3. The audit schedules are reviewed periodically and revised as necessary to assure coverage is maintained current.

4. Regularly scheduled audits are supplemented by additional audits or surveillance (assessment) of specific subjects when necessary to provide adequate coverage.

5. An implementation audit for initial evaluation of suppliers, when required by 2.7.3.2, may be scheduled and performed after award of the contract when sufficient time has lapsed for implementing their QA Program, and they are performing the functions as defined in their QA program, codes, standards, and other contract documents.

6. External audits of approved non-commercial grade suppliers are scheduled and performed at least once every three years from the date of the last acceptable supplier evaluation. The following alternatives apply:

    a. Approved non-commercial grade suppliers, if used infrequently, do not require re-audit every three years. However, they shall be audited prior to use if their QAP approval has lapsed.

b. Suppliers of services do not require external audit if they perform work to the USEC QAP and procedures under USEC supervision. Otherwise, external audit is required for suppliers of service.

c. Third party audits allowed by 2.7.3.2.4 are acceptable for triennial supplier re-audit.

7. Approved, non-commercial grade suppliers' performance is evaluated annually in the years between audits. External audits of non-commercial grade suppliers, after award of a contract, are not necessary for procurement actions when the items or services are all of the following: (1) relatively simple and standard in design, manufacture, and test; (2) subject to standard or automated inspections or tests of the end product to verify quality characteristics after delivery; and (3) such that receiving inspection does not require operations that could adversely affect the integrity, function or cleanness of the items.

2.18.3.3 Audit Plan

The auditing organization shall develop and document an audit plan for each audit. The plan is required to identify the audit scope, requirements, audit personnel, activities to be audited, organizations to be notified, applicable documents, schedule, and applicable written procedures or approved checklists, of questions covering the items to be audited.

2.18.3.4 Personnel and Selection of Audit Team

1. Measures are established for the selection of the audit team, and audit team familiarization prior to the beginning of each audit. These measures ensure consideration is given to special abilities, specialized technical training, prior experience, personal characteristics, and education when personnel are selected as audit team members;

2. The selected auditors shall be independent of any direct responsibility for performance of the activities which they will audit and, in the case of internal audits, personnel having direct responsibility for performing the activities being audited are not involved in the selection of the audit team;

3. The audit team shall contain one or more auditors and shall have an individual appointed to lead the team who organizes and directs the audit, coordinates the preparation and issuance of the audit report, and evaluates the responses; and

4. Measures are established for audit team preparation prior to initiation of the audit, particularly that pertinent information including policies, procedures, standards, instructions, codes, regulatory requirements, and prior audit reports, is available for review by the auditors for formulation of the checklist and the conduct of the audit.

2.18.3.5 Audit Performance

Audits shall be performed in accordance with the requirements of Supplement 18S-1, Section 4 of ASME NQA-1, 1989.

2.18.3.6 Reporting

1. The audit report is signed by the audit team leader. The report should be issued within 30 days of the post-audit conference. The audit report is distributed to responsible management of both the auditing and the audited organizations.

2. The audit report shall include the following information, as appropriate:

   a. Description of the audit scope;

   b. Identification of the auditors;

   c. Identification of persons contacted during audit activities;

   d. Summary of audit results, including a statement of the implementation effectiveness of the quality assurance program elements which were audited;

   e. Description of each reported adverse audit finding in sufficient detail to enable corrective actions to be taken by the audited organization (Audit findings are processed as required by QAP Section 2.16, "Corrective Action.")

2.18.3.7 Response and Follow-Up Action

1. Management of the audited organization or activity shall investigate adverse audit findings, identify and schedule corrective action, identify and schedule measures to prevent recurrence, and notify the appropriate organization in writing of the actions taken or planned. The adequacy of the written audit responses is evaluated by or for the auditing organization; and

2. Follow-up action shall be taken to verify that corrective action is completed as scheduled.

2.18.3.8 Records

Audit records include audit plans, audit reports, written replies, and record of completion of corrective action.

Appendix A

Section 3

AQ Structures Important to Safety

The following requirements apply for AQ structures important to safety identified in SAR Section 3.15 (Paducah) and SAR Section 3.8 (Portsmouth).

3.1 Responsibilities

The Engineering Manager is responsible for inspection and evaluation of structures important to safety.

3.2 Requirements

3.2.1 Modifications or changes to structures require evaluation in accordance with SAR Section 6.3.

3.2.2 Engineering will inspect and evaluate the physical condition of structures on a five year cycle. The structural inspection will determine if structural degradation has occurred that will affect the building's structural capacity as described and analyzed in the SAR.

3.2.3 The building inspection will include the following items:

1. Foundations - Visible portions of the foundations for signs of settlement, anchorage integrity, cracking, spalling or other detrimental effects.

2. Building frames - Beam and column components for deformation and deflection.

3. Bracing - Bracing for trueness and deformation.

4. Connections - Connections for bolting and weld integrity.

5. Corrosion - Corrosion, such as paint degradation, rust, water damage, etc., found on the structural components for significance and potential repair.

3.2.4 As found conditions identified will be evaluated in accordance with SAR Section 6.3.

3.2.5 Modifications to structures will be conducted in accordance with Appendix A, Section 2.3.

3.2.6 Repairs to structures will be conducted by using the maintenance control system (maintenance service requests). Engineering will review work package instructions to ensure that no change to the building structural capacity has occurred. Repairs will be "like-for-like" or be evaluated as modifications.

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Appendix B

1.0 PADUCAH AND PORTSMOUTH ITEMS ADDRESSED BY COMPLIANCE PLAN

This program is implemented as described with exception(s) as listed below. The listing of the exception(s) also contains a brief description of what is currently in place at the plant. The Compliance Plan provides a description of the exceptions (noncompliance), a justification for continued operation, a description of the actions to be taken to achieve compliance and the schedule for completion of those actions.

1. Except as described below, non-compliances associated with procedures, equipment, and training needed for implementation of Q requirements (described in Sections 2.2 through 2.17 of the QAP), and AQ requirements (described in Sections 2.2 through 2.17 of Appendix A of the QAP), are addressed in the respective sections of the SAR related to the implementation of those requirements (e.g., Records Management non-compliances are addressed in SAR Section 6.10 and PORTS Compliance Plan Issue 29 and PGDP Compliance Plan Issue 26). Refer to the SAR and associated Compliance Plan Issues for a description of these non-compliances, JCOs, and corrective action plans.

2. Section deleted.

3. Section deleted.

4. Section deleted.

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Appendix C

TECHNICAL JUSTIFICATIONS FOR EXCEPTIONS TO THE QAP

Exception for the Paducah Records Storage Vault

The following is the technical justification for an exception to the requirements of NQA-1, 1989 for the records storage vault. An exposed fire protection sprinkler pipe passes through the records storage vault as well as two roof drain lines and there are no floor drains. The following explanation and technical justification on pages C-3 and C-4 provides reasonable assurance of the integrity of the stored records in the unlikely event of a pipe failure.

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ENGINEERING EVALUATION

Title: C-100 Records Storage Vault
Engineering Evaluation No.: EV-C-815-02-002 Rev. 0 Page 1 of 2
ESO No.: Z66150
Date: 12/3/02

1.0 Summary

The C-100 Records Storage Vault does not conform to NQA-1 Section 4.4.1 Part (b) which requires the record storage area to have drainage control and Section 4.4.1 Part (i) which requires only those penetrations used exclusively for fire protection, communication, lighting, or temperature/humidity control to be allowed. This evaluation provides reasonable assurance of the integrity of the stored records in exception to these NQA-1 requirements.

2.0 Detailed Problem Statement

The C-100 Records Storage Vault does not conform to NQA-1 Section 4.4.1 Part (b) which requires the record storage area to have a floor with drainage control. There are no floor drains in the vault. Additionally, NQA-1 Section 4.4.1 Part (i) requires only those penetrations used exclusively for fire protection, communication, lighting, or temperature/humidity control to be allowed. There are two roof drain lines which penetrate the records storage vault. The purpose of this evaluation is to evaluate the unlikely event of a pipe failure and determine the integrity of the stored records in exception to these NQA-1 requirements.

3.0 Assumptions

It is assumed that approximately 20% of the vault floor is occupied due to the mobile shelving foundation, columns, and on-floor items in determining the vault floor surface area.

4.0 References

4.1 USEC-01, Application for United States Nuclear Regulatory Commission Certification, Volumes 1 & 2, *Paducah Gaseous Diffusion Plant Safety Analysis Report*
4.2 USEC-01, Application for United States Nuclear Regulatory Commission Certification, Volume 3, *Paducah Gaseous Diffusion Plant*
4.3 USEC-01, Application for United States Nuclear Regulatory Commission Certification, Volume 4, *Paducah Gaseous Diffusion Plant Technical Safety Requirements*
4.4 NFPA 13, Installation of Sprinkler Systems, 1999 Edition
4.5 Union Carbide Corporation Drawing No. M5E-13573-B, Rev. 4, "C-100 Sprinkler System"
4.6 Smith, Hinchman, & Grylls, Inc. Drawing No. B1-5-A, Rev. 10, "C-100 First Floor Plan"
4.7 Smith, Hinchman, & Grylls, Inc. Drawing No. B1-7-A, Rev. 9, "C-100 Roof Plan & Details"
4.8 ASME NQA-1, 1989, "Quality Assurance Program for Nuclear Facilities"

ENGINEERING EVALUATION

Title: C-100 Records Storage Vault
Engineering Evaluation No.: EV-C-815-02-002 Rev. 0 Page 2 of 2
ESO No.: Z66150
Date: 12/3/02

5.0 Impact on Nuclear Safety

Section 2.17.3 (9.) of the Quality Assurance Program (QAP) requires that quality assurance records are stored in facilities which meet the requirements of Supplement 17S-1, Section 4.4 of ASME NQA-1, 1989 (Ref. 4.2). This applies to the C-100 Records Storage Vault and that the integrity of the records be protected from damage. This is not a nuclear safety issue.

6.0 Evaluation

Refer to Attachment A.

7.0 Conclusion and Recommendations

The C-100 Records Storage Vault does not conform to NQA-1 Section 4.4.1 Part (b) which requires the record storage area to have drainage control and Section 4.4.1 Part (i) which requires only those penetrations used exclusively for fire protection, communication, lighting, or temperature/humidity control to be allowed. This evaluation provides reasonable assurance of the integrity of the stored records in exception to these NQA-1 requirements.

8.0 Approvals

Prepared By: SM Marinelli / SM Marinelli **Date:** 12/3/02
(Printed name) (Signed name)

Reviewed By: T.A. Walker / TA Walker **Date:** 12/4/02
(Printed name) (Signed name)

Approved By: TC Fletcher / TC Fletcher **Date:** 12/6/02
(Printed name) (Signed name)

PORTSMOUTH GASEOUS DIFFUSION PLANT

EMERGENCY PLAN

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PLAN SUMMARY

In accordance with 10 CFR 76.91, the United States Enrichment Corporation (USEC) has established and shall maintain and be prepared to follow the Portsmouth Gaseous Diffusion Plant (PORTS) Emergency Plan (the Plan) to ensure that plant personnel are adequately prepared for accidents or other emergencies involving the potential release of radioactive materials and that prompt, orderly, and effective response actions are taken to mitigate the consequences of such accidents and emergencies and protect the health and safety of the public and workers at the plant.

This Plan is implemented by the Emergency Plan Implementing Procedures (EPIPs). The EPIPs address generic requirements for responses to incidents involving hazardous chemicals, radioactive materials, natural phenomena, and other adverse conditions. This Plan and the accompanying EPIPs meet the requirements of 10 CFR 76.91.

The NRC Notice promulgating 10 CFR Part 76 confirmed that the emergency planning requirements set forth in 10 CFR Part 70 for other nuclear fuel cycle facilities are appropriate for the GDPs and that the requirements in 10 CFR 76.91 are based upon the emergency planning provisions in 10 CFR Part 70. Accordingly, the format of the Plan is generally based upon NRC Regulatory Guide 3.67, Standard Format and Content for Emergency Plans for Fuel Cycle and Materials Facilities (January, 1992). Additionally, PORTS Emergency Action Levels have been developed using examples provided in this Regulatory Guide. The details of the EPIPs implementing each section of the Plan are not included in the Plan itself, but the Plan includes a general description of the procedures that are followed in connection with each activity to demonstrate that appropriate actions can and will be taken to mitigate accident consequences and to protect the health and safety of the public and plant personnel in the event of an emergency.

The Plan provides an overall description of the comprehensive site-wide emergency preparedness program, which is based, in large measure, on the emergency preparedness policies, procedures, and practices that have been successfully used at PORTS for over 40 years. This program has been established to manage and respond in a consistent and integrated fashion to accidents or other emergency situations that may occur at the site. The structure of this program is intended to ensure that the consequences of emergencies are promptly mitigated and that the health and safety of the public, personnel on the surrounding DOE reservation, and plant personnel are protected, regardless of the cause or nature of the emergency. Therefore, the Plan addresses both radiological and non-radiological emergencies as well as potential emergencies arising out of activities at the site that are not regulated by the NRC.

The scenarios addressed in the Plan include accidents involving radioactive materials, non-radioactive materials, chemicals, fires, natural disasters such as earthquakes and tornadoes, and security-related emergencies. The scenarios include a large uranium hexafluoride (UF_6) release.

The Plan includes a general description of the plant and the surrounding area. It identifies the types of accidents and the emergencies for which protective actions may be needed and describes the manner in which accidents are detected and classified. The Plan also contains a description of the policies and procedures that are followed for the notification of and communication with plant personnel, local governments, and regulatory agencies in the event of an emergency and for the coordination of the emergency response activities of both onsite and offsite response organizations. The Plan provides a description of the responsibilities of the key individuals and organizations involved in emergency response activities and the manner in which the consequences of an emergency are mitigated and assessed. The

Plan also includes separate sections and subsections addressing the establishment and maintenance of emergency response equipment, facilities, and capabilities, the training and exercises that are conducted to maintain and enhance emergency preparedness, the manner in which plant equipment and systems are restored to a safe condition after an accident, and all other topics required under 10 CFR 76.91. The Plan also confirms that USEC has met its responsibilities under the Emergency Planning and Community Right-to-Know Act of 1986. The Plan is maintained and updated by USEC. In accordance with 10 CFR 76.91(o), USEC may change the Plan without receiving prior NRC approval, providing the change does not decrease the effectiveness of the Plan and the NRC and affected offsite response organizations are provided with copies of any changes to the Plan.

In summary, the Plan is the master document summarizing the site-wide emergency preparedness program and the policies, procedures, and actions that will be implemented in any emergency at the site to mitigate the consequences of the emergency and protect the health and safety of the public and plant workers.

1. FACILITY DESCRIPTION

USEC leases portions of PORTS from the Department of Energy (DOE) and conducts uranium enrichment activities at the plant. These uranium enrichment activities are regulated by NRC. DOE and DOE contractors also conduct activities and operate other facilities at the site that are not regulated by the NRC.

1.1 DESCRIPTION OF NRC-REGULATED ACTIVITIES

The primary mission of the plant is the enrichment of uranium with the isotope necessary to produce fuel for nuclear reactors (^{235}U) using the gaseous diffusion process. A basic summary of this process follows.

PORTS receives uranium in solid UF_6 form, which is shipped by truck and rail in 10 or 14-ton cylinders in accordance with DOT regulations.

Gaseous UF_6 is pumped through converters that contain a barrier material with millions of microscopic holes. Because the ^{235}U atoms are lower atomic weight than ^{238}U atoms, the $^{235}UF_6$ passes through the holes more readily.

The gaseous diffusion enrichment process employs a series of compressors and converters to enrich UF_6 in ^{235}U. The fundamental building block of the process consists of a compressor and a converter that form a stage. Stages are grouped together to form cells. The cells are then interconnected to provide what is known as a cascade. The compressors, which are driven by electric motors, are used to circulate the process gas and maintain flow through the cascade. The converters contain porous tubes called barriers through which the process gas is diffused. In each converter, a portion of the process gas diffuses through the barrier and is fed to the next higher stage, with the undiffused gas being recycled to the next lower stage. The diffused stream is slightly enriched in the 235 isotope, while the undiffused portion is slightly depleted in the 235 isotope to the same degree. Each stage also contains a gas cooler to remove the heat of compression from the process gas and a control valve for process control. The process is repeated through numerous cells until the desired enrichment level is reached. Separated ^{238}U or depleted material is stored at the plant for future use or disposition.

Possession limits for UF_6 are summarized in Table 1-1.

Numerous substances associated with the enrichment process could pose hazards if they were released to the environment. Only a few of these substances are highly toxic and present in large quantities at the plant. Based upon the hazards and consequence analyses reflected in the DOE Safety Analysis Report, USEC has concluded that any hazardous release would most likely involve one or more of six substances. The following is a brief description of each of these substances, the manner in which it is used in the enrichment process, and the locations where it is stored or used at the plant.

1. *Uranium Hexafluoride (UF_6).* In gaseous and liquid forms, UF_6 could present a hazard. Material in these forms is primarily located in the X-326, the X-330, and the X-333 process buildings, the X-343 feed vaporization and sampling facility, the X-344A toll enrichment facility, and the X-342A facility.

2. *Chlorine Trifluoride (ClF_3).* Chlorine trifluoride is delivered to the plant in 160 pound cylinders and is stored in 160 pound cylinders at the X-742 Facility and in two 2,000-ft^3 storage drums located in the X-330 and X-333 process buildings. Chlorine trifluoride is used for cell treatment on an as-needed basis in the process buildings.

3. *Nitric Acid (HNO_3).* Nitric acid is transported to plant site by tank truck and is stored in two tanks, 1,500 gallon and 3,000 gallon located 60 feet east of X-705 and directly north of the incinerator building. Nitric acid is pumped to a 100-gallon storage tank in X-705 and gravity fed to various systems, such as small parts, the neutralization sink, and spray tanks. Nitric acid is also stored in glass bottles in the X-720 toxic materials storage area. Nitric acid is used to decontaminate uranium-contaminated metal surfaces and in electroplating.

4. *Fluorine (F_2).* Fluorine is generated from hydrogen fluoride gas in X-342A and is pumped to storage tanks in the X-342B facility. The three F_2 storage tanks measure 8 feet in diameter and 20 feet long. Fluorine is used to pacify and condition metal surfaces prior to exposure to UF_6 and for cell treatment on an as-needed basis.

5. *Chlorine (Cl_2).* Chlorine is used in the treatment of the sanitary water supply and for sewage treatment at PORTS. The function of chlorine in the water and waste water treatment processes is as a disinfectant for removal of disease-carrying organisms. Chlorine on plant site is found at the water treatment plant (X-611E) in 1-ton cylinders, at the sewage treatment plant (X-6619) in 150 pound cylinders, and in the X-742 in 150 pound cylinders.

6. *Hydrogen Fluoride (HF).* Hydrogen fluoride is used in the production of fluorine. Liquid HF is delivered to the plant in 850-lb cylinders and is stored in the X-342A Feed Vaporization and Fluorine Generation Facility. There, the HF is vaporized and piped to four fluorine generators, where it is dissociated to produce fluorine.

Table 1-2 shows the major locations and quantities of hazardous chemicals described above.

1.2 DESCRIPTION OF FACILITY AND SITE

PORTS is located at latitude 39°00'30" north and longitude 83°00'00" west measured at the center of the plant on a 3,708-acre tract in Pike County, Ohio, one of the state's lesser populated counties. The plant site is located between Chillicothe and Portsmouth, Ohio, approximately 70 miles south of Columbus, Ohio. Figure 1-1 shows the regional area surrounding the plant.

The general location is an area of steep to gently rolling hills, with average elevations of 120 feet above the Scioto River valley. The steep hills characteristically are forested, while the rolling hills provide marginal farmland. With the exception of the Scioto River and its floodplain, the floodplains and valleys are narrow and are occupied by small farms.

There are no unrelated industrial, commercial, institutional, or residential structures within the plant property. USEC and DOE lease facilities onsite to the Ohio National Guard. The Ohio National Guard does not store weapons onsite. There are no other military installations located near the site.

Roadways within the fenced limited access or protected area of the plant consist of several miles of paved surface. Several paved roads branch out from the plant to the Perimeter Road that surrounds the plant site. The west access to the plant extends from U.S. 23 to the Perimeter Road. Shyville Road connects U.S. 32 to the north side of the plant, Big Run Road leads to the south side of the plant, and Dutch Run Road enters the area from the east side of the plant.

Rail and roadways are used for cylinder movements to the plant. The rail spur enters the site from the north and branches to several areas inside the fence. All the process buildings and most of the support facilities have direct rail service. In addition, cylinders are transported around the plant site using a variety of devices, including cylinder carriers, stackers, rail cars, forklifts, trucks, and wagons.

Rivers or major streams do not traverse the plant area. However, Big Beaver Creek and Little Beaver Creek cross the northern edge of the PORTS reservation. Runoff water flows from the area through three streams: Little Beaver Creek, Big Run Creek, and a drainage ditch to the Scioto River.

The PORTS site consists of 3,708 acres with an 800-acre central developed area surrounded by the Perimeter Road. The reservation land outside the Perimeter Road is used for a variety of purposes, including a water treatment plant, lagoons for the process waste-water treatment plant, sanitary and inert landfills, and open and forested buffer areas.

Most of the site improvements are located within the 500-acre fenced core area. The core area is largely devoid of trees, with grass and paved roadways dominating the open space. Within this area are the three process buildings, each approximately 882 ft by 1781 ft and 80 ft tall.

The three process buildings account for 8 million ft^2 of the total 10 million ft^2 of floor space at PORTS, excluding the Gas Centrifuge Enrichment Plant (GCEP) facilities. The plant also includes a series of electrical switchyards, storage areas, cooling towers, a steam plant, water treatment plant, sewage disposal plant, pollution abatement facility, service and maintenance buildings, and facilities for administration, medical, fire, and security. Figure 1-2 shows the plant layout at PORTS.

The process buildings are referred to as the cascade buildings. These cascade buildings, designated X-326, X-330, and X-333, are steel-framed transite-covered two-story buildings that house the enrichment process equipment. Three smaller buildings, X-343, X-342A, and X-344A, are referred to as the feed vaporization and sampling facility, feed vaporization and fluorine generation facility, and toll enrichment facility, respectively. Some of the instruments and controls in these buildings are

duplicated in the X-300 Plant Control Facility (PCF). This facility also serves as the alternate Emergency Operations Center (EOC) and the headquarters of the Plant Shift Superintendent (PSS). A description of the cascade/process buildings, key support buildings, onsite emergency facilities, and airborne effluent controls follows.

The three process buildings, X-326, X-330, and X-333, located near the central portion of plant site, form an "L" configuration. Such a configuration permits easy connection of most overhead and underground piping and service lines required between the process buildings. The purpose of the process buildings is to house the equipment and much of the support systems necessary for the isotopic separation of uranium.

The vaporization facilities, X-342A and X-343, located adjacent to their respective process buildings, are the entry points of the feed material into the cascade. Autoclaves are used to vaporize the feed from the cylinders.

Cascade UF_6 withdrawals are also performed at various locations. As with feed operations, there are both fixed and portable withdrawal facilities, but some withdrawals involve liquid UF_6 transfers. These UF_6 liquid phase withdrawals are performed at three fixed facilities: the X-330 tails withdrawal station, the X-333 low assay withdrawal, and the X-326 extended range product station. These withdrawals involve the compression and condensation of UF_6.

Assay control for enriched products withdrawn from the cascade is verified by samples taken simultaneously at the withdrawal point. Low-assay (5.0 wt % ^{235}U) materials are withdrawn into 10-ton heavy wall cylinders at X-326 or X-333.

The toll enrichment facility (X-344A) is the central receiving and shipping point for large-cylinder toll enrichment entering and leaving the plant. Small-cylinder shipping and receiving activities are performed at the special nuclear material storage facility (X-345).

The primary EOC is located in the X-1020 Building. The EOC is a dedicated facility that provides communications, information processing capabilities, and support services with which the Crisis Manager can direct mitigation of an emergency. Upon activation, the EOC is staffed by a preassigned cadre who assists the Crisis Manager.

The alternate EOC is located in the X-300 PCF, which houses the PSSs, power operations personnel, the Cascade Controllers/Coordinators, and other cascade operations personnel. The PCF provides communications, information processing capabilities, and support services with which the Crisis Manager can direct mitigation of an emergency.

The plant medical facility, located in the X-101 Building, is operational during the day shift, Monday through Friday excluding holidays. The medical facility has supplies, equipment, and personnel to treat most injuries. Medical personnel assess patient condition, provide emergency care, and determine appropriate supplemental treatment. Medical personnel are capable of treating contaminated individuals.

The plant decontamination facility is located in the X-705 Building, which is designed for the safe disassembly and decontamination of process and support equipment. Contaminated emergency equipment

and supplies that are not decontaminated at the emergency scene are sent to the X-705 for decontamination. Waste water from the decontamination process which requires treatment prior to discharge is collected in a separate drain system.

Airborne effluent monitors cover the enrichment cascade and the supporting systems that are potentially significant contributors to total plant emissions. Gaseous radionuclide emissions from the purge cascade vents, the cold recovery and wet air evacuation vents, the sampling and transfer evacuation vent, and the seal exhaust vents are monitored by continuous vent samplers. The continuous vent samplers draw a flow-proportional sample of the vent stream through two alumina traps in series by way of an isokinetic probe.

Fifteen USEC emission sources at PORTS have been identified as potentially significant contributors to the total plant radionuclide emissions. Although none of these atmospheric radionuclide emission sources were identified to have the potential to exceed a 0.1 mrem/year dose to the most exposed member of the public during normal operation, continuous vent monitors have been installed to quantify plant radiological airborne emissions. Figure 1-2, PORTS Plant Layout, shows the locations of these process vents, and Table 1-3, Summary of Continuous Monitored Stack and Vent Characteristics, summarizes stack heights and flow rates.

For the purposes of emergency management, the entire DOE reservation is assumed to be controlled by USEC in that lease and contractual agreements exist between USEC and DOE or between their respective contractors that govern site responsibilities and services to be provided. In this capacity, USEC prescribes protective actions for all persons on the DOE reservation. These protective actions are included in Section 5.4, Protective Actions. Persons at the DOE reservation boundary are considered members of the public. State and county agencies recognize the DOE reservation boundary as the defining boundary between the public and PORTS.

1.3 DESCRIPTION OF AREA NEAR THE SITE

The areas adjacent to the site are largely agricultural with a relatively low population density. Agricultural and forested land account for approximately 90% of the area surrounding the plant. The remaining 10% is taken up by industrial, commercial, and residential land use.

With the exception of the host county of Pike, counties adjacent to the plant include Scioto, Jackson, Ross, Highland, and Adams. Nearby cities and their approximate distance from the site include the following: Chillicothe, 25 miles north; Portsmouth, 22 miles south; Waverly, 7 miles north; and Jackson, 26 miles east. Communities closest to the site include the unincorporated towns of Piketon, Beaver, and Lucasville. As Figure 1-3 indicates, PORTS is in a rural, low-population area. The plant is well separated from high-density, high-growth-rate areas that might complicate emergency preparedness efforts.

An emergency planning area, known as the immediate notification area, established by agreement with Pike County and State of Ohio officials, is used as a tool to aid in warning offsite populations of events with potential health or safety impact. The immediate notification area, which extends

approximately two miles from the center of the plant, is wholly within Pike County. As shown in Figure 1-4, the immediate notification area, is covered by the Public Warning System.

No installations or facilities (such as schools, prisons, etc.) that would require special precautionary measures are located in the immediate areas surrounding the plant. Small businesses in close proximity of PORTS include small businesses in Piketon, the State Highway Department office and garage, a feed store, bars and restaurants, auto repair shops, an agricultural center, and service stations. There are no known problems or threats foreseen from these facilities or operations. Figure 1-5 indicates the site on a United States Geological Survey topographical map.

The plant maintains letters of agreement with offsite emergency support organizations, such as fire departments, hospitals, and other emergency support groups. Descriptions of services and locations of support organizations are included in Section 4.3, Local Offsite Assistance to Facility.

Table 1-1 Possession Limits for NRC-Regulated Materials and Substances

Type of Material	Atomic Number	Physical State	Chemical Form	Possession Limit	Description
A. Source Material[d,f]	92	Solid, liquid, and gas	UF_6, UF_4, UO_2F_2, oxides, metal and other compounds	300,000 MTU[a]	Uranium (including natural, depleted and recycled) and daughter products and process contaminants and wastes Laboratory chemicals Analysis of samples[e] Instrument calibration and check sources
B. Source Material	90	Solid and liquid	Soluble and insoluble chemicals, metal	10 Ci	Laboratory chemicals, instrument calibration sources, plated metallic sources, instrument check sources Analysis of samples[e]
C. Special Nuclear Material[b,d,f]	92	Solid, liquid, and gas	UF_6, UF_4, UO_2F_2, oxides, metal and other compounds	300,000 MTU	Uranium (including recycled) enriched in isotope 235 up to 10 percent by weight, uranium daughter products and process contaminants and wastes, to include: (1) laboratory chemicals, (2) analysis of samples[e], (3) instrument calibration and check sources, or (4) material that may be held up in facilities and equipment from previous operations
	92	Solid, liquid and gas	UF_6, UF_4, UO_2F_2, oxides, metal and other compounds	10,000 g ^{235}U[g]	Uranium enriched in isotope 235 from 10 percent up to 20 percent by weight, to include: (1) material that may be held up in uninstalled equipment and facilities from previous operations and in equipment received from other facilities, (2) laboratory chemicals, (3) analysis of samples[e], or (4) instrument calibration and check sources.

Table 1-1 (Continued)

Type of Material	Atomic Number	Physical State	Chemical Form	Possession Limit	Description
	92	Solid, liquid and gas	UF_6, UF_4, UO_2F_2, oxides, metal and other compounds	1,000 g ^{235}U[a]	Uranium enriched in isotope 235 to 20 percent and up to 98 percent by weight, to include: (1) material that may be held up in uninstalled equipment and facilities from previous operations and in equipment received from other facilities, (2) laboratory chemicals, (3) analysis of samples[e], or (4) instrument calibration and check sources.
Special Nuclear Material	94	Sealed source		50 Ci	Instrument calibration sources, NDA
		Sealed glass ampules		3 Ci	Instrument calibration sources, NDA
		Unsealed sources		0.5 Ci	Laboratory chemicals Analysis of samples[e]
	94	Any	Any	That resulting from the feed of recycled or FSU[b] uranium	Process contaminants and wastes, material held in equipment from previous operations
D. By-Product Material	3-89, 91	Sealed source		1 Ci with no single isotope to exceed 100 mCi, except as noted below	Calibration, instrument internal source Instrument calibration and check sources
		Unsealed source		1 Ci with no single isotope to exceed 100 mCi, except as noted below	Laboratory chemicals Analysis of samples[e]

Table 1-1. (Continued)

Type of Material	Atomic Number	Physical State	Chemical Form	Possession Limit	Description
	27Co-57	Sealed Source		10 Ci	Calibration, internal Instrument standard, NDA
	27 Co-60	Sealed Source		450 Ci	Calibration, NDA, Process sources
		Unsealed Source		0.5 Ci	Laboratory chemicals Analysis of samples*
	28 Ni-63	Sealed Source		10 Ci	Process sources, internal instrument standards
	38 Sr-90	Sealed Source		0.5 Ci	Calibration
		Unsealed Source		0.5 Ci	Laboratory chemicals, Analysis of samples*
	43 Tc-99	Sealed Source		10 Ci	Calibration
		Unsealed Source		5 Ci	Laboratory chemicals, Analysis of samples*
		Any	Any	That resulting from the feed of recycled or FSU* uranium	Process contaminants and wastes, material held in equipment from previous operations
	55 Cs-137	Sealed Source		2,000 Ci	Calibration, NDA, Process sources
		Unsealed Source		0.5 Ci	Laboratory chemicals Analysis of samples*
	61 Pr-147	Sealed Source		0.5 Ci	Calibration
	70 Yb-169	Sealed Source		5.0 Ci	Calibration, NDA
	81 Tl-207	Sealed Source		1.0 Ci	Calibration
	88 Ra-226	Sealed Source		15 Ci	Calibration

Table 1-1 (Continued)

Type of Material	Atomic Number	Physical State	Chemical Form	Possession Limit	Description
	93,96,97,99,100	Sealed source Unsealed source		0.5 Ci 1.0 Ci	Calibration Laboratory chemicals Analysis of samples[e]
	93, 95-100	Any	Any	That resulting from the feed of recycled or FSU uranium[d]	Process contaminants and wastes, material held in equipment from previous operations
	95	Sealed source Unsealed source	Oxides, metals Oxides, metals, solutions	15 Ci 0.5 Ci	Calibration, process source Analysis of samples[e] Laboratory chemicals
	98	Sealed source Unsealed source	Oxides, metals Oxides, metals, solutions	10 Ci 0.5 Ci	Calibration, NDA Analysis of samples[e] Laboratory chemicals

a. MTU - Metric Tons Uranium

b. See 10 CFR Part 76 definitions: Special nuclear material means: (1) Plutonium, uranium 233, uranium enriched in the isotope 233 or in the isotope 235, and any other material which the Commission, pursuant to the provisions of Section 51 of the act, determines to be special nuclear material, but does not include source material; or (2) any material artificially enriched in any of the foregoing, but does not include source material.

c. FSU meets the ASTM Standard C996, Standard Specification for Uranium Hexafluoride Enriched to Less Than 5 percent ^{235}U; UF_6 for enrichment meets the ASTM Standard C787, Standard Specification for Uranium Hexafluoride for Enrichment.

d. Recycled uranium includes the feed and processing of Paducah Product and the "stockpile" UF_6 transferred from DOE to USEC for enrichment.

e. "Analysis of samples" refers to the analysis of samples related to enrichment activities or site remediation (PORTS, PGDP, DOE-OR) activities utilizing existing facilities and analytical techniques to process low-level radioactivity samples bounded by the possession limits stated in this table.

f. Except for Paducah Product and the "stockpile" UF_6 transferred from DOE to USEC for enrichment, uranium to be fed to the cascade will meet the requirements of ASTM Standard C996, "Standard Specification for Uranium Hexafluoride Enriched to Less Than 5% ^{235}U" or ASTM Standard C787, "Standard Specification for Uranium Hexafluoride for Enrichment" for reprocessed UF_6. All other uranium that does not meet the requirements of ASTM C996 or C787 for reprocessed UF_6 may be accepted for storage and subsequent dispositioning but will not be introduced to the cascade, with the exception of small amounts (e.g., 50 pounds UF_6) associated with sampling, subsampling, and analyses required to establish receiver's values.

g. These possession limits do not include material in USEC leased space from previous DOE operations to include retained inventory of uranium plated out on the inside surfaces of both shutdown and operating equipment in the X-326 facility; specific components in the X-326 cascade that need to be removed for maintenance or other operational purposes; material and equipment such as alumina traps, seal exhaust oil and GP containers from always-safe vacuums that are generated as part of ongoing operations in X-326; or material held up in X-705 equipment (some of which may have to be removed for maintenance).

FSU - Former Soviet Union

Table 1-2. Hazardous chemicals.

Name	Locations	Typical Quantity
Uranium Hexafluoride	X-326, X-330, X-333, X-342A, X-343, X-344A, X-345, X-745 storage locations	400,000,000 pounds
Chlorine Trifluoride	X-330, X-333, X-742	4,000 pounds
Nitric Acid	X-705, X-720	30,000 pounds
Fluorine	X-342A, X-342B	700 pounds
Chlorine	X-611E, X-6619, X-742	7,000 pounds
Hydrogen Fluoride	X-342A	5,000 pounds

Table 1-3. Summary of Continuous Monitored Stack and Vent Characteristics

LOCATION	DIMENSIONS			FLOW RATES			Control Device Efficiency
	I.D.* (in.)	Height (ft.)					
		Above Roof	Above Ground	Vol. (ACFM)	Vel. (Ft./Min.)	Monthly Vol. (SCF)[a]	Percent (%)
X-326 Top Purge Vent (X-326-P-2799)[b]	5	103	165	379	2779	1.47E+07	99.99
X-326 Side Purge (X-326-P-2798)[b]	5	103	165	626	4588	2.46E+07	99.99
X-326 E-Jet (X-326-P-616)[b]	5	103	165	869	6372	3.54E+07	99.99
X-330 Cold Recovery Vent (X-330-P-272)	4	12	78	415	4753	1.57E+07	90
X-333 Cold Recovery Vent (X-333-P-852)	3	15	97	429	8746	1.50E+07	99
X-333 Building Evacuation Vent (X-333-P-856)	4	15	97	917	10,508	2.27E+06	90
X-333 Seal Exhaust System Area 1 (X-333-A-851)	6	6	72	58	293	2.20E+06	99
X-330 Seal Exhaust System Area 2 (X-330A-262)	4	6	72	37	424	1.71E+06	99
X-330 Seal Exhaust System Area 3 (X-330-A-279)	4	6	72	30	347	1.22E+06	99
X-326 Seal Exhaust System Area 4 (X-326-A-512)	8	6	72	30	87	1.22E+06	99
X-326 Seal Exhaust System Area 5 (X-326-A-528)	8	6	72	27	77	1.35E+06	99
X-326 Seal Exhaust System Area 6 (X-326-A-540)	8	6	72	29	83	1.20E+06	99
X-343 Cold Trap Operations Vent (X-343-P-964)	3	68	110	51	1033	2.19E+06	99
X-344 Cold Trap Operations Vent (X-344-P-3103)	3	12	58	51	1033	2.19E+06	99
X-344 Gulper (X-344-P-929)	16	8	58	450	322	2.81E+06	99

* I.D. represents inside diameter.

[a] Monthly volumes are based on an average of data from 1992 to 1994.
[b] These three vents physically discharge through four interconnected pipes of the listed dimensions.

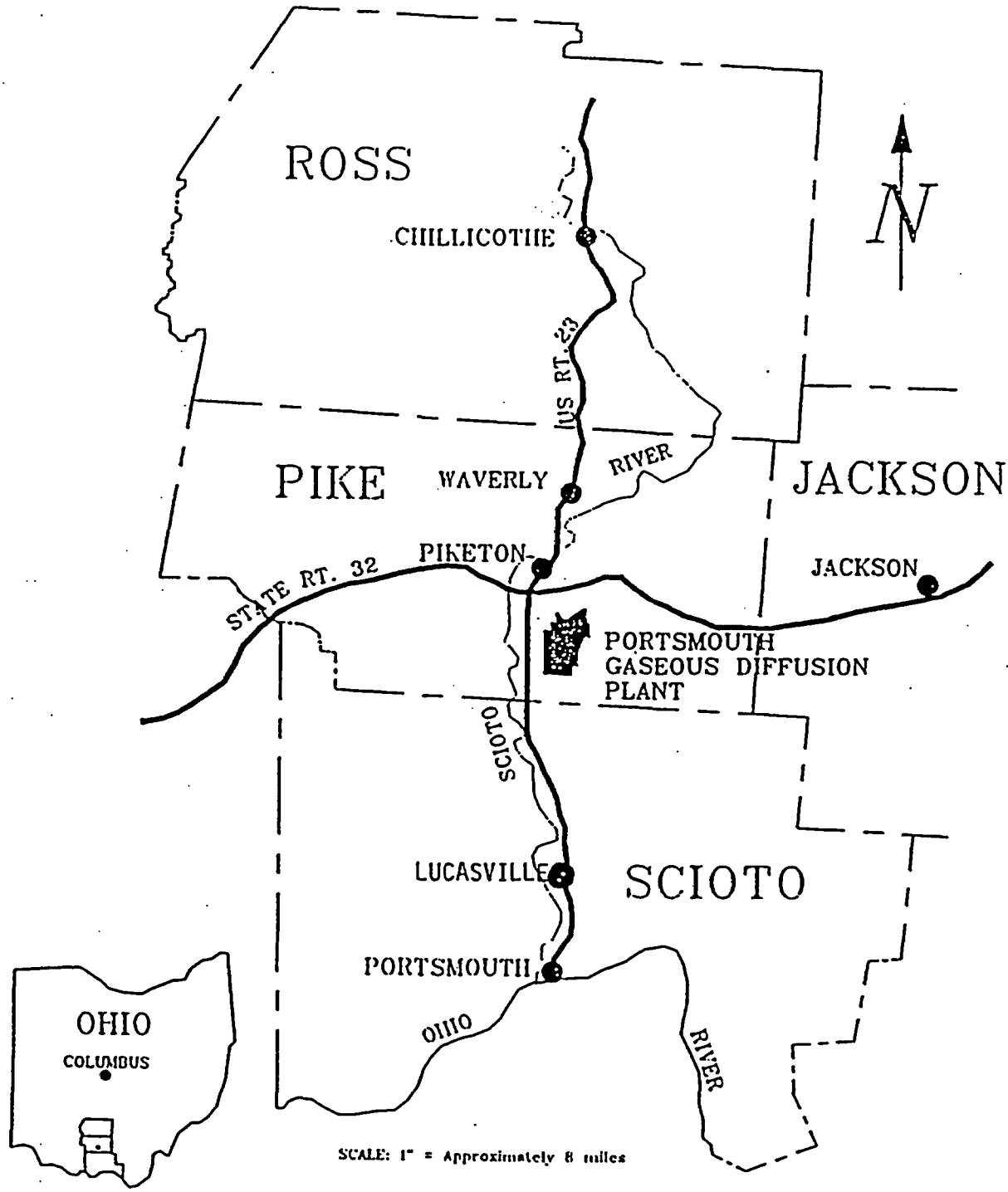

Figure 1-1. Regional area surrounding PORTS.

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DECEMBER 13, 2002

PORTSMOUTH GASEOUS DIFFUSION PLANT EMERGENCY PLAN MAP

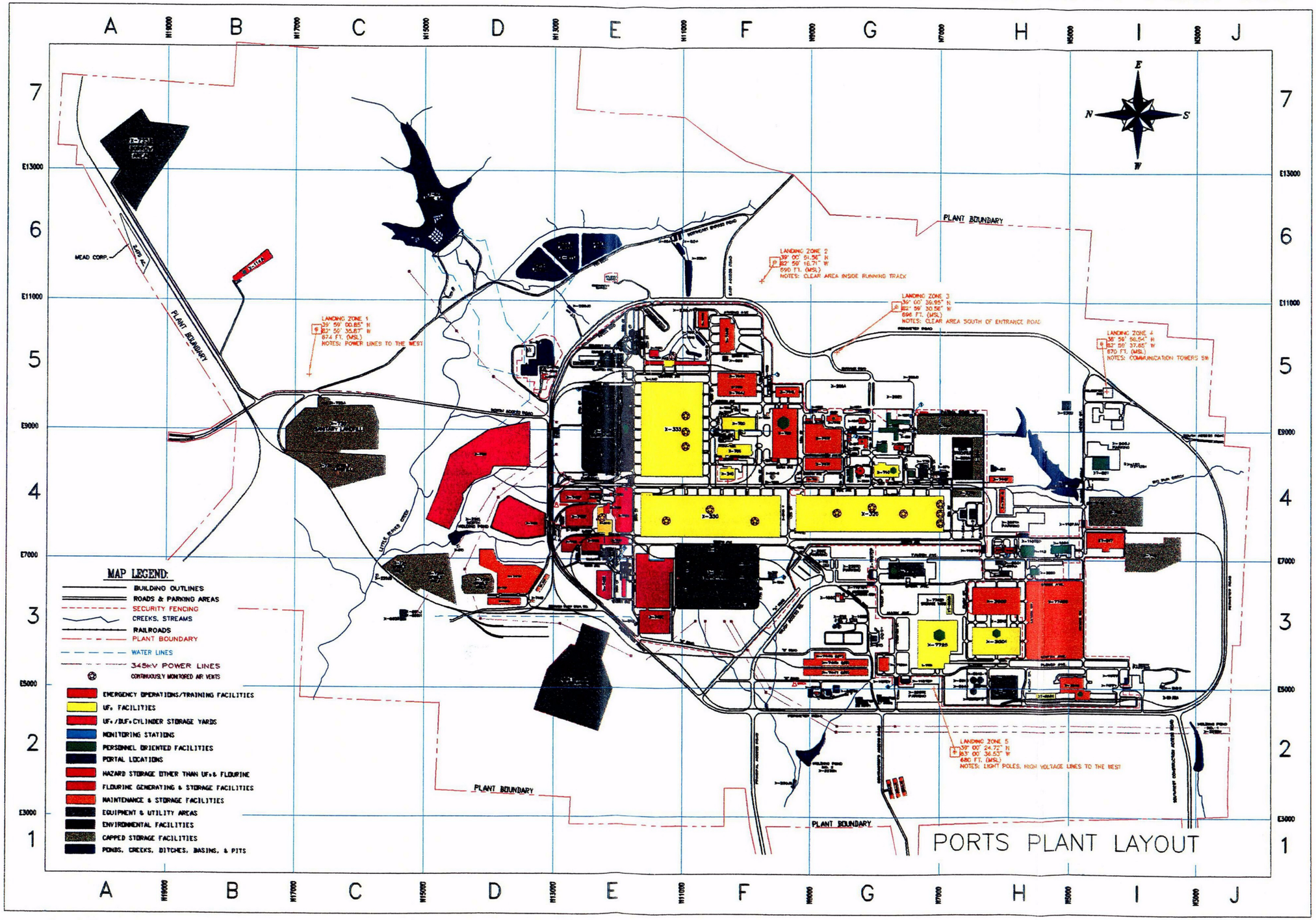


FIGURE 1–2

C01

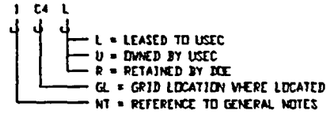
PORTSMOUTH GASEOUS DIFFUSION PLANT EMERGENCY PLAN MAP INDEX

FAC #	FAC DESCRIPTION	NT	GL	LS
X-100	ADMINISTRATION BLDG		G5	L
X-100B	AIR CONDITIONING EQUIP BLDG		G4	L
X-101	HEALTH SERVICES		G4	L
X-102	CAFETERIA		G4	L
X-103	AUX OFFICE BLDG		G4	L
X-104	GUARD HEADQUARTERS		G5	L
X-104A	INDOOR FIRING RANGE		G5	L
X-105	ELECTRONIC MAINTENANCE BLDG		F5	L
X-106	TACTICAL RESPONSE BLDG		G4	L
X-106B	OLD FIRE TRAINING BLDG		G3	R
X-106C	NEW FIRE TRAINING BLDG		G3	L
X-108A	S PORTAL & SHELTER		G5	L
X-108B	N PORTAL & SHELTER		G5	L
X-108E	CONSTRUCTION PORTAL		F4	L
X-108H	PIKE AVE PORTAL		E4	L
X-109A	PERSONNEL MONITORING STA		F3	L
X-109B	PERSONNEL MONITORING STA		F5	L
X-109C	PERSONNEL MONITORING STA		G5	L
X-111A	SNM MONITORING PORTAL (X-326)		G4	L
X-111B	SNM MONITORING PORTAL (NW X-326)		F4	L
X-112	DATA PROCESSING BLDG		H4	L
X-114A	OUTDOOR FIRING RANGE		B6	L
X-120	OLD WEATHER STA		I4	R
X-120H	NEW WEATHER STA		I4	L
X-206A	N MAIN PARKING LOT		G5	L
X-206B	S MAIN PARKING LOT		G5	L
X-206E	CONSTRUCTION PARKING LOT		G4	L
X-206H	PIKE AVE PARKING LOT		E4	L
X-206J	S OFFICE PARKING LOT		I4	L
X-230J-1	ENVIR MONITORING STA		F5	L
X-230J-2	S HOLDING POND EFFLUENT MONITORING STA		I4	L
X-230J-3	W ENVIR MONITORING STA		F2	L
X-230J-5	W HOLDING POND & ENVIR SAMPLING BLDG		F2	L
X-230J-6	NE HOLDING POND & MONITORING STA		E6	L
X-230J-7	E HOLDING POND & MONITORING STA		F6	L
X-230J-8	ENVIR STORAGE BLDG		G5	L
X-230J-9	N ENVIR SAMPLING STA		C3	L
X-230K	S HOLDING POND		H4	L
X-230L	N HOLDING POND		D4	L
X-230M	CLEAN SITE NE OF XT-801		H5	R
X-231A	SE OIL BIODEGRADATION PLOT		H4	R
X-231B	SW OIL BIODEGRADATION PLOT		H4	R
X-300	PLANT CONTROL FAC		G4	L
X-300A	PROCESS MONITORING BLDG		G4	L
X-300B	PLANT CONTROL FAC CARPORT		G4	L
X-326	PROCESS BLDG		G4	L
X-326L	L-CAGE, L-CAGE GLOVE BOX & STORAGE AREA		G4	R
X-330	PROCESS BLDG		F4	L
X-333	PROCESS BLDG		E5	L
X-334	TRANSFORMER CLEANING BLDG		E4	L
X-342A	FEED, VAPORIZATION & FLUORINE GENERATION BLDG		E4	L
X-342B	FLUORINE STORAGE BLDG		E4	L
X-342C	WASTE HF NEUTRALIZATION PIT		E4	R
X-343	FEED, VAPORIZATION & SAMPLING BLDG		E5	L
X-344A	UF6 SAMPLING FAC		E4	L
X-344B	MAINTENANCE STORAGE BLDG		E4	L
X-344C	HF STORAGE BLDG		E4	R
X-344D	HF NEUTRALIZATION PIT		E4	R
X-344E	GAS VENTILATION STACK		E4	R
X-344F	SAFETY BLDG		E4	R
X-344G	RUSSIAN TRANSPARENCY TRAILER		E4	R
X-345	SNM STORAGE BLDG		F4	R
X-501	SUBSTATION		G4	L
X-501A	SUBSTATION		G4	L
X-502	SUBSTATION		G4	L
X-530A	SWITCH YARD		F3	L
X-530B	SWITCH HOUSE		F4	L
X-530C	TEST & REPAIR BLDG		F3	L
X-530D	OIL HOUSE		F3	L
X-530E	VALVE HOUSE		F3	L
X-530F	VALVE HOUSE		F3	L
X-530G	GCEP OIL PUMPING STA		F3	L
X-533	TRANSFORMER STORAGE PAD		E4	L
X-533A	SWITCH YARD		E4	L
X-533B	SWITCH HOUSE		E5	L
X-533C	TEST & REPAIR BLDG		E5	L
X-533D	OIL HOUSE		E4	L
X-533E	VALVE HOUSE		E5	L
X-533F	VALVE HOUSE		E4	L
X-533H	GAS RECLAIMING CART GARAGE		E5	L
X-340	TELEPHONE BLDG		G4	L
X-600	STEAM PLANT FAC		H4	L
X-600A	COAL PILE YARD		H4	L
X-600B	STEAM PLANT SHOP		G4	L
X-600C	ASH WASH TREATMENT BLDG		H4	L
X-605H	BOOSTER PUMP HOUSE & FAC		C3	L
X-605I	CHLORINATOR BLDG		C3	L
X-605J	DIESEL GENERATOR BLDG		C3	L
X-611	WATER TREATMENT PLANT		D5	L
X-611A	OLD LIME SLUDGE LAGOONS AREA		E6	R
X-611B	SLUDGE LAGOON		D6	L
X-611C	FILTER BLDG		D5	L
X-611D	RECARBONIZATION INSTRUMENT BLDG		D5	L
X-611E	CLEARWELL & CHLORINE BLDG		D5	L
X-612	ELEVATED WATER TANK		E3	L
X-614A	SEWAGE PUMPING STA		F4	L
X-614B	SEWAGE LIFT STA		E4	L
X-614D	S SEWAGE LIFT STA		I4	L
X-614P	NE SEWAGE LIFT STA		E5	L
X-615	OLD SEWAGE TREATMENT PLANT		G3	R
X-616	LIQUID EFFLUENT CONTROL FAC		G3	L
X-617	S HOLDING POND & PH CONTROL FAC		I4	L
X-618	N HOLDING POND STORAGE BLDG		D4	L
X-621	COAL PILE RUNOFF TREATMENT FAC		H4	L
X-622	S GROUNDWATER TREATMENT BLDG		H4	R
X-622T	CARBON FILTRATION (X-705 SUMP WATER)		F4	R
X-623	N GROUNDWATER TREATMENT BLDG		F5	R
X-624	LITTLE BEAVER GROUNDWATER TREATMENT FAC		E6	R
X-624-1	LITTLE BEAVER GROUNDWATER TREATMENT DECONTAMINIATION PAD		E6	R
X-625	PILOT SCALE TREATMENT FAC		I3	R
X-626-1	RECIRCULATING WATER PUMP HOUSE		H4	L
X-626-2	COOLING TOWER		H4	L
X-630-1	RECIRCULATING WATER PUMP HOUSE		E3	L
X-630-2A	COOLING TOWER		E4	L
X-630-2B	COOLING TOWER		E3	L
X-633-1	RECIRCULATING WATER PUMP HOUSE		E5	L
X-633-2A	COOLING TOWER		E5	L
X-633-2B	COOLING TOWER		E5	L
X-633-2C	COOLING TOWER		E5	L
X-633-2D	COOLING TOWER		E5	L
X-640-1	FIRE WATER PUMP HOUSE		E5	L
X-640-2	ELEVATED WATER TANK		F4	L
X-700	CONVERTER SHOP & CLEANING BLDG		F5	L
X-700A	AIR CONDITIONING EQUIP BLDG		F5	L
X-701A	LIME HOUSE		F5	L
X-701B	HOLDING POND (DRAINED)		F5	R
X-701C	NEUTRALIZATION PIT & TANK		F5	R
X-701D	WATER DEIONIZATION BLDG		F5	L
X-701E	NEUTRALIZATION BLDG		F5	R
X-705	DECONTAMINATION BLDG		F4	L
X-705A	INCINERATOR AREA		F4	R
X-705B	CONTAMINATED BURNABLE STORAGE AREA		F4	R
X-705D	HEATING BOOSTER PUMP BLDG		F4	L
X-705E	OXIDE CONVERSION AREA		E4	R
X-710	TECHNICAL SERVICES BLDG		G4	L
X-710A	TECHNICAL SERVICES GAS MANIFOLD SHED		G4	L
X-710B	EXPLOSION TEST FAC		G4	L
X-720	MAINTENANCE & STORES BLDG		F4	L
X-720A	MAINTENANCE & STORES GAS MANIFOLD SHED		F5	L
X-720B	RADIO BASE STA BLDG		F4	L
X-720C	PAINT & OIL STORAGE BLDG		F4	L
X-721	RADIATION INSTRUMENT CALIBRATION FAC		F4	L
X-734	OLD SANITARY LANDFILL		B4	R
X-734A	CONSTRUCTION SPOILS DISPOSAL AREA		C3	R
X-734B	CONSTRUCTION SPOILS DISPOSAL AREA		D3	R
X-735	SANITARY LANDFILL		C5	R
X-735A	LANDFILL UTILITY BLDG		C5	R
X-735B	BORROW AREA		A7	R
X-736	W CONSTRUCTION SPOILS LANDFILL		C4	R
X-740	WASTE OIL STORAGE FAC		F3	R
X-741	OIL DRUM STORAGE FAC		F5	L
X-742	GAS CYLINDER STORAGE FAC		G5	L
X-743	LUMBER STORAGE SHED		G4	L
X-744B	SALT STORAGE SHED		D3	L
X-744G	BULK STORAGE BLDG		F5	R
X-744H	BULK STORAGE BLDG		F5	L
X-744J	BULK STORAGE BLDG		F5	L
X-744K	WAREHOUSE K		H4	R
X-744L	STORES & MAINTENANCE BLDG		F5	L
X-744N	WAREHOUSE N NON UEA		G2	R
X-744P	WAREHOUSE P NON UEA		G2	R
X-744Q	WAREHOUSE Q NON UEA		G2	R
X-744S	WAREHOUSE S NON UEA		G3	R
X-744T	WAREHOUSE T NON UEA		G3	R
X-744U	WAREHOUSE U NON UEA		G3	R
X-744W	SURPLUS & SALVAGE BLDG		D3	L
X-744Y	WASTE STORAGE YARD		E3	R
X-745B	TOLL ENRICHMENT PROCESS GAS YARD		E4	L
X-745C	W DUF4 STORAGE YARD		E3	R
X-745D	CYLINDER STORAGE YARD		E5	L
X-745E	NW DUF4 STORAGE YARD		E3	R
X-745F	N PROCESS GAS STOCKPILE YARD		E4	L
X-745G	CYLINDER STORAGE YARD		D4	L
X-745H	CYLINDER STORAGE YARD		D4	L
X-746	MATERIALS RECEIVING & INSPECTION BLDG		G5	L
X-747	CLEAN SCRAP YARD		D3	L
X-747A	MATERIAL STORAGE YARD		G4	L
X-747B	MATERIAL STORAGE YARD		G4	L
X-747C	MATERIAL STORAGE YARD		E5	L
X-747D	MATERIAL STORAGE YARD		E5	L
X-747E	MATERIAL STORAGE YARD		E5	L
X-747F	MISCELLANEOUS MATERIAL STORAGE YARD		F5	L
X-747G	PRECIOUS METAL SCRAP YARD		F5	R
X-747H	NW CONTAMINATED SCRAP YARD		D3	R
X-747J	DECONTAMINATION STORAGE YARD		F4	L
X-748	TRUCK SCALE FAC		G3	L
X-749	S CONTAMINATED MATERIAL STORAGE YARD (CAPPED)		I4	R
X-749A	S CLASSIFIED BURIAL YARD (CAPPED)		H5	R
X-749B	PETER KIEWIT LANDFILL (CAPPED)		I4	R
X-750	MOBILE EQUIP MAINTENANCE GARAGE		G4	L
X-750A	GARAGE STORAGE BLDG		G4	L
X-751	GCEP MOBILE EQUIP GARAGE		F3	R
X-752	WAREHOUSE		D3	R
X-760	CHEMICAL ENGINEERING BLDG		G4	L
X-770	MECHANICAL TEST BLDG		G4	R
X-1000	ADMINISTRATION BLDG		H4	L
X-1007	FIRE STA		H4	L
X-1020	EMERGENCY OPERATIONS CENTER (EOC)		H4	L
X-1107AV	ADMINISTRATIVE VEHICLE PORTAL		I4	L
X-1107BP	ADMINISTRATIVE PEDESTRIAN PORTAL		H4	L
X-1107BV	INTERPLANT VEHICLE PORTAL		H4	L
X-1107DP	ADMINISTRATIVE PEDESTRIAN PORTAL		G3	L
X-1107DV	ADMINISTRATIVE VEHICLE PORTAL		G3	L
X-1107EP	NW PEDESTRIAN PORTAL		G3	R
X-1107EV	NW VEHICLE PORTAL		G3	R
X-1107FP	S PEDESTRIAN PORTAL		I3	R
X-1107FV	S VEHICLE PORTAL		I3	R
X-2207A	PARKING LOT		H4	L
X-2207D	PARKING LOT		G3	L
X-2207E	NW PARKING LOT		G2	R
X-2207F	S PARKING LOT		I3	R
X-2230M	HOLDING POND #1		J2	R
X-2230N	HOLDING POND #2		G2	R
X-3000	ENVIR COMPLIANCE BLDG		H3	L
X-3001	GCEP PROCESS BLDG #1		H3	R
X-3002	GCEP PROCESS BLDG #2		H3	R
X-3012	GCEP PROCESS SUPPORT BLDG		H3	R
X-3346	GCEP FEED & WITHDRAWAL FAC		I3	R
X-5000	GCEP SWITCH HOUSE		H3	L
X-5001	SUBSTATION		H2	L
X-5001A	VALVE HOUSE		H3	L
X-5001B	OIL PUMPING STA		H3	L
X-6000	GCEP COOLING TOWER PUMP HOUSE		H3	L
X-6001	COOLING TOWER		H3	L
X-6001A	VALVE HOUSE		H3	L
X-6613	SANITARY WATER STORAGE TANK		H3	L
X-6614E	SEWAGE LIFT STA		G2	L
X-6614G	SEWAGE LIFT STA	3		L
X-6614H	SEWAGE LIFT STA	3		L
X-6614J	SEWAGE LIFT STA	3		L
X-6619	SEWAGE TREATMENT PLANT		G2	L
X-6643-1	FIRE WATER STORAGE TANK #1		H3	L
X-6643-2	FIRE WATER STORAGE TANK #2		H2	L
X-6644	FIRE WATER PUMP HOUSE		H3	L
X-7721	MAINTENANCE, STORES & TRAINING BLDG		G3	L
X-7725	RECYCLE/ASSEMBLY BLDG		G3	R
X-7725A	WASTE ACCOUNTABILITY FAC		G3	R
X-7726	CENTRIFUGE TRAINING & TEST FAC		G3	R
X-7727H	INTERPLANT TRANSFER CORRIDOR		H3	R
X-7745R	RECYCLE/ASSEMBLY STORAGE YARD		G3	R
X-7745S	FENCED AREA S OF X-3012		H3	R
XT-801	S OFFICE BLDG		I4	L
XT-847	WAREHOUSE		I4	L
XT-860A	RUBB BLDG AT X-7725		H3	R
XT-860B	RUBB BLDG AT X-3346		H2	R
DOE'S CONTRACTOR TRAILER AREA			G2	R
USEC CONTRACTOR TRAILER AREA			G2	L
CONTRACTOR LAYDOWN AREA			G3	R
X-120 AREA			I2	R

Z-SWMU-QUAD-1V	SOUTHERN END OF RAILROAD SPUR WHICH IS USED AS DRUM STORAGE AREA
Z-SWMU-QUAD-1V	CHEMICAL & PETROLEUM CONTAINMENT TANKS E OF X-533C
Z-SWMU-X-701	NE OIL BIODEGRADATION PLOT AREA WHICH WAS FORMERLY USED FOR THE DISPOSAL OF X-615 SLUDGE
Z-SWMU-X-710	INACTIVE 'HOT PIT' IN THE AREA OF X-710 THAT WAS ONCE USED FOR THE STORAGE OF RADIOACTIVE WASTEWATER
Z-SWMU-X-744	RETRIEVABLE WASTE STORAGE AREA
Z-SWMU-XXXX	SOLID WASTE MANAGEMENT UNITS AS IDENTIFIED ON PORTSMOUTH ENVIR INFORMATION MANAGEMENT SYSTEM DRAWING, PRINTED 2/9/93

GENERAL NOTES

1. THE COMMON AREA LEASED BOUNDARY ASSOCIATED WITH DITCHES, CREEKS, AND WATERWAYS (EXCEPT PONDS) IS DEFINED AS 100 FOOT PARALLEL TO THE CENTERLINE OF THE WATER EACH DIRECTION, EXCEPT WHERE THE BOUNDARY HAS BEEN DEFINED BY A ROADWAY OR OTHER PHYSICAL BOUNDARY.
2. THE COMMON AREA LEASED BOUNDARY ASSOCIATED WITH PONDS IS DEFINED 100 FOOT PARALLEL FROM TOP OF POND BANK, EXCEPT WHERE THE BOUNDARY HAS BEEN DEFINED BY A ROADWAY OR OTHER PHYSICAL BOUNDARY.
3. THIS FACILITY SHOWN IN EXHIBIT A, NOT SHOWN ON THIS REVISION OF OF LEASE MAP.
4. THE MAP FACILITY INDEX FIELDS ARE DEFINED AS FOLLOWS BELOW



ABBREVIATION LEGEND

ADC = AREA OF CONTAMINATION	GL = GRID LOCATION
AUX = AUXILIARY	LS = LEASE STATUS
AVE = AVENUE	N = NORTH
BLDG = BUILDING	NT = NOTE
E = EAST	S = SOUTH
ENVIR = ENVIRONMENTAL	STA = STATION
EQUIP = EQUIPMENT	SWMU = SOLID WASTE MANAGEMENT UNIT
FAC = FACILITY	W = WEST

◇ MONITORING STATIONS

NO.	LOCATION	PHONE
1.	X-109C TRAILER SOUTHEAST OF X-100	2238
2.	X-106 TRT STATION	5956
3.	X-109B FRAME BUILDING EAST OF X-106	2535
4.	X-533 SWITCHYARD – EAST SIDE	4183
5.	X-630 PUMPHOUSE – INSIDE NORTH END	4185
6.	X-109A SOUTH OF X-530 SWITCHYARD	4122
7.	X-1007 FIRE STATION	5611
8.	X-1107EV PORTAL	3352

Δ PA/SIREN LOCATIONS

NO.	LOCATION
1.	SOUTH OF X-100
2.	NORTH SIDE OF X-745F
3.	NORTH EAST OF X-6619

PORTS PLANT LAYOUT INDEX
FIGURE 1–2A

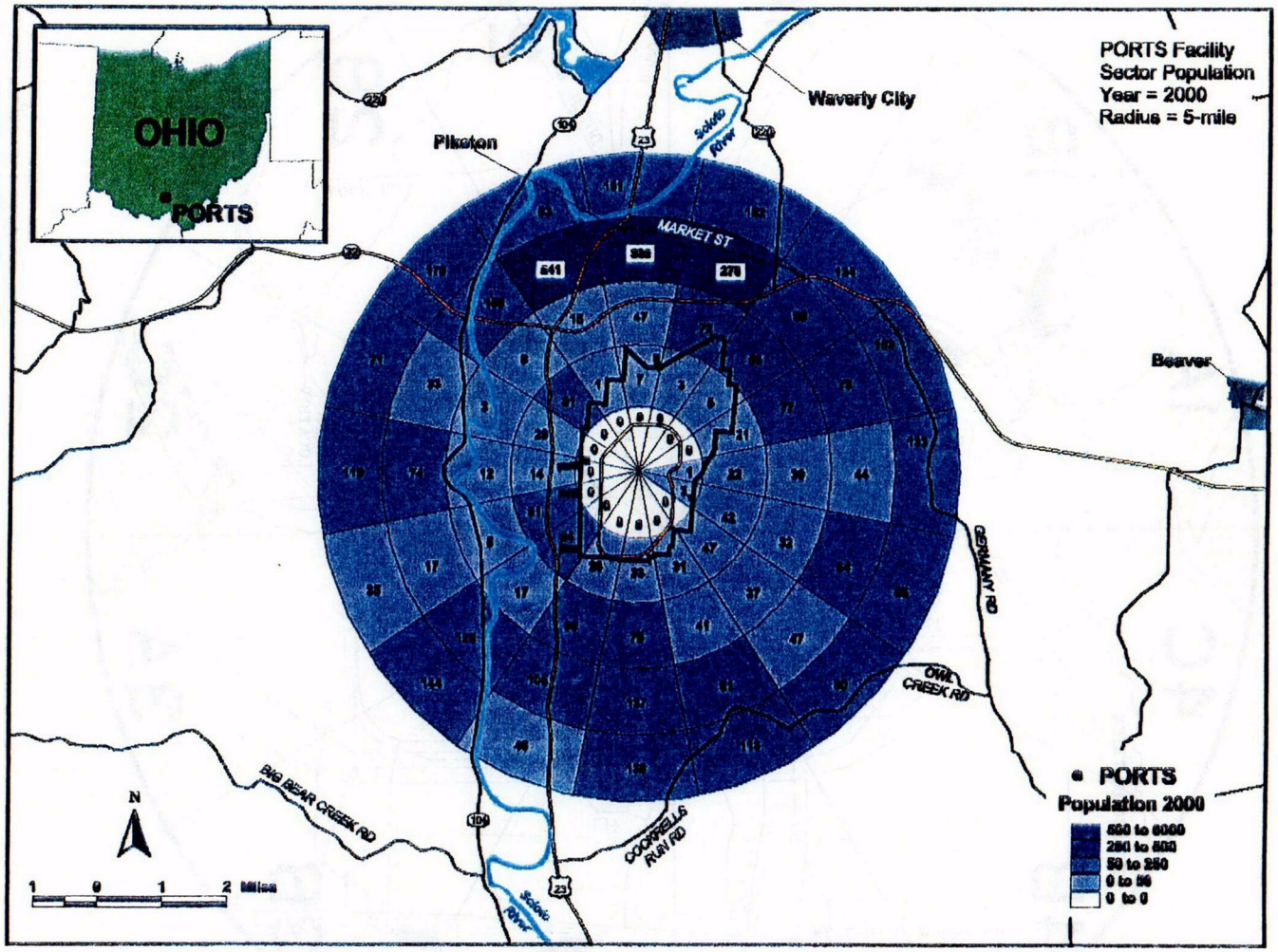


Figure 1-3
Population Distribution Around PORTS

C02

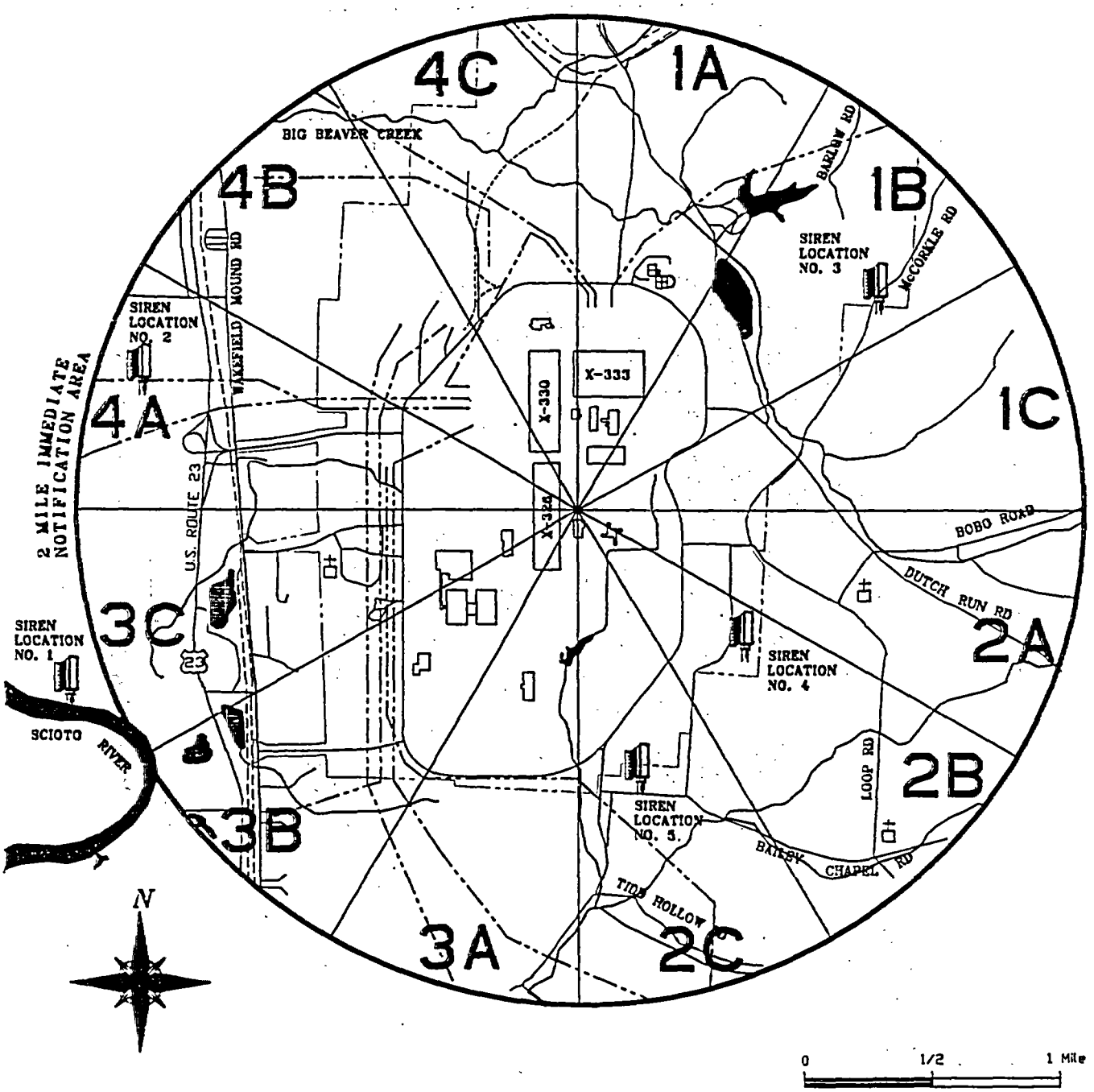


Figure 1–4. Immediate notification area

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Copies of this oversize figure were provided separately
by USEC letter GDP 95-0010 dated September 15, 1995.

Figure 1-5. U. S. Geological Survey Topographical Map.

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2. TYPES OF ACCIDENTS AND OTHER EMERGENCIES

Hazards and consequence analyses reflected in the DOE Safety Analysis Report (hazards analysis) form the basis for emergency preparedness planning. The NRC Notice promulgating 10 CFR Part 76 indicated that the regulatory analysis for the emergency preparedness requirements for other nuclear fuel cycle facilities regulated by the NRC "concluded that offsite emergency preparedness should be based on chemical toxicity from a large UF_6 release."[1]

This Plan is based upon an evaluation of the risks associated with various accident scenarios identified in the site-specific hazards analyses for PORTS and other potential emergency situations at PORTS. Those analyses concluded that the most extreme credible scenario would be an accident involving a large UF_6 release. The analyses included consideration of the risks associated with the potential release of other hazardous radioactive and non-radioactive materials stored or used onsite. These other hazardous materials are identified in the Material Safety Data Sheets (MSDS), the chemical inventory, information from the Safeguards and Security Plan, the Spill Contingency, Control, and Countermeasures Plan, and Hazardous Waste Contingency Plans.

Each type of credible accident or event that could result in an emergency associated with these hazards has been identified and analyzed to assess the potential consequences to plant workers, the public, the environment, and onsite and offsite property.

This plan is applicable to radiological and non-radiological accidents or other emergencies that could occur at the site, including the following:

1. Hazardous materials (HAZMAT) releases involving toxic or radioactive materials;
2. Equipment failures and industrial accidents;
3. Natural phenomena, such as tornadoes and earthquakes, and fires; and
4. Security-related events, such as bomb threats and civil disturbances.

2.1 DESCRIPTION OF POSTULATED ACCIDENTS AND OTHER EMERGENCIES

Various hazardous materials are used or stored at the site. Accidents involving the release of these materials could require an emergency response. Fires, a nuclear criticality event, or severe natural phenomena could also require an emergency declaration and/or response.

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1. 59 Federal Register 48946 (Sept. 23, 1994).

It should be noted that other events that do not meet the criteria for classification as an emergency under this Plan may also require reporting to Federal, State, and local agencies, require time-urgent mitigation efforts, or possibly impact plant operations. Examples of these types of events include certain equipment failures or industrial accidents and loss of power, steam, process water, or compressed air to certain areas of the site.

The following sections contain brief descriptions of each type of accident and other events that could be classified as potential emergencies under the Plan, based upon the hazards analyses.

2.1.1 Nuclear Criticality Event

Based on the safe operating history of the plant, a nuclear criticality event is very unlikely. In case of a criticality event, detectors and alarm systems are in place as described in Section 5.2 of the SAR. The consequences of an inadvertent criticality event are likely to be limited to a localized region. Because criticality produces primarily local radiation effects, the expected consequences are limited to the onsite workers with no offsite effects to the public health and safety. No significant fission product release and transport are anticipated from an inadvertent criticality event.

2.1.2 Uranium Hexafluoride (UF_6) Release

When UF_6 reacts with moisture in the air, the resulting hydrolysis produces uranyl fluoride particles and hydrogen fluoride (HF) gas. The radiotoxicity of uranium is insignificant when compared with its chemical toxicity. Radiation doses received by persons at the DOE reservation boundary due to a UF_6 release would also be insignificant.

2.1.2.1 Liquid Cylinder Rupture

The dropping and rupturing of a UF_6 liquid cylinder could result in a significant onsite and offsite hazard. Historical evidence indicates that an incident involving the rupture of a liquid 14-ton UF_6 cylinder could release UF_6 into the atmosphere. In the worst-case scenario, serious injuries or fatalities could occur onsite at the reservation boundary and beyond. Sheltering citizens in the path of the plume would greatly mitigate the consequences.

2.1.3 Nitric Acid (HNO_3) Release

Nitric acid stored in the X-705 and X-720 areas is used for miscellaneous chemical operations and maintenance activities. Because of the volatility and corrosive nature of the material, releases could result in personal injuries or fatalities onsite, but would pose no hazard to offsite populations.

2.1.4 Fluorine (F_2) Release

Fluorine generated from Hydrogen Fluoride gas in the X-342A is pumped to storage tanks in the X-342B facility. Fluorine is used to pacify metal surfaces prior to exposure to UF_6 and for cell treatment on an as-needed basis. Because fluorine is an extreme irritant and readily combines with water vapor to form HF, releases could result in personal injuries or fatalities onsite. However, because of the small quantities of material available for releases, no hazards are projected to offsite populations.

2.1.5 Chlorine (Cl_2) Release

Chlorine is used in water and wastewater treatment. Chlorine is located at the water treatment plant (X-611E) in 1-ton cylinders and at the sewage treatment plant (X-6619) in 150 pound cylinders, and in X-742 in 150 pound cylinders. A cylinder or valve rupture could release Cl_2 gas and in a worst-case scenario the resulting plume could be carried offsite. Unprotected on- and offsite personnel could experience serious injuries or fatalities. Sheltering citizens in the path of the plume would greatly mitigate the consequences.

2.1.6 Hydrogen Fluoride (HF) Release

Hydrogen fluoride is stored in the X-342A area. Releases could result in on- and offsite fatalities or serious injuries. Possible releases could be attributed to valve failure, pigtail failure, or temperature/pressure control failure.

2.1.7 Chlorine Trifluoride (ClF_3) Release

ClF_3 stored in cylinders and drums in the X-330 and X-333 process buildings and the X-742 could be released if a valve breaks and ignites nearby cylinders. Dispersion estimates indicate this release could result in an offsite hazard. Sheltering citizens in the path of the plume would greatly mitigate the consequences. Fatalities or serious injuries could be experienced in an unprotected onsite population.

2.1.8 Other Nonradioactive Hazardous Material Releases

Other nonradioactive hazardous material releases from offsite sources may pose a threat to the safety of personnel and impact plant operations and activities.

2.1.9 Natural Phenomena and Fire

Natural phenomena, such as earthquakes, tornadoes, severe storms, and fires may cause varying degrees of damage to the plant. In themselves, these types of events may disrupt or threaten plant operations sufficiently to warrant the declaration of an emergency. These types of events may result in a nuclear criticality or hazardous material release as described earlier in this section.

2.1.10 Security-Related Events

Security-related events, such as bomb threats, civil disturbances, extortion, and hostage taking, could also result in personal injuries or fatalities to on- and offsite personnel.

2.2 DETECTION OF ACCIDENTS AND OTHER EMERGENCIES

The PCF, located in building X-300, which also houses the PSS, cascade controller, and operators, monitors, coordinates, and/or controls critical plant processes, power distribution, utilities, communications, plant alarm systems, and emergency operations.

Each process building has an area control room (ACR), which permits operators to monitor process equipment, make changes in operations, and take corrective action to mitigate abnormal operating conditions.

Systems are designed to ensure that the consequences of a major malfunction are mitigated prior to any adverse effect on the plant population and the general public. These include UF_6 detection equipment and associated alarms, a criticality accident alarm system (CAAS), automatic sprinkler systems, various chemical detectors, and other alarm systems. Alarm systems are under continuous observation by operations personnel stationed locally, in the ACRs, and in the PCF, and are tested semi-annually.

Descriptions of the various alarms and detection methods for the hazards that have been analyzed follow.

2.2.1 Nuclear Criticality

Previous plant analyses show the risk associated with inadvertent criticality is extremely low. Analyses of possible criticality incidents reveal that both a fast-burst type reaction and a low-power incident have little effect on personnel except those in the immediate vicinity of the incident.

Criticality alarms are installed in facilities containing fissile material as described in Section 5.2 of the SAR. The criticality detection system consists of locator clusters and an alarm system. When a criticality accident alarm activates, a radiation alarm is generated actuating building local horns and lights as well as audible and visual alarms in the PCF. Alarm activation requires evacuation of personnel from the affected area to a designated monitoring station that is located a safe distance from the area. On the basis of the alarmed location, the PSS or designee can direct the actions necessary to respond to the accident.

2.2.2 Uranium Hexafluoride (UF_6)

Both the PCF and ACR UF_6 detection systems are used to monitor selected equipment and areas that possess a potential for a UF_6 release in the process facilities. In the enrichment cascade with capability of above atmosphere operation, UF_6 release detectors provide alarm actuation capability. UF_6 release detectors in withdrawal and toll enrichment areas provide both alarm actuation and system isolation capability. A system may be isolated by automatic shutdown, automatic valve closing, or automatic valve opening.

Upon a UF_6 detection system actuation, audible and visual alarms located locally and in the ACR and PCF alert operators to take appropriate response measures delineated by plant policy. Another means of detecting UF_6 releases is by physical operator observation and normal visual or smell senses.

Emergency response measures for a UF_6 release incident classified as an emergency are provided in Section 5.

2.2.3 Other Toxic Chemical Releases

Detection equipment and/or chemical release alarms for various toxic chemicals in the plant have been installed at strategic locations where the appropriate chemicals are present. As in a UF_6 release, if an operator is in the immediate vicinity of a chemical release, the operator should detect the release by sight or smell. Upon recognition or detection of a release, the release is reported immediately to fire services and the PSS or designee. Both fire services and the PSS respond simultaneously to the incident area upon receiving an indication of a chemical release. Section 5 describes emergency response measures in detail, including onsite and offsite protective actions.

2.2.4 Natural Phenomena and Fire

2.2.4.1 Fire

An extensive fire protection system is installed throughout the plant site, primarily consisting of automatic sprinkler systems and fire alarms as described in Section 5.4 of the SAR. Upon actuation of a sprinkler system, affected ACR and PCF operators receive a visual and audible fire alarm for the specific building area. The actuation of a fire alarm reported to the PSS requires the activation and response of onsite field Emergency Response Organization (ERO) personnel.

2.2.4.2 Earthquake

PORTS has digital strong motion accelerographs located in the X-300 facility for detecting earthquake-type movements. The strong motion accelerograph units are electronically connected in such a way that if one is triggered, all will start recording. Activation of the seismic detection system alarms an audible and visual annunciation in the PCF to alert the X-300 plant personnel that an earthquake has occurred. Section 5 describes emergency response measures in detail, including onsite and offsite protective actions.

2.2.4.3 Tornadoes/Strong Winds

Like earthquakes, tornadoes can produce multiple emergency categories and emergency action levels due to the great amount of energy that is released. Personnel injury, building and facility damage, hazardous material releases, or electrical hazards can be expected, depending upon the location of touchdown and width/path of the tornado. If a tornado watch is issued, the PCF is automatically notified by the National Weather Service (NWS). Upon receiving a tornado watch, a public address (PA) announcement is made. Monitoring of communications and warning systems is increased during a tornado watch.

When the NWS issues a tornado warning or a tornado is sighted, announcements are made to plant personnel through the plant PA system and other communication devices directing the plant personnel to take appropriate protective response actions in accordance with plant implementing procedures.

Strong downbursts of wind are more likely to occur than tornadoes. An intense downburst can produce straight-line damaging winds of up to 100 mph over a very limited area. Downbursts can occur in association with any severe thunderstorm. Tornadoes or strong winds may produce effects that would be classified as emergencies. Section 5 describes emergency response measures in detail, including onsite and offsite protective actions.

2.2.5 Security-Related Events

Security-related events will generally be detected by observation of the event by plant personnel, communication with individuals who initiated the event, or law enforcement agencies.

3. CLASSIFICATION AND NOTIFICATION OF ACCIDENTS AND OTHER EMERGENCIES

Significant emergencies are classified as either Alerts or Site Area Emergencies (SAEs). This classification system facilitates the notification process and the implementation of immediate response actions applicable to a specific emergency. This system also provides for upgrading or downgrading the response accordingly in the event of a change in the severity of the condition.

Emergency Action Levels (EALs) are used to determine whether any given accident or event rises to the level of an emergency and, if so, whether it should be classified as an Alert or SAE. These levels are used to give a relatively quick indication to the plant staff of the severity of an accident or event. The EALs provide the earliest possible indication of actual or potential emergency conditions. EALs associated with off site radiological or nonradioactive hazardous materials releases are based upon the U. S. Environmental Protection Agency's Protective Action Guides (PAGs), as summarized in EPA 400-R-92-001, Manual of Protective Action Guides and Protective Actions for Nuclear Incidents, and the Emergency Response Planning Guides (ERPGs) established by the American Industrial Hygiene Association for extremely hazardous chemicals and the toxic endpoints established by the USEPA in 40 CFR Part 68, Appendix A. Additionally, examples from NRC Regulatory Guide 3.67, Appendix A, have been used to develop EALs. The plant emergency response organization determines the potential for reaching or exceeding the PAGs or ERPGs/toxic endpoints in the event of a radiological or non-radioactive hazardous materials release to the environment.

EALs associated with on-site radiological releases are based on the U.S. EPA PAGs. EALs associated with on-site non-radioactive releases are based on the initial isolation and protective action distances as defined in the current edition of the U.S. Department of Transporation (DOT) North American Emergency Response Guidebook, and on the ERPGs/toxic endpoints. The plant emergency response organization determines when an on-site radiological or non-radioactive hazardous materials release to the environment reaches or exceeds the PAGs or the DOT initial isolation and protective action distances.

EALs may be symptom-based or event-based. However, the nature of plant operations and instrumentation generally precludes symptom-based EALs. Developed EALs are provided in an EPIP.

3.1 CLASSIFICATION SYSTEM

The classification system is based on the requirements of 10 CFR 76.91.

3.1.1 Alert

An Alert is defined as an incident that has led or could lead to a release to the environment of radioactive or other hazardous material. Such a release is not expected to require a response by an offsite response organization to protect the general public offsite.

An Alert involves an emergency situation that could have a direct effect on the health and safety of plant personnel. The ERO is activated and key offsite authorities are notified. An Alert also addresses limited releases of radioactive or hazardous material and therefore might require some onsite monitoring and assessment actions by the plant ERO.

An Alert ensures that emergency personnel are readily available to respond to a change in plant conditions and to provide assessment support as required. An incident classified as an Alert may require offsite emergency support organizations to respond to an onsite emergency, such as a fire or security-related event. Declaration of an Alert will ensure that appropriate onsite, offsite, and USEC personnel are properly advised and available for activation with appropriate resources if the situation

becomes more serious.

3.1.2 Site Area Emergency (SAE)

The most severe classification used in emergency planning at the gaseous diffusion plants is the Site Area Emergency (SAE). An SAE is defined as an incident that has led or could lead to a significant release to the environment of radioactive or other hazardous material. Such an incident could require a response by an offsite organization to protect persons offsite.

An SAE could result in offsite releases that exceed the Environmental Protection Agency (EPA) PAGs for radiological releases or ERPGs for toxic materials releases.

Declaration of an SAE requires the full activation of the ERO and other appropriate personnel and resources as necessary to mitigate the consequences of emergency conditions, monitor the situation, and ensure protection of onsite and offsite personnel. The nature of SAEs requires prompt protective actions for onsite personnel in the vicinity of the incident area and may require protective response measures for the entire site population and members of the public. Actions include completely activating the onsite ERO, alerting or mobilizing field monitoring teams, notifying appropriate offsite authorities, and activating the public warning system.

The SAE classification includes accidents or other emergency conditions that have a significant potential for the release of radioactive or hazardous materials. The PSS or designee declares an SAE whenever conditions exist that indicate protective actions are or may be required for the general public offsite. An SAE may also result in the request for assistance from offsite emergency support organizations.

3.2 NOTIFICATION AND COORDINATION

This section describes the methods used for notification of emergency response personnel, appropriate local, State, and Federal agencies and response organizations. The PSS, or designee, is responsible for initial notifications. The PSS or designee are individuals properly trained in performing notifications in accordance with specific EPIP. If initial notifications include activation of the EOC cadre, the EOC becomes operational within approximately sixty minutes. Section 3.3, describes requirements, content, and format of the information to be provided to offsite authorities during a declared plant emergency.

3.2.1 Alert

The purposes of declaring an Alert are to ensure that appropriate emergency response personnel are activated and stationed at their emergency duty stations to mitigate the consequences of the accident, that the emergency is properly assessed, that offsite officials are notified, and that steps can be taken to escalate the response if necessary.

The PSS is responsible for initially classifying the event and activating the plant ERO. This activation is accomplished by using the plant radio system, pagers, PA system, or the plant telephone system. The means for notification of plant personnel is the Protective Alarm System, which consists of several distinct alarms, the PA system, pagers, and telephones.

The PSS, or designee, promptly notifies the appropriate county and state authorities as soon as possible, normally within 15 minutes after an event is declared an Alert. The emergency notifications to state and local authorities are conducted via telephone or radio if the telephone system is not operational. The specifics of this notification process are described in Section 3.3 and in more detail in the appropriate EPIP. Additional information on emergency communications equipment is provided in Section 6.2.

The PSS, or designee, notifies the NRC Operations Center by telephone immediately after notification of appropriate state and local authorities, but no later than one hour after the declaration of an Alert. When the EOC has been activated and is operational, the CM assumes responsibility from the PSS or designee for NRC notification.

Based on the nature of the event, the PSS or designee, or the CM in the EOC once the EOC is activated and operational, issues protective response measures to the applicable plant population at his/her discretion. Typically, during an Alert, protective actions for plant personnel, if any at all, are limited to the particular incident area. Specific plant protective actions are described in detail in Section 5.4, and more thoroughly in designated EPIPs.

Although very unlikely during Alerts, the PSS or designee determines need for and subsequently requests offsite assistance. The various offsite emergency support organizations and agencies that may be requested to provide assistance to the plant are listed in Section 4.3.

The PSS or designee, or the CM in the EOC once the EOC is operational, monitors emergency conditions during an Alert for potential changes in the emergency classification. This entails the decision to escalate the emergency class to an SAE as plant conditions degrade and the decision to terminate the emergency and begin plant recovery operations when specific event termination criteria have been reached.

3.2.2 Site Area Emergency (SAE)

The purpose of declaring an SAE is to ensure that offsite officials are informed of potential or actual offsite consequences, that offsite officials are provided with recommended actions to protect persons offsite as necessary, and that the plant's ERO is augmented by additional personnel and equipment as necessary.

It is possible that an SAE may be declared without the initial declaration of an Alert. The PSS is responsible for the initial classification of the event. Once the EOC is operational, the CM assumes responsibility for declaring the appropriate class of emergency and making any changes to the emergency classification, including event termination. The declaration of an SAE requires the full activation of the ERO. Plant emergency response personnel receive notification of activation through the plant telephone system, PA system, radios, and pagers.

The PSS, or designee, promptly notifies the appropriate county and state authorities as soon as possible, normally within 15 minutes after an event is declared an SAE. The state and local notifications shall include any appropriate recommended protective actions for the general public near the plant property. The NRC Operations Center is notified as soon as possible after the state and local notifications have been made, but no later than one hour after the declaration of an SAE. Once the EOC is operational, the CM and EOC staff are responsible for appropriate offsite notifications, including the NRC. The emergency notifications to state and local authorities are conducted via telephone. The specifics of this notification process are described in Section 3.3. Additional information on emergency communications equipment is provided in Section 6.2.

The PSS or designee, or CM once the EOC is operational, directs plant personnel to take appropriate protective response actions based on the assessment of the emergency. During an SAE, protective actions for plant personnel may range from evacuating a particular building or area to a full site evacuation, based on emergency conditions. Specific plant protective actions are described in detail in Section 5.4, and more thoroughly in designated EPIPs.

During an SAE, additional emergency support may be necessary to augment the plant ERO. The PSS or designee normally makes the determination of need for and subsequently requests assistance from offsite emergency support organizations. The various offsite emergency support organizations and agencies that may be requested to provide assistance to the plant are listed in Section 4.3.

The CM monitors emergency conditions during an SAE for potential changes in the emergency classification. The CM may downgrade the emergency class to an Alert or may terminate the emergency and begin recovery operations when specific termination criteria have been reached.

3.2.3 Other Emergency Events

For those emergency events that are not classified as Alerts or SAEs, the plant maintains the responsibility and capability for assessment of the event, implementing appropriate protective actions, and ensuring that offsite officials are informed of potential or actual consequences, if necessary.

3.3 INFORMATION TO BE COMMUNICATED

Upon declaration of an Alert or an SAE, the PSS, or designee, conducts initial emergency notifications to offsite authorities as soon as possible, normally within 15 minutes of declaration. Additional emergency information is provided to offsite authorities periodically as new information becomes available. Notifications to offsite authorities are provided when a change in emergency classification occurs and when protective action recommendations offsite are required. An example of the form used for offsite notifications is included in the appropriate EPIP for emergency notification.

Information communicated to offsite authorities shall be conveyed by properly trained individuals in accordance with specific EPIPs. The information provided in emergency notifications includes plant status conditions, radiological/hazardous materials release data, recommendations for protective actions to be implemented by offsite response organizations, and other applicable emergency information as necessary. Protective response actions offsite are the responsibility of governmental authorities. Offsite protective action recommendations for the different types of postulated emergencies requiring protective measures are discussed in detail in Section 5.4.2.

The PSS or designee ensures that at a minimum, the following Federal, State, and local agencies, are notified as soon as possible, normally within 15 minutes of the initial emergency declaration:

1. Pike County Emergency Management Agency director,

2. Pike County Sheriff's Office/Local Emergency Planning Committee (LEPC),

3. Ohio Emergency Management Agency, and

4. DOE-Oak Ridge Operations.

Upon the issuance of protective action recommendations, the plant may request verification callbacks from state and local agencies responsible for implementing offsite protective actions to ensure that the recommendations are understood. Callbacks also enable plant officials to receive information regarding offsite protective actions implemented.

Based on the nature and status of the incident, in addition to the primary agencies listed above, other offsite organizations may be notified of emergency conditions. These include the following:

1. Scioto County Sheriff's Office/LEPC,

2. Scioto County Emergency Management Agency director,

3. Ohio Environmental Protection Agency (EPA) Emergency Response Center,

4. U.S. National Response Center,

5. U.S. Occupational Safety and Health Administration (OSHA), and

6. Other affected organizations.

The U.S. Nuclear Regulatory Commission (NRC) Operations Center is notified immediately after notification of the appropriate state and local agencies but no later than one hour after the declaration of an Alert or an SAE.

USEC-HQ is notified immediately after the declaration of an emergency, but no later than one hour.

Once the EOC is operational, a dedicated open communications telephone line will be maintained with the NRC Operations Center. This communications line is used during a declared emergency (Alert or Site Area Emergency) to keep the NRC Operations Center current as the event is occurring.

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4. RESPONSIBILITIES

USEC is responsible for overall direction and control of NRC-regulated activities at PORTS. USEC is also required to provide site-wide emergency response services to DOE pursuant to Appendix F of the Lease Agreement.

4.1 NORMAL FACILITY ORGANIZATION

While the Vice President, Operations, is ultimately responsible for the safe operation of the plant, the General Manager is responsible for the day-to-day management and operation of the plant, including the program of emergency response services. An organizational chart showing the functional levels and reporting responsibilities is provided in the Safety Analysis Report Section 6.1. The administrative and technical support personnel staffing the plant organization are normally onsite daily, Monday through Friday, holidays excluded. Plant operational personnel are on duty 24 hours per day. Descriptions of the key managers at the plant and their responsibilities are provided below.

4.1.1 General Manager

The General Manager has direct responsibility for operation of the facility in a safe, reliable, and efficient manner. The General Manager, or designee, becomes the Crisis Manager and is authorized to declare an emergency, initiate the appropriate response, and assign a Recovery Manager when emergency conditions no longer exist. (The duties and responsibilities of the Recovery Manager are addressed in Section 9.)

4.1.2 Transfer and Shipping Plant Manager

The Transfer and Shipping Plant Manager is responsible for day-to-day production activities at the site including operations, maintenance, work control, and production support. The Transfer and Shipping Plant Manager acts for the General Manager in the General Manager's absence or as directed by the General Manager.

4.1.3 Operations Manager

The Operations Manager is responsible for the operations of the enrichment cascade, plant utilities, chemical services, integrated plant scheduling, and feed and product facilities. This includes activities such as ensuring the correct and safe operation of the UF_6 processes; proper receipt, storage, handling and onsite transportation of UF_6; providing utilities for the cascade and support facilities; and providing chemical cleaning and decontamination services; and shift operations.

4.1.4 Production Support Manager

The Production Support Manager is responsible for technical functions in direct support of plant activities. These include radiation protection, laboratory analysis services, and waste management services. The Production Support Manager is also responsible for establishing and implementing the environmental monitoring program, the site environmental protection program, and industrial and chemical safety programs at the facility. This includes activities associated with environmental compliance, occupational safety and health, industrial safety, chemical safety and industrial hygiene.

4.1.5 Maintenance Manager

The Maintenance Manager is responsible for planning and providing safe and reliable performance of preventive, predictive, corrective maintenance and support services on plant facilities and equipment.

4.1.6 Plant Services Manager

The Plant Services Manager is responsible for emergency management, plant fire and police services, security, medical services, records management and document control.

4.1.7 Engineering Manager

The Engineering Manager is responsible for engineering activities in support of operations including design, fabrication, and construction and project management of plant modifications or additions; systems and reliability engineering; nuclear safety; and the configuration management program. Responsibilities also include project management, construction, and coordination of large project plant modifications or additions.

4.1.8 Training Manager

The Training Manager is responsible for the training and procedures programs.

4.1.9 Nuclear Regulatory Affairs Manager

The Nuclear Regulatory Affairs Manager is responsible for the day-to-day interface with NRC representatives on matters of regulatory compliance. As delegated by the Director, Nuclear Regulatory Affairs, the Nuclear Regulatory Affairs Manager has responsibility for coordinating certification related and certificate renewal-related activities. The Nuclear Regulatory Affairs Manager is also responsible for the plant's corrective action and commitment management program, including administration of the problem reporting system.

4.1.10 Shift Operations Manager

The Shift Operations Manager oversees the activities of the Plant Shift Superintendents and has the responsibility and authority to make decisions to assure safe operation of the plant.

4.1.11 Nuclear Safety and Quality Manager

The Nuclear Safety and Quality Manager is responsible for implementing and directing independent assessments, quality systems, quality control, nuclear material control and accountability, and nuclear safety assurance.

4.1.12 Emergency Management Manager

The Emergency Management Manager is responsible for ensuring that the emergency management program is designed to comply with Federal, State, and local regulations.

4.1.13 On-Duty Plant Shift Superintendent

The on-duty PSS responsibilities include operational, technical and/or environmental, safety, and health support functions to uranium enrichment operations. The on-duty PSS reports directly to the Shift Operations Manager, Operations Manager, and Transfer and Shipping Plant Manager.

The on-duty PSS is responsible for making proper notifications of abnormal plant conditions, determining the severity of the event declaring an emergency, and initiating appropriate response. The on-duty PSS acts as the on-scene Incident Commander and subsequently as the Crisis Manager until relieved by a member of management designated in the Emergency Line of Executive Succession.

4.1.14 Assistant Plant Shift Superintendent (APSS)

The APSS responsibilities include operational, technical and/or environmental, safety and health support functions to the plant shift operating staff. The on-duty APSS reports directly to the on-duty PSS.

The on-duty APSS may function as the IC when necessary.

4.1.15 Nuclear Criticality Safety Manager

The Nuclear Criticality Safety Manager is responsible for implementing the nuclear criticality safety program. This position reports to the USEC NCS Manager, who is responsible for the nuclear criticality safety programs at both sites.

4.1.16 GDP Procurement and Material Management

The GDP Procurement and Material Management Manager is responsible for managing the projects, programs, and activities of GDP Procurement and Materials. This includes procurement of supplies and services, packaging and transportation, material control, stores, shipping and receiving, and property disposition.

4.2 ONSITE EMERGENCY RESPONSE ORGANIZATION

The Emergency Response Organization (ERO) is responsible for taking immediate mitigative and corrective actions to minimize the consequences of an incident to workers, public health and safety, and the environment. The ERO is staffed with trained personnel who respond to events and are required to participate in formal training, drills, and exercises. The incident type and severity dictate the level of ERO activation.

The ERO has the following specific functions and responsibilities, depending on the incident and level of response needed to mitigate the problem: event categorization, determination of emergency class, notification, protective action recommendations, management and decision making, control of onsite emergency activities, consequence assessment, medical support, emergency public information, activation and coordination of onsite response resources, security, communications, administrative support, and coordination and liaison with offsite support and response organizations.

The ERO is divided into functional groups as follows:

1. Field ERO,
2. EOC cadre, and
3. Joint Public Information Center (JPIC).

Members of these groups are assigned to on-scene response locations and emergency response centers such as the EOC. Emergency assignments correspond as closely as possible to daily duties. Primary and alternate personnel are assigned to the ERO positions. Assignments are updated periodically. Management ERO positions in each group provide oversight and final authority in the group's decision-making process.

4.2.1 Direction and Coordination

The initial ERO consists of the appropriate shift personnel with the PSS or designee as IC. Upon classification of the emergency as an Alert or SAE, the PSS becomes the CM and maintains overall control of the plant during the emergency until relieved. Once the EOC is operational, the General Manager, or designee, relieves the PSS as CM and the overall control of the emergency shifts from the PSS to the CM.

The PSS conducts transition and turnover of command and control authority and responsibility of the CM function in a formal manner by use of specially developed procedural checklists and, if possible, face-to-face briefings. A primary and alternates are identified for the CM.

The order of succession for the CM position is identified in an EPIP and includes the following:

1. PSS
2. General Manager
3. Transfer and Shipping Plant Manager
4. Others as designated by the General Manager and trained and qualified as CM.

Because of the importance of some emergency responsibilities, these responsibilities may be performed only by the ERO position assigned to address them. The following responsibilities are transferred when the overall responsibility for emergency response is transferred.

1. Emergency Classification — Initially this is a PSS responsibility as CM. Once the EOC is operational, this responsibility is transferred from the PSS to the CM in the EOC.

2. Protective Action Recommendations — Initially this is a PSS responsibility as CM. Once the EOC is operational, approval of offsite protective action recommendations is transferred to the CM in the EOC.

3. Facility Activation — The PSS or designee is responsible for directing activation of the EOC. The EOC is automatically activated for Alerts and SAEs and may be selectively activated for other emergencies related to non-NRC-regulated activities.

4.2.2 Onsite Staff Emergency Assignments

4.2.2.1 Plant Field Emergency Response Organization

Capability for initial site-level response prior to EOC activation is provided by the following:

1. PSS personnel,
2. Protective Force personnel,
3. Fire Services personnel,
4. Emergency squad personnel, and
5. Local emergency director.

Fire Services personnel are trained and have experience in fire fighting, HAZMAT response, health physics, environmental response, and emergency medical treatment. Plant emergency squad personnel are trained in basic fire fighting response. Figure 4-2 illustrates a typical plant initial on-scene ERO. In addition, shift personnel can provide support for various technical areas, such as operations and maintenance activities.

4.2.2.2 Emergency Operations Center Cadre

The Emergency Operations Center (EOC) cadre provides the external support to the IC and provides information to Federal, State, and local government agencies. Specifically, the EOC cadre provides additional technical expertise in engineering, radiological/hazardous materials monitoring and assessment, logistics support, such as transportation, food, communications, materials, and supplies, and other needed services.

The EOC is the primary facility for coordinating onsite response and mitigation and offsite interface activities. Senior managers confer, provide personnel and materials, coordinate activities, and communicate with onsite and offsite personnel. A support staff serves on the EOC cadre and provides technical advice to other members of the EOC staff and to the IC at the scene.

The EOC cadre is updated by the Crisis Manager by the use of the EOC Briefing Checklist, which is part of the Emergency Operations Center Concept of Operations Procedure.

4.2.2.3 Joint Public Information Center

The Joint Public Information Center (JPIC) is activated at the declaration of an SAE or for other events that may generate significant interest from the media. This organization provides for timely information dissemination to the media and to the public regarding a plant emergency.

4.3 LOCAL OFFSITE ASSISTANCE TO FACILITY

The severity of some emergencies may warrant the use of offsite individuals, organizations, and agencies. As a result, letters of agreement (as identified in Appendix B) have been entered into with offsite groups to provide assistance in the event of an emergency. These support services encompass areas such as medical assistance, fire control, evacuation, and ambulance services. When the PSS or designee or CM determines that offsite assistance is needed, the appropriate organization is notified and assistance is requested. Properly trained members of the ERO which conduct these notifications and requests for assistance include but are not limited to the PSS or designee, APSS, and EOC Coordinator . Plant protective force personnel provide site access control and escort support for the responding offsite organizations. TLD's will be provided to off-site responders as required when entering the CAA. Necessary emergency information is provided to the responding organizations, including potential hazards associated with the incident.

The offsite emergency support organizations are described in the following subsections.

4.3.1 Medical Support

In certain instances, medical emergencies may require the transport of an injured person from the plant to an offsite medical facility. Transportation of injured persons to the medical facility is normally provided by the plant's onsite ambulance. To maintain a state of readiness the onsite ambulance is tested for operability and inspected for response capability on a daily basis.

In the event the onsite ambulance is not available, the Pike County Emergency Medical Service provides the transportation of injured persons to an offsite medical facility. This includes contaminated injured onsite workers. Ambulances are equipped with radios to maintain communications with local hospitals. The primary medical facilities for injured personnel with or without contamination are Pike Community Hospital, Southern Ohio Medical Center, and Medical Center Hospital. These hospitals have agreed to accept injured personnel or victims of radiation/hazardous materials-related accidents for emergency medical and surgical treatment and observation. These hospitals are notified by telephone or radio of the need for offsite assistance.

4.3.2 Fire Support

When the PSS or designee or CM determines that offsite fire support is needed, the applicable offsite fire departments are notified by telephone call or radio transmission to the Pike County Sheriff's Office.

The offsite fire departments include Beaver Fire Department, Benton Township Fire Department, Camp Creek Fire Department, Elm Grove Fire Department, Jackson Township Fire Department, Pebble Township Fire Department, Pike Forest Fire Department, Piketon-Seal Township Fire Department, Scioto Township Fire Department, Stockdale Fire Department, and Waverly Fire Department. These fire fighting groups have agreed to furnish the plant with fire-fighting personnel and necessary resources upon request. The fire services are under the direction and control of the plant PSS or designee, who retains responsibility for the overall on-scene emergency response effort. In instances when offsite fire-fighting assistance is needed to fight a fire involving radioactive/hazardous materials, radiological/toxicological information and assistance is provided by knowledgeable members of the plant ERO.

4.3.3 Law Enforcement Assistance

The nature of an emergency may require that the local law enforcement agencies be activated to assist in the emergency response effort. The Pike County Sheriff provides local law enforcement assistance through a written agreement. The emergency support may include the following:

1. Furnishing personnel and equipment as necessary to supplement the protective force,
2. Controlling access to areas affected by the emergency,
3. Directing area evacuation, and
4. Responding to bomb threats.

4.4 COORDINATION WITH PARTICIPATING GOVERNMENT AGENCIES

Coordination between the local, state, and plant emergency plans serves to better ensure the safety and health of the general public. It also enables emergency organizations to participate in the emergency effort with a minimum of confusion and hesitation. During an emergency effort, participating agencies must have a clear picture of their responsibilities which are provided for in their respective emergency plans and procedures. Appendix C provides a list of supporting documents.

Emergency Management coordinates required emergency planning activities directly with these organizations and agencies. Emergency management personnel offer to meet at least annually with each offsite response organization to review emergency plans and procedures and any changes relevant to the plant's emergency management program. Plant emergency action levels, notifications, and the overall response coordination process are discussed at these meetings. Response roles of the key agencies are summarized in this section.

4.4.1 State of Ohio Government Interfaces

The State of Ohio's Emergency Response Annex for Events at DOE Facilities provides guidance on dealing with all types of disasters or incidents and outlines the state response to incidents at PORTS. The Ohio Emergency Management Agency (EMA) is responsible for coordinating overall state response and overseeing the local implementation of recommended protective actions. The EMA also assists the Governor in formulating policy, establishing priorities, gathering and analyzing information, monitoring the execution of planned actions, and directing modifications as necessary. The Ohio State Highway Patrol provides support to offsite law enforcement agencies as requested. The Ohio Department of Health coordinates hazard assessment and is the principal contact for technical information and recommendation of protective actions. The Ohio EPA oversees removal and disposal of hazardous waste generated as a result of a PORTS emergency.

The State of Ohio has a permanent EOC that has been designed and equipped to be the direction and control center for all major emergencies in the state. The EOC is manned 24 hours a day by operations duty officers and has the capability to provide almost instantaneous communications with key state officials.

4.4.2 Local Government Interfaces

The Pike County commissioners have overall responsibility and authority for conducting county emergency responses and exercises. They serve as the officials-in-charge during an emergency and are supported by the county EOC staff. The county EOC is at the Pike County Airport two miles north of Waverly, Ohio, which is approximately seven miles north of PORTS.

The Pike County EMA director serves as the chief of staff for the county EOC staff. The director is responsible for ensuring that the EOC is fully functional. In addition, the director is responsible for coordinating local government emergency management planning and response activities.

The Pike County commissioners and Pike County EMA director can authorize the opening and staffing of the county EOC. The EOC may be opened and staffed on the threat of an emergency or because of an actual emergency. Minor emergencies may be directed by agency officials from their normal work stations.

Pike County authorities can also authorize the opening and staffing of the JPIC to ensure that the public and media can obtain information during an emergency. Rumor control measures are addressed in specific EPIPs.

Local law enforcement and fire services assistance is coordinated with the director and staff in the county EOC.

Notification and warning points have been established for each local government entity. Local government entities coordinate response efforts from the Pike County EOC.

4.4.3 Federal Government Interfaces

4.4.3.1 United States Nuclear Regulatory Commission

The NRC has established certification requirements applicable to the GDPs to protect the public health and safety from radiological hazards, to provide for the common defense and security, and to ensure adequate safeguards. The NRC also provides regulatory oversight over USEC's uranium enrichment activities to ensure compliance with these requirements, including the emergency planning requirements set forth in 10 CFR 76.91. The NRC Operations Center is notified of any emergency immediately after notification of the appropriate offsite organizations, within one hour after the declaration of an alert or SAE. The NRC evaluates the protective actions taking place and coordinates with USEC and DOE to ensure that all reasonable and appropriate actions are being taken to protect the public health and safety.

4.4.3.2 United States Department of Energy (DOE)

The DOE provides nuclear safety oversight for those activities onsite involving DOE environmental management and enrichment facilities and operations. Additionally, DOE provides control and oversight of activities involving uranium enriched to greater than 10% ^{235}U. Events involving DOE operations or property are reported to DOE's Oak Ridge Operations Office (ORO/DOE). The DOE maintains various emergency response assets capable of providing radiological monitoring and support assistance during an emergency.

4.4.3.3 Federal Bureau of Investigation (FBI)

The FBI has jurisdictional authority for safeguards and security emergencies involving violations of Federal criminal law. A representative of the FBI may assume command and control of these types of emergencies. The FBI Hostage Rescue Team or regional SWAT team may also be provided if requested. The FBI will coordinate all responding Federal law enforcement agencies.

4.4.3.4 Other Federal Agencies

The following Federal Agencies that may be involved in plant emergencies:

1. *Federal Aviation Administration (FAA).* FAA restricts airspace over the plant at the request of the CM or the PSS or designee, as appropriate.

2. *Federal Emergency Management Agency (FEMA).* FEMA is the primary Federal government agency for the administration of planning, preparedness, operational coordination, and recovery programs.

3. *U.S. Environmental Protection Agency (USEPA).* USEPA is the major Federal government agency for the regulation and control of pollution and waste management programs. USEPA provides a Federal on-scene coordinator for significant hazardous materials incidents.

4. *U.S. Occupational Safety and Health Administration (OSHA).* OSHA is the primary Federal government agency for the regulation of nonradiological worker safety.

Figure deleted.

FIELD EMERGENCY RESPONSE ORGANIZATION

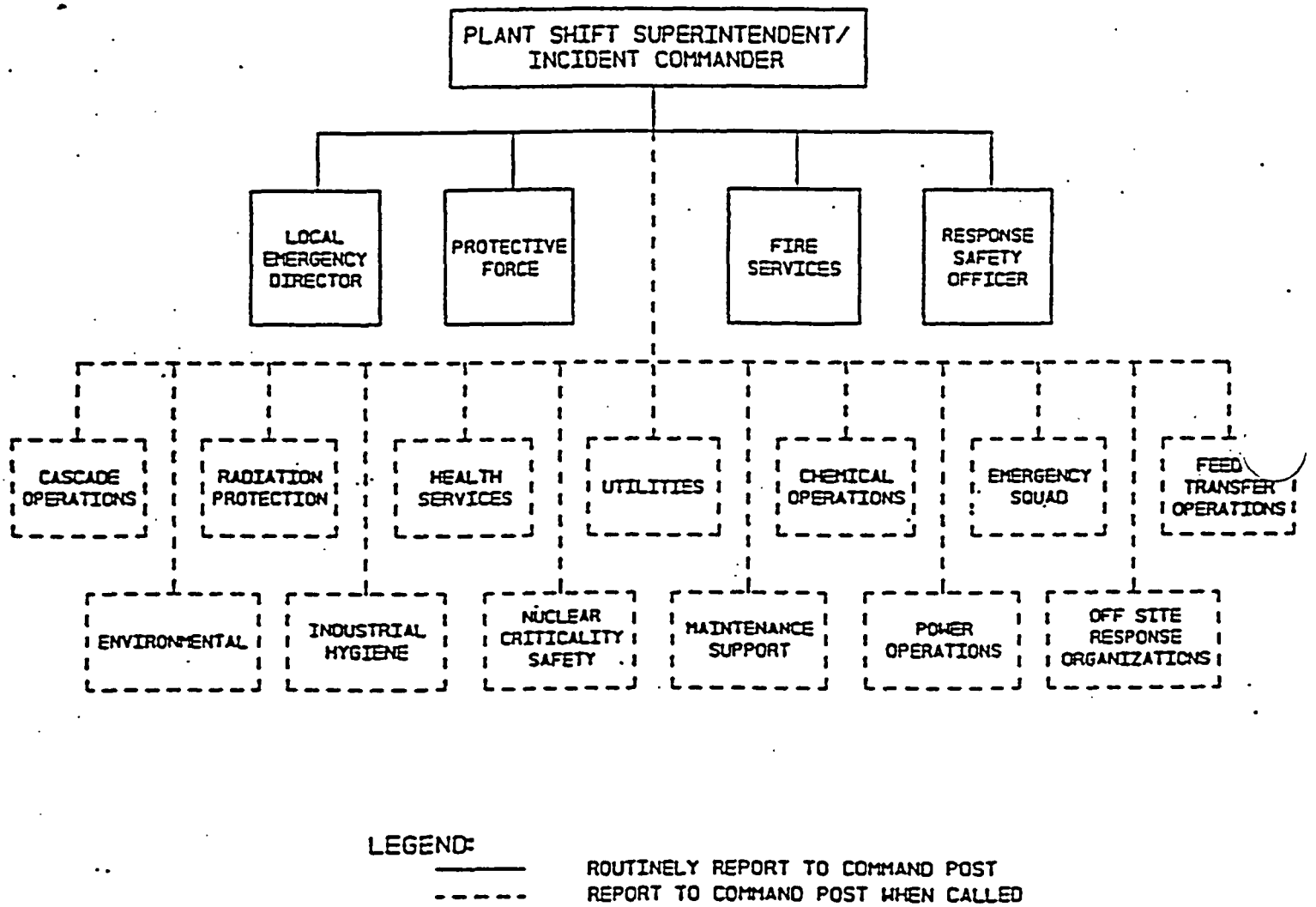

Figure 4-2. Field Emergency Response Organization.

5. EMERGENCY RESPONSE MEASURES

Emergency measures must be taken in response to an emergency. Upon recognizing that an emergency exists, the ERO is activated. Once activation has taken place, assessments of the condition are made, corrective and protective actions are taken, and aid to affected persons is administered as required.

After becoming aware that an emergency exists, the PSS does the following:

1. Takes actions to ensure the safety of plant personnel and the general public,
2. Takes actions to ensure safe operation/activities of the plant,
3. Classifies the emergency and makes the required notifications,
4. Takes actions to ensure that safeguards and security measures are maintained,
5. Takes actions to ensure that material control and accountability measures are maintained,
6. Performs assessment actions, and
7. Performs other emergency actions as appropriate.

5.1 ACTIVATION OF EMERGENCY RESPONSE ORGANIZATION

Upon recognition of an emergency, the PSS, or designee, responds to the incident scene as the IC. The IC determines appropriate immediate protective actions at the incident scene. The PSS classifies the event if applicable. If the emergency is classified as either an Alert or SAE, the PSS as CM activates the EOC. Minimum staffing requirements for activation and operation of the EOC are identified in an EPIP, and must be met prior to assumption of command and control by the crisis management team. CM responsibilities are assumed by a manager designated in the emergency line of executive succession when the EOC is operational. Methods for ERO notification/activation are the same regardless of the time of the emergency and include plant radios, emergency pager system, and telephones. When notified, EOC cadre members are required to respond immediately. ERO activation is accomplished through the appropriate EPIPs.

The CM delegates public information duties to the public information advisor, who, in concert with USEC Headquarters, is responsible for activating the JPIC.

The IC maintains command and control over the specific area response and protective actions. The IC coordinates mitigation and protective action strategy and direction and keeps the EOC informed of the incident status when the EOC is operational.

In the event that two or more emergencies occur simultaneously so that they cannot be managed effectively as a single incident scene, provisions in the appropriate EPIPs allow for the establishment of additional incident scenes, designation of multiple incident commanders, and division of response resources as necessary.

5.1.1 Deleted

5.1.2 Deleted

5.2 ASSESSMENT ACTIONS

This section describes the processes used for assessing the actual or potential onsite and offsite consequences of an emergency. Initial and continuing assessment actions are the responsibility of the PSS or designee. Post-accident assessments are a shared responsibility between the PSS or designee, the CM, and the recovery manager (RM), if assigned.

Continuous assessment throughout the course of an emergency is necessary to effectively coordinate and direct the elements of the ERO. The initial assessment actions are dictated, in part, by the nature and severity of the emergency. Emergency assessment provides an indication of the vulnerability to life, the environment, and property to injury or damage if an emergency occurs. The different assessment actions for Alert and SAEs are described in Sections 5.2.1 and 5.2.2. Equipment used to assess releases is described in Section 6.4.

5.2.1 Assessment Actions During an Alert

An Alert requires basic emergency assessments. Attention must be paid to parameters that may indicate a possible worsening of conditions (e.g., radioactive/hazardous materials releases). The existence of an Alert requires the following initial and ongoing assessment actions as applicable:

1. Increased surveillance of applicable plant instrumentation and visual observation of the incident conditions,

2. Determination of the resources necessary to mitigate the event on the basis of evaluation of reports of damage and injury or by on-scene inspection,

3. Monitoring event conditions for potential changes in emergency classification level.

5.2.2 Assessment Actions During a Site Area Emergency (SAE)

In the event of an SAE, assessment activities are more extensive than for an Alert. During a release of radiological/hazardous materials, assessment of onsite and offsite exposures are performed regularly to determine if and when onsite sheltering or evacuation, or offsite sheltering or evacuation, may be required. The results, including methods and assumptions, are communicated to appropriate offsite officials as offsite protective action recommendations. In addition to the activities that would be carried out during an Alert, the following activities are performed at the direction of the PSS or designee or the CM when the EOC is operational, as appropriate:

1. Performing continuing emergency assessments for mitigating events and protective actions onsite based on on-scene and field monitoring results, release information, and meteorological conditions for radiological/hazardous material releases and

2. For offsite hazardous material releases, providing specific material information, release information, plume direction, projected plume location, appropriate meteorological information, and field monitoring results to responsible offsite authorities.

5.2.3 Post-Accident Assessment

Post-accident emergency assessments are provided by the PSS or designee, the CM, and the RM, if assigned.

EPIPs contain criteria that must be met before recovery can be initiated. These criteria may be radiation readings for criticality events, airborne concentration values for hazardous material releases, or other appropriate identifiable conditions. Concurrence from offsite officials must be obtained before downgrading from an SAE.

In the event of a radioactive or other hazardous materials release, post-accident assessment activities may include monitoring individuals and sampling of water, air, and soil. Personnel involved in an emergency submit urine samples for analyses when the possibility exists for exposure to contamination. Monitoring team personnel conduct fenceline sampling when applicable, depending upon

the location of the emergency and meteorological conditions at the time of the event.

During post-accident assessments, specific recovery goals are identified, such as the removal of contaminated soil or the return of a damaged facility to productivity. These actions may be based on survey or inspection data obtained prior to entry into the recovery phase or based on new data obtained specifically for the proposed recovery goal. See Section 9, for information regarding plant restoration and recovery activities.

5.3 MITIGATING ACTIONS

5.3.1 Personnel Actions

Plant personnel who are technically trained and capable of implementing the plant's emergency plan and procedures perform mitigating actions. Emergency procedures have been established to provide effective response to the various emergency events described in this plan. During emergency conditions, the primary concern is to minimize the impact on plant personnel and the general public. By initiating prompt protective actions, such as evacuating personnel in the immediate incident area and controlling access to the surrounding accident vicinity, consequences to plant workers as well as the general public are minimized. Additional information on protective actions is provided in Section 5.4. Emergency operating and implementing procedures also provide for the proper mitigating actions to reduce or stop releases.

5.3.2 Safe Shutdown

An emergency condition that may have an actual or potential impact on operations may require the safe shutdown of process equipment or systems. The SAR describes the plant systems and instrumentation available for detecting abnormal operating conditions that could result in an emergency and the methods and criteria used to ensure a safe shutdown of plant equipment and systems. The PSS or designee or CM determines which, if any, equipment or systems require shutdown in connection with a specific accident or emergency and takes appropriate action to ensure that the designated equipment or systems are shut down safely and promptly. After an accident or other emergency, the plant is restored to a safe condition before the PSS or designee issues an all clear. The means for ensuring that the plant is in a safe condition include monitoring, visual inspections, and equipment testing.

The period of time involved in a safe shutdown depends on such factors as the location of the emergency, the magnitude of the emergency, and events that caused the emergency condition. Emergency shutdown of isolated areas, such as a ruptured pigtail or feed line, occurs within minutes. If the emergency is of such magnitude that a process building or the entire cascade is shutdown, plant procedures and operating methods are in place that direct personnel on the methodology for the safe shutdown. An emergency crash shutdown of the cascade process can be accomplished in approximately six minutes. An emergency orderly shutdown of the cascade can be accomplished in approximately thirty minutes. The SAR describes various accident scenarios and covers shutdown actions.

The major physical components of the fire protection system consists of water supply system, pumps, sprinkler systems, and fire alarms. Mobile fire equipment is maintained onsite to support fire fighting activities and back up the fixed fire suppression systems. The fire services, using test frequencies established in group procedures, oversees the testing and inspection program for the fire protection system and equipment. Further information pertaining to fire protection is provided in Section 5.4 of the SAR.

In the event of an ongoing release of radioactive or hazardous material, the goal is for personnel to escape from the vicinity without personal contact with the release and assist in ensuring that non-response personnel do not enter the vicinity of the release. In some cases, approved engineering controls are used to mitigate the effects of a minor release, i.e., gulpers at the autoclaves and on the cylinder valve change cart. In other cases, authorized members of the ERO shall take the appropriate actions to reduce and contain the release.

5.4 PROTECTIVE ACTIONS

During emergencies, the PSS or designee or CM must determine the best possible means to limit exposure of onsite and offsite personnel to potential or actual threats, such as radioactive or toxic materials that may be accidentally released to the environment. Guidelines are provided to limit the exposure of personnel in the case of accidental releases to the environment. These guidelines are prescribed according to potential health effects and are called PAGs for radioactive materials and ERPGs for hazardous materials. Specific EPIPs have been developed for the protection of emergency workers and other onsite and offsite personnel.

This section describes the protective actions developed to limit exposure of plant personnel and the public following an emergency. The protective actions to be implemented onsite are the responsibility of qualified plant personnel. In the event of an emergency the PSS or designee notifies onsite agencies such as the Ohio National Guard and Ohio Valley Electric Corporation via telephone. The time of notification will be affected by the location of the emergency and the impact on the operations of these organizations. The appropriate offsite authorities are responsible for providing offsite protective actions.

5.4.1 Onsite Protective Actions

5.4.1.1 Alerting

Whenever it is determined that a threat or potential threat to the safety of personnel on the DOE reservation exists, the PSS or designee directs that persons on the DOE reservation or within a specified area are alerted, whichever is appropriate. Alerting is accomplished by use of the PA system, plant radios, telephones, or if required, by runner. Transients on the DOE reservations (i.e. commercial deliveries, school buses, area residents) will be directed to exit the reservation. The alerting time will depend upon the severity and location of the threat to safety.

5.4.1.2 Personnel Evacuation and Accountability

Protective actions for onsite personnel (including visitors and contractor personnel) include alerting, assembling and accounting for, sheltering in place, evacuating, monitoring, and decontaminating. As previously described, the plant's primary concern is to minimize the impact on plant personnel and the general public.

1. Evacuation. When it is determined that a threat to the safety of plant personnel exists, the PSS or designee or CM may order an evacuation of personnel from affected plant areas. Criteria that should be considered before ordering an evacuation includes wind direction, wind speed, and location of the emergency. Evacuation will be implemented immediately in the event of actuation of the radiation and gas release alarm systems. The evacuation alarm and announcement, including any special instructions, is sounded over the PA system, plant radios, or other plant communications systems as appropriate.

   At the discretion of the PSS or designee or CM, plant personnel, visitors, and contractors will evacuate to a designated assembly point or monitoring station or be sent to reception centers. Personnel are sent to assembly points during non-radiological events. However, personnel report to a monitoring station if the event involves a radiological release. Refer to Figure 1-2, PORTS Plant Layout, for locations of monitoring stations. If a site-wide evacuation is ordered, personnel report to offsite reception centers.

   The PSS or designee will provide directions on the specific evacuation routes. The appropriate selection of an assembly area and evacuation route is based upon plant conditions, wind direction, and weather. Evacuation to offsite reception centers is generally by individually owned vehicles.

   As discussed in this section, emergencies include natural events as well as radiological/hazardous materials incidents. The procedures to be followed in these evacuations are included in the EPIPs, including designation of assembly areas. Provisions are made for consideration of impediments to evacuation caused by weather conditions, traffic, or radiological/hazardous materials release. When sheltering personnel would greatly mitigate the consequences of an emergency, the CM or PSS or designee recommends to shelter-in-place and plant personnel are notified over the PA system, plant radios, or other plant communications systems as appropriate.

2. Accountability. In an emergency, one of the most probable protective actions for site personnel is evacuation of a building or area. Provisions for determining and maintaining the accountability of personnel are established. Search and rescue operations may be initiated if a person is determined to be missing.

   Monitoring stations are identified in Figure 1-2. Personnel permitted unescorted site access are provided training on their assembly/accountability roles and responsibilities. To ensure proficiency, site personnel participate in annual retraining and periodic evacuation and accountability drills.

Visitors that have a current plant clearance/badge are accounted for through their points of contact. Visitors within plant property that do not possess a clearance are assigned to an escort. This escort is responsible for informing the visitors of emergencies when they occur and for taking action as necessary.

Plant employees and contractor personnel are trained on actions to be taken in an emergency prior to their work assignments. Untrained personnel must be escorted by an individual who has received GET emergency preparedness training. The training includes instructions on reporting emergencies and the required actions in the event of an emergency.

3. Search and Rescue. If an accountability reveals that a missing person might be located within the incident area, the PSS or designee may assemble a search and rescue team made up of members of the field ERO. The search and rescue team obtains information on the latest known location, and likely areas are searched until missing persons are located. The PSS or designee directs on-scene search and rescue teams. Teams are briefed prior to entry on their specific mission, route of ingress/egress, area of danger, personal protective clothing/equipment required, and stay times associated with control of exposure to radioactive or hazardous materials.

4. Monitoring and Decontamination. Personnel involved in an emergency shall be required to submit urine samples for analyses when the possibility exists of exposure to contamination. Monitoring team personnel shall conduct fenceline sampling when applicable, depending upon the location of the emergency and meteorological conditions at the time of the event. If decontamination is necessary, decontamination sectors are established using appropriate decontamination equipment. Decontamination and waste disposal are conducted in accordance with specific implementing procedures.

5.4.1.3 Use of Protective Equipment and Supplies

All individuals entering an area during an emergency where airborne concentrations of contaminants are considered immediately hazardous or potentially immediately hazardous to life or health are required to wear appropriate protective clothing and self-contained breathing apparatus. Plant personnel assigned emergency response tasks requiring the donning of protective equipment maintain communications with the PSS, or designee, via the plant radio system, either by hand-held radio or radios within the self-contained breathing apparatus. Protective clothing and other required personal protective equipment are available throughout the plant at predesignated areas. Emergency personnel receive training on donning and using specific protective clothing and related equipment.

Individuals arriving or remaining at the plant during certain emergency situations are provided monitoring equipment, protective clothing, and respiratory equipment. These supplies are on emergency vehicles. Specific procedures dictate the requirements for use of this equipment. The facilities, equipment inventory, and emergency equipment maintenance are described in Section 7.6.

5.4.1.4 Contamination Control Measures

The PSS or designee or CM directs personnel evacuating areas potentially contaminated by an incident proceed to monitoring and decontamination stations. Monitoring and decontamination is performed in accordance with plant procedures. Access to the potentially contaminated area is controlled to provide for plant contamination control.

Contamination control measures for both radiological and toxic materials are implemented in plant procedures.

5.4.2 Offsite Protective Actions

The PSS or designee or CM is responsible for providing protective action recommendations to local officials as part of initial notifications and ongoing communications. These recommendations are based on assessment actions and a thorough understanding of the actual or potential plant conditions. These recommendations can take the form of sheltering in place, evacuation, or advisories that no action is needed.

County officials are responsible for determining and recommending protective actions for the public in potentially impacted areas. If a release of material exceeds the plant reservation boundary, plant personnel provide recommendations based on accident assessment to aid the county in the decision-making process.

The plant is equipped with detection and warning systems to recognize hazardous materials and radiation releases and to warn personnel on and offsite. Upon recognition that a situation exists requiring offsite protective actions, plant personnel recommend protective actions to the appropriate off-site authorities, who in turn are responsible for alerting and notifying persons living within the offsite impacted areas.

The most severe credible accident at the plant would involve the dropping and rupturing of a liquid UF_6 cylinder. During a liquid UF_6 cylinder release incident, the UF_6 reacts with moisture in the air. The resulting hydrolysis products are uranyl fluoride particles and HF gas. An offsite hazard could result from the chemical toxicity of HF and uranium. The radiotoxicity of uranium is insignificant when compared with its chemical toxicity. Analysis suggests that there is some possibility of an offsite hazard from a release of other plant hazardous materials. (Section 2 describes the various types of hazards and their consequences.) In either event, sheltering citizens in the path of the plume can greatly mitigate the consequences.

5.5 EXPOSURE CONTROL IN RADIOLOGICAL EMERGENCIES

In the event of a radiological/hazardous material release, potentially affected personnel are evacuated or sheltered in accordance with an EPIP. A monitoring and decontamination station is established at designated plant locations when directed by the PSS or designee or CM. Plant emergency response personnel perform personnel monitoring and decontamination in accordance with plant procedures.

When releases occur onsite before the evacuation of non-essential personnel can be completed, personnel are routed to the established evacuation/decontamination monitoring stations.

Onsite contamination control measures are described in other plant procedures.

5.5.1 Emergency Radiation Exposure Control Program

5.5.1.1 Radiation Protection Program

This section of the plan describes measures that are used to provide necessary assistance if individuals are injured or radiologically exposed or contaminated.

In certain emergency situations, the acceptance of above-normal radiation exposure may be warranted. It may not be possible to perform corrective/protective actions while maintaining exposures below limits specified in 10 CFR 20.

Although an emergency situation transcends the normal requirements for limiting exposure, there are EPA recommended levels of exposure acceptable in emergencies (set forth in Section 5.5.1.2).

Three categories of risk versus benefit are considered:

1. Saving of human life and reduction of injury,
2. Protection of health and safety of the public, and
3. Protection of property.

The CM authorizes emergency workers to receive emergency doses above the established plant administrative exposure limits. Exposure guidelines for emergency situations are described in the following section.

5.5.1.2 Exposure Guidelines

Exposure guidelines for radiological emergencies are consistent with the U.S. Environmental Protection Agency's PAGs summarized in EPA 400-R-92-001, Manual of Protective Action Guides and Protective Actions for Nuclear Incidents. Exposure guides for toxic/hazardous chemicals have been incorporated in EPIPs and are consistent with the ERPGs established by the American Industrial Hygiene Association for extremely hazardous chemicals.

The following are radiation exposure guidelines:

- Doses to all workers during emergencies to the extent practical, are limited to 5 rem. Justifications for exposing workers beyond the 5 rem limit include the presence of conditions that prevent the rotation of workers or other commonly used dose-reduction methods.
- Emergency exposures are limited to 10 rem for protecting valuable property.

- Emergency exposures are limited to 25 rem for life saving activities and the protection of large populations.

- Emergency exposures in excess of 25 rem are authorized only for rare situations when such exposure is unavoidable in order to carry out a lifesaving operation or to avoid extensive exposure to large populations. Persons undertaking any emergency operation in which the dose will exceed 25 rem to the whole body do so only on a volunteer basis and with full awareness of the risks involved, including the numerical levels of dose at which acute effects of radiation will be incurred and the numerical estimates of the risks of delayed effects. Details for providing this information and for documenting an individual's willingness to volunteer are in an EPIP.

For hazardous material/toxic gas release incidents, the IC and emergency response personnel assess the incident scene and take appropriate protective and mitigative response actions based on available information, such as material safety data sheets, emergency response guidebooks, professional industrial hygiene guidance, and meteorological conditions.

During a UF_6 release onsite, the resulting hydrolysis products are uranyl fluoride particles and hydrogen fluoride (HF) gas. The radiotoxicity of uranium is insignificant when compared with the chemical toxicity of HF and uranium. Therefore, exposure control during an emergency involving UF_6 will be based on chemical toxicity.

5.5.1.3 Monitoring

Provisions have been made for 24-hour-per-day capability to determine uranium uptakes received by emergency personnel. Personnel who may be required to respond to the scene of an emergency are required to wear thermoluminesence dosimeters (TLDs). Issuance of self-reading dosimeters and maintenance of interim emergency whole body dose records are addressed in an EPIP. Emergency worker dose records are maintained in accordance with radiological protection procedures.

5.5.2 Decontamination of Personnel

Onsite personnel decontamination facilities for emergency conditions are equipped with decontamination material and necessary supplies. The primary means of decontamination is through the use of equipment and supplies carried on emergency response vehicles. Other decontamination facilities are located in other areas of the plant. The decontamination facilities have provisions for disrobing, collecting contaminated clothing, showering of contaminated personnel, and donning clean clothing. Onsite personnel contain and process contaminated wastes.

Personnel exiting contamination control zones, contamination areas, high contamination areas, or airborne contamination areas are monitored for contamination. The instruments used for this monitoring procedure are portable contamination survey instruments. If personnel contamination is detected, preventive measures are initiated to mitigate the possibility of the spread of contamination.

5.6 MEDICAL TRANSPORTATION

Injured employees are normally transported to the plant medical treatment facility using a plant ambulance. An onsite ambulance normally provides transportation of injured persons to an offsite hospital. In the event that an onsite ambulance is unavailable, the local offsite ambulance service provides the transportation of injured persons to an offsite hospital.

Contaminated injured persons are decontaminated prior to transport if medical conditions permit. In the event that contaminated injured persons must be transported, contamination control materials and measures are taken to protect response personnel and prevent contaminating the ambulance.

5.7 MEDICAL TREATMENT

In the event of a serious accident requiring medical treatment, local hospitals have agreed to provide the required assistance. The hospitals are equipped to handle the initial evaluation and treatment of radiologically contaminated injured individuals. Upon request from the hospitals, plant Health Physics personnel are dispatched to assist in contamination control and decontamination of the patient, hospital staff, and hospital facilities/equipment. Letters of agreement (listed in Appendix B) have been obtained to document these arrangements.

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6. EMERGENCY RESPONSE EQUIPMENT AND FACILITIES

Emergency planning requires facilities and equipment that allow the emergency organization to perform the following actions:

1. Assess the extent of the emergency,

2. Perform the proper corrective actions to mitigate the effects of the emergency,

3. Perform actions to protect onsite and offsite personnel,

4. Provide information to offsite support agencies, and

5. Perform the proper recovery actions.

Emergency facilities, equipment, and materials are established and maintained to adequately support emergency response operations. Response activities are coordinated at the emergency facilities required to be activated for each particular classification. These facilities and associated equipment are used to coordinate and manage response as well as to assess and monitor functions. Additional facilities provide for specific response activities, such as security, decontamination, medical support, laboratory analyses, and media interface.

6.1 EMERGENCY FACILITIES

Emergency facilities are activated as needed to provide direction and control, offsite resource coordination, and public information for emergencies. Facilities are declared operational when minimum staffing is present and vital equipment is operational, as outlined in procedures. The following are descriptions of facility locations, composition, activation criteria, and functions.

6.1.1 Section Deleted

6.1.2 Plant Control Facility

The PCF is located in building X-300 is used to maintain surveillance and control of operational processes, conduct incident assessment and mitigation, and initially direct protective actions. The PSS or designee who in an emergency becomes the IC directs response actions of the PCF staff. The PSS or designee provides command and control over the specific incident area response. PCF personnel under the direction of the PSS or designee are responsible for initially performing the following duties until the EOC is operational:

1. Assessing abnormal conditions,

2. Notifying EOC personnel,

3. Making offsite notifications,

4. Activating the public warning system if necessary,

5. Performing corrective actions,

6. Directing plant operations, and

7. Implementing onsite protective actions.

6.1.3 Command Post

The Command Post is a distinctly marked vehicle or specific area equipped with communications capabilities and other resources required to manage the incident. The Command Post provides the PSS or designee and emergency response personnel with a location as close as possible to the actual scene from which they can operate and assess the situation.

Uncontrolled events, such as meteorological changes or escalation of the emergency, may cause the relocation of the Command Post.

6.1.4 Emergency Operations Center (EOC)

The EOC is the onsite facility for the overall management of the emergency response. The EOC, a dedicated facility located in building X-1020, is the primary facility for coordinating onsite response and mitigation and offsite interface activities.

The PSS or designee activates the EOC for Alerts and SAEs. In addition, the EOC may be activated for other emergencies at the discretion of the PSS or designee. Once operational, the EOC provides coordination and management for the overall site emergency response. The EOC communicates with USEC and Federal, State, and local organizations.

The CM directs activities at the EOC and is supported by the EOC Coordinator. The EOC Coordinator is responsible for coordination of EOC functions and communications.

EOC personnel are responsible for performing the following functions:

1. Technical interactions with offsite Federal, State, and local officials,

2. Generation of emergency information for public information activities,

3. Ensuring required support to the incident scene, and

4. Coordination of support for onsite response and mitigation.

The plant has planned for and has established alternate EOCs in the unlikely event that the primary EOC, the X-1020 building, becomes uninhabitable due to a radiological/toxic materials release. The requirements, responsibilities, and activities pertaining to the activation of an alternate EOC are described in the EPIPs.

The alternate EOC is located in the X-300 PCF. In the unlikely event that the EOC is evacuated, the key EOC personnel evacuate the area and relocate to the alternate EOC in accordance with the EPIPs and direction from the PSS or designee or the CM. The plant mobile communications vehicle may also be used as an alternate EOC.

6.1.5 X-104

The X-104, serves as a focal point for security activities during an emergency. The X-104 is operated on a 24-hour basis and is, therefore, immediately available to support emergency security operations. The Shift Commander is responsible for coordinating activities and communications and reports to the Plant Services Advisor. The Shift Commander performs the following functions:

1. Dispatches protective force personnel,

2. Maintains communications with the protective force officer at the emergency scene,

3. Advises protective force personnel management, and

4. Advises the EOC staff.

6.1.6 Decontamination Facilities

Specific facilities, resources, and provisions for the decontamination of personnel, vehicles, and equipment are provided. These facilities are located, designed, and equipped to handle potential emergencies identified in the Emergency Plan.

6.1.7 Joint Public Information Center

The JPIC is the designated location for the dissemination of official information about the emergency to the media and to the public. The JPIC accommodates the following:

1. Coordination of information with interfacing Federal, State, and local organizations and spokespersons,

2. Press releases and media briefings, and

3. Work space for site personnel, interfacing organization personnel, and representatives of the news media.

The JPIC is located at the Word Alive Fellowship. JPIC operations are described in designated EPIPs.

6.2 COMMUNICATIONS EQUIPMENT

This section describes the communications systems in place to support emergency response. The communications systems are designed to ensure the reliable, timely flow of information and action directives between all parties having a role to play in the mitigation of emergencies. Reliability is provided via redundancy, dedicated communication equipment to preclude delays due to system overload, and routine use and testing of many of the systems, which lowers the probability of undetected system failures. Timeliness of information flow is achieved by prompt notification, predefined lines of communications, predefined emergency action levels and predefined levels of authority and responsibility. The communications network is formulated around this basic concept and is designed to channel information directly to the key parties having closely related functions, thus eliminating errors often associated with second-hand information. The essential communications links are manned continuously and are periodically tested to ensure availability. The communications systems in place include the following:

1. Commercial telephone system,

2. Facsimile machines,

3. STU-III secure phone,

4. Radio repeater networks for plant groups,

5. Mobile communications system,

6. Two designated pagers programmed for weather advisories,

7. Local emergency response agency radio networks,

8. PA system,

9. Cellular telephones,

10. Pagers, and

11. Public Warning System.

6.2.1 Onsite Communications

The telephone systems serve as the primary emergency communications systems. Maintenance and operational testing of primary and alternate communications systems are described in Section 7.6.

6.2.1.1 Telephone Systems

The administrative telephone system provides business and emergency communications. The telephone system consists of single line, multiline, and programmable digital units. The EOC telephones are tested by Emergency Management personnel.

STU-IIIs provide secure voice communications to onsite and offsite users of other STU-III telephones. It can also operate as a normal telephone in the "clear" mode.

Cellular telephone service is available from the plant site. Certain emergency response vehicles are equipped with cellular telephones and emergency response personnel also have access to other cellular telephones. This service also provides back-up for the plant telephone system.

6.2.1.2 Public Address (PA) System

A PA system is in place with the capability to cover most occupied site buildings. During emergencies, the system is not used for routine traffic. The system is tested daily. Two-way radios, telephones, and runners are used to communicate with individuals who are not covered by the PA system.

6.2.1.3 Radio Systems

Radio systems that support emergency response include system title, call sign, frequencies, and locations. Radio systems for the most part are used on a daily basis throughout the plant and problems are addressed as they occur. Operational console checks and quarterly drills are used to test the systems. Radio net communications are recorded 24 hours a day.

Some plant radio frequencies are compatible with offsite frequencies and are capable of supporting emergency communications between onsite emergency responders and offsite mutual aid organizations.

6.2.1.4 Pager System

Key EOC personnel have pagers which provide access from any tone-type telephone, can relay return telephone numbers or coded responses to the holder of the unit. Pagers are used frequently for non-emergency use, which enhances the regular testing program.

6.2.2 Offsite Communications

The plant uses the commercial telephone system for offsite emergency communications. The plant's alternate means of emergency communications with offsite authorities include cellular telephones and the plant radio system.

The public warning system, consisting of outdoor warning sirens and emergency alert system announcements, is used to provide emergency notification to the public. Inaudible testing of the public warning system sirens occurs on a monthly basis, and audible testing is conducted semiannually.

6.2.3 Mobile Communications Vehicle

In addition to the fixed communications system at PORTS, a mobile communications vehicle is available to provide communications support during any on- or offsite emergency. When the vehicle is activated, a three person crew provides round-the-clock operation of the vehicle's communications and technical functions, security, and on-board power source. This provides a remote communications capability.

6.3 ONSITE MEDICAL FACILITIES

The plant maintains medical coverage consistent with the activities being conducted onsite. In an emergency, off-duty medical personnel are notified and directed to required locations as needed. The PSS or designee notifications include alerting appropriate occupational health services and medical personnel in the event of emergencies ranging from industrial accidents to toxic or radiological releases. Letters of Agreement are maintained with area hospitals. These offsite hospitals also have facilities, equipment, and supplies for the treatment of contaminated individuals. A summary of the medical resources follows.

A plant medical facility is maintained onsite during the day shift excluding weekends and holidays. This facility has the supplies, equipment, and personnel to treat most injuries. This includes capabilities for the treatment of contaminated individuals including a shower for contaminated ambulatory patients, radiation survey instruments, and decontamination supplies. Medical personnel assess patient condition, provide necessary emergency care, and determine appropriate supplemental treatment.

Health Services personnel are available during the day shift hours with plant fire fighters providing emergency medical coverage the remainder of the time. Health Services personnel may be called onsite during off shifts, as deemed necessary.

Emergency medical technicians provide ambulance service. Additional ambulance support is available from offsite. Emergency air ambulance service is also available upon request from plant personnel for transport of injured non-contaminated personnel.

6.4 EMERGENCY MONITORING EQUIPMENT

The plant maintains various radiation detection equipment onsite for normal and emergency response use. Criticality accident alarms have been placed in those areas and facilities containing fissile material as described in Section 5.2 of the SAR. The criticality accident alarm system provides for radiation detection and an alarm system to alert plant personnel.

Persons requiring radiation exposure monitoring wear beta-gamma-sensitive dosimeters (TLDs), which are processed and evaluated by a processor holding current accreditation from the National Voluntary Laboratory Accreditation Program of the National Institute of Standards and Technology. These personnel exposure monitoring dosimeters are exchanged and analyzed in accordance with Section 5.3 of the SAR. As appropriate, other types of dosimeters (e.g., finger rings, direct-reading dosimeters, and neutron dosimeters) are used.

Radiation dose rate and contamination survey instruments used are appropriate to measure the types and energies of radiation encountered at GDPs. Instruments capable of supporting radiography operations are also maintained in inventory.

Instrumentation includes alpha/beta count rate and scaler instrumentation as well as ion chambers used to evaluate personnel exposure.

Radiological instruments are calibrated routinely as specified in procedures.

Designated plant emergency vehicles responding on scene and containing necessary emergency equipment and supplies ensure that personnel and monitoring equipment are readily available to emergency personnel. This equipment and supplies include count rate monitors for measuring contamination, dose rate monitors for measuring radiation, and portable airborne monitors. This equipment is tested daily.

Monitoring stations are strategically located onsite for evacuation during radiological events. Emergency monitoring equipment is stored and always available at each monitoring station.

In addition to radiological monitoring equipment, the plant maintains emergency monitoring instrumentation for chemically toxic material releases. These instruments are maintained in dedicated emergency response vehicle kits and will also be supplied from the plant's inventory of routinely used monitoring equipment.

The primary source of meteorological information is the X-120 South Weather Station consisting of a tower with a data terminal, a data acquisition system, and meteorological sensors located at ground level, 10 meters, 30 meters, and 60 meters. This system measures wind speed, wind direction, and temperature. It also automatically measures temperature differential, humidity, stability, and precipitation. The data is displayed in the PCF and displayed and recorded in the EOC. Refer to Figure 1-2 for the location of the X-120 South Weather Station. Meteorological data is used to ensure safe emergency scene response (from the upwind direction), facilitate plume dispersal modeling, and to enable appropriate protective action recommendations in the event of an airborne release.

Weather forecasting information is also available at the X-300 Plant Control Facility via commerical telephone call to the National Weather Service in Wilmington, Ohio. Weather forecasts are used to inform plant personnel of impending related hazards, driving hazards, and may be used to inhibit proposed plant evolutions such as cylinder movements.

7. MAINTAINING EMERGENCY PREPAREDNESS CAPABILITY

This section describes the responsibilities for developing, maintaining, and updating the plan and EPIPs and for maintaining emergency preparedness capability.

7.1 WRITTEN EMERGENCY PLAN AND PROCEDURES

Emergency Management is responsible for maintaining and updating the Plan, as appropriate, in support of the application for renewal of the certificate of compliance. USEC may make changes to the plan without prior commission approval if the changes do not decrease the effectiveness of the plan. USEC will furnish these changes to the NRC in accordance with 10 CFR 76.5 and to affected offsite response organizations within six months after the change is made. Emergency Management controls the distribution of the Emergency Plan to ensure that groups having responsibilities for response functions are included in the distribution.

Most EPIPs are level 2 plant procedures and are revised, reviewed, approved, controlled, and distributed in accordance with plant administrative procedure requirements. In part, these requirements ensure that new or revised EPIPs state duties, responsibilities, and actions to be taken by individual groups or individuals in response to an emergency condition. Level 2 procedures are required to be reviewed by subject matter experts and personnel in affected areas and are approved by the General Manager. Level 2 procedures are distributed to each controlled procedure set holder. The revisions of the procedures incorporate required changes to correct deficiencies identified in emergencies, training, drills, or exercises.

7.2 TRAINING

The Emergency Management Manager is responsible for administering the emergency management training program. A series of course modules has been developed for onsite training programs.

Personnel assigned to the ERO are required to satisfactorily complete an initial training program followed by retraining. Required continuing or refresher training is conducted biennially, except for firefighting, hazardous material emergency response, and emergency medical recertification which are described in an applicable implementing procedure. A physical examination and respiratory protection training are prerequisites to both firefighting and hazardous material emergency response initial and refresher training. The initial training program is composed of a collection of functional modules, which emergency personnel receive based on their emergency assignment. Specific training requirements are defined in the Training, Development and Administrative Guide for the Emergency Management Training Program.

A formal training record retention program has been established and is maintained for ERO members, support personnel, and offsite agency response organizations. Evaluation records for each course are maintained for incorporation into upgrades of the program.

The Emergency Management staff participates in professional emergency management development training activities and other related training.

7.2.1 General Emergency Plan Training

USEC and DOE personnel (excluding visitors) are required to attend General Employee Training on a biennial basis. USEC and DOE contractors, subcontractors, and tenant organizations are required to attend emergency preparedness General Employee Training on a biennial basis.

All site personnel allowed unescorted access complete emergency preparedness General Employee Training to ensure proper response to emergencies. The subjects covered include the following:

1. Emergency plant safety objectives and priorities,

2. Ways to report emergencies,

3. Recognition and correct responses to plant alarm signals,

4. Evacuation guidelines for radiological and nonradiological emergencies,

5. Methods of personnel accountability, and

6. Personnel responsibilities during emergencies.

The PORTS Training Group provides services to DOE and DOE personnel for the training of non-USEC personnel. This training is documented by hard copy records and entered into an electronic database. The database identifies when training for individuals is due and this information is given to DOE and DOE contractor contacts. These contacts then notify the affected personnel that they need to schedule themselves into refresher training sessions. Only those individuals who enter the security controlled area of the plant site are subject to direct control of their training through the denial of access to the site if training is not up-to-date.

7.2.2 Specialized Emergency Plan Training for the Emergency Response Organization

A formal training program, which includes classroom-type training (lectures, seminars), practical applications (tabletop drills, functional drills, and exercises), and self-study programs has been developed for the ERO and support personnel. The ERO receives training commensurate with assigned positions. This training program ensures the continued emergency management training of persons who may respond/participate during a plant emergency. Specialized emergency management training is provided and includes but is not limited to the following categories of topics:

1. Emergency Management Overview. This course provides an orientation to the PORTS Emergency Management Program. Subjects covered in this training include emergency response, responsibilities and authorities, requirements, facilities and equipment overview, and offsite interface summary. This course is provided initially.

2. Operational Facility Training. This course covers the operation of the EOC during a declared emergency, including the interface with the Incident Commander and an overview on communications with onsite support groups and offsite agencies. This course is provided initially with biennial retraining requirements.

3. Credible Emergencies. This course covers the response to a threat to the facility of a bomb threat, tornado, or earthquake. This course is provided initially.

4. Emergency Management Drill and Exercise Participation. This course covers the Emergency Management Drill and Exercise Program. This course is provided initially with biennial retraining requirements.

5. Emergency Classification and Protective Actions. This course covers the event classification systems and PORTS EALs. The course also provides instruction about onsite and offsite protective actions. This course is provided initially with biennial retraining requirements.

6. Emergency Notifications/Communications. This course is provided to those personnel who are responsible for preparing, approving, and/or conducting emergency notifications to on- and offsite authorities. This course is provided initially with biennial retraining requirements.

7. Operational Facility Support. This course provides instruction about how to use the communication and computer equipment available at EOC positions. This course is provided initially.

8. Emergency Response Activities. This course provides emergency response activities being directed from other than the EOC and subsequent responsibilities and authorities following the exit of an emergency classification. This course is provided initially with biennial retraining requirements.

The Emergency Management Training procedure establishes the requirements for the formal Emergency Management training program. The procedure is supplemented by the Training, Development and Administrative Guide for the Emergency Management Training program. Specific emergency training requirements for each position are described in the Training, Development and Administrative Guide, which includes schedules and lesson plans for the emergency management training, frequency of retraining, and the number of hours of initial and retraining that are provided to the ERO.

7.2.3 Offsite Emergency Management Training

Training is offered biennially by letter of invitation to emergency support organizations that may be called upon to respond to emergencies at the plant. These agencies include local fire, law enforcement, ambulance, and hospital services. Personnel from other plant groups such as Training, Health Physics, Security, Operations, and Fire Services provide assistance as needed. This training includes the following topics as a minimum:

1. Site-specific information on hazards, onsite and offsite protective actions, and emergency response from personnel or organizations augmenting the ERO,

2. Orientation tours, and

3. Information briefings for the news media on operational emergencies, site-specific hazards and responses, site points of contact, and procedures for the release of information in the event of an emergency.

7.3 DRILLS AND EXERCISES

Emergency management drills and exercises are conducted to develop, maintain, and test the response capabilities of emergency personnel, facilities, equipment, procedures, and training.

A drill is a supervised instruction session that develops, tests, or maintains a specific emergency response capability using a limited scope scenario. Drills are held quarterly and involve decision-making and actions by participating personnel to simulate emergency conditions but do not involve offsite response personnel.

An exercise is a training session that tests the integrated capability of all or most of the basic elements existing within the emergency plan and EPIPs. Exercises use scenarios that are wider in scope than drills and may involve offsite response personnel and agencies.

Drills and exercises are conducted by persons trained in the control and evaluation of drills. Controllers and evaluators are assigned to various locations if a drill or exercise involves simultaneous activities at more than one location. Evaluators are provided with criteria for acceptable performance to evaluate the performance of participants.

The Emergency Management Manager has overall responsibility for implementing a coordinated program of emergency drills and exercises identified in an EPIP. The EPIP requires Emergency Management to promulgate a drill and exercise schedule annually, which identifies drill/exercise category, shift/group, and tentative dates. Management personnel are responsible for ensuring that employees under their oversight are available to participate in drills and exercises. Personnel are required to participate in drills and exercises in a safe and realistic manner.

The Emergency Management Drill and Exercise Committee is responsible for exercise scenario development, establishing a planning schedule, and identifying participants and evaluators. The committee is chaired by a representative of Emergency Management and consists of members representing the areas of Security , Fire Services, PSS staff, and others as appointed.

Members of the ERO are required to participate in drills and exercises. This requirement is met if the activated personnel of the ERO respond to an emergency and meet response objectives, keep records, and critique the response.

7.3.1 Biennial Exercises

Plant personnel plan and conduct biennial exercises. Offsite response organizations and the NRC are invited to observe or participate in these scheduled exercises.

An exercise is an event that tests the integrated capability of the basic elements existing within emergency plans and organizations. An exercise simulates an emergency resulting in potential or actual offsite impacts that may require response by offsite authorities.

An exercise scenario manual containing relevant documentation will be developed for each drill and exercise. The drill/exercise scenario contains a preplanned description of the accident to be used, prepared according to the scope and objectives of the drill/exercise. Each scenario describes a hypothetical situation that serves as the basis for emergency response actions. Scenarios are varied from year to year and are designed to minimize simulation. No scenario information is given to participants prior to a drill or exercise.

The exercise scenario manual is provided to the NRC at least 60 days before the exercise.

Drill and exercise controllers and evaluators are trained on the proper conduct of emergency exercises. This training includes information on safety precautions, scenario messages, simulated actions, participant interactions and controller input, evaluation methodology, and critique format.

7.3.2 Quarterly Communications Checks

Communications checks with offsite response organizations are conducted on a quarterly basis and include the checking and updating of necessary telephone numbers.

7.4 CRITIQUES

Formal critiques are conducted for key participants, controllers, and evaluators following each exercise. These critiques are conducted by personnel who were not participants, normally emergency management or contractor personnel.

Emergency Management screens all critique comments. Critique items that have safety significance indicate a regulatory violation or reflect serious deficiencies in plan content or implementation are identified to the PSS and a Problem Report is initiated. Resulting corrective actions are tracked in the plant management tracking system in accordance with plant procedures. The remaining critique items are submitted to the Emergency Management Drill and Exercise Committee, which determines their validity and determines the appropriate method for corrective actions as required by an EPIP.

Emergency Management tracks corrective actions identified by the Emergency Management Drill and Exercise Committee through completion or implementation. Organization managers are responsible for implementing exercise corrective actions in their respective functional areas.

7.5 PROGRAM AUDIT

The Emergency Management Program is audited in accordance with Section 2.18 of the QAP to ensure adequate and effective program function. This ensures that changes in plant layout are included in revisions to the Plan. The scope of the audit includes the Plan and the EPIPS, training activities, exercise deficiencies, emergency facilities, equipment, and supplies, and those records associated with offsite

support agency interface. Audit personnel do not have direct responsibilities for implementing the Emergency Management Program and are qualified according to established procedures.

Procedures provide measures that ensure that audit personnel are provided with appropriate training so that they are competent to perform the required audits. Procedures also require that lead auditors meet the training and experience requirements described in Section 2.2.4 of the Quality Assurance Program. The qualification and requalification of lead auditors is performed in accordance with Supplement 2S-3 to ASME NQA-1-1989. Technical specialists may occasionally participate as audit team members provided that they receive the required indoctrination and guidance during the audit.

Procedures require that Emergency Management investigate adverse audit findings and schedule corrective actions that prescribe measures to prevent recurrence. The auditing organization evaluates the adequacy of the written responses.

Procedures require that follow-up actions be taken to verify that corrective actions be completed as scheduled.

7.6 MAINTENANCE AND INVENTORY OF EMERGENCY EQUIPMENT, INSTRUMENTATION, AND SUPPLIES

Adequate equipment and supplies are kept available, properly stored, and maintained in operable status for emergency response personnel to perform their respective duties and responsibilities. This includes equipment and materials for radiological and toxicological monitoring, protective clothing, fire fighting equipment, sampling equipment, respiratory protection equipment and emergency air supplies, damage control materials, dedicated spare parts, radios, telephones, vehicles, and administrative supplies.

The manager of Emergency Management has an administrative oversight responsibility for the quarterly inventory and inspection of emergency equipment and supplies. Identified deficiencies are corrected in a responsible period of time.

Emergency equipment and instruments are inspected, inventoried, and operationally tested quarterly and after each use. The appropriate groups manually track emergency equipment and supplies, i.e., respirators and medical supplies that have shelf-lives.

Sufficient reserves of emergency equipment and instruments are available to replace emergency equipment that is removed for calibration or repair. Emergency instruments are calibrated at the intervals specified for each type of instrument. A summary report of each inventory and inspection is prepared and submitted as Emergency Management documentation.

7.7 LETTERS OF AGREEMENT

Changes to the Plan are communicated to the appropriate offsite response organizations. Letters of Agreement with offsite support organizations and agencies are reviewed and updated every four years or more frequently if needed. A change in original signatory to a given Letter of Agreement does not in itself require revision of that letter. A change in applicability of content of a Letter of Agreement, however, does require a revision to that letter. Letters of Agreement are identified in Appendix B.

8. RECORDS AND REPORTS

8.1 RECORDS OF INCIDENTS

Event documentation includes the cause of the incident, personnel and equipment involved, extent of injury and damage (onsite and offsite) resulting from the incident, locations of contamination with final decontamination survey results, corrective actions taken to terminate the emergency, measures taken to restore the plant to normal conditions, and action taken or planned to prevent a recurrence of the incident. The documentation includes plant and offsite support assistance requested and received and any program changes resulting from a critique of emergency response activities.

The PSS or designee is responsible for reporting and recording events of abnormal operation, equipment failure, and accidents that lead to a plant emergency. Records unique to a radiological emergency and decommissioning are retained until the certificate is terminated.

8.2 RECORDS OF PREPAREDNESS ASSURANCE

Records are retained and maintained to document readiness assurance. These records include the following:

1. Emergency management training and retraining, including lesson plans and test questions,
2. Drills, exercises, and related critiques,
3. Inventories and locations of fire services emergency equipment and supplies,
4. Maintenance, surveillance, calibration, and testing of fire services emergency equipment and supplies,
5. Letters of Agreement,
6. Reviews and updates of the Plan and
7. Notification of personnel and offsite agencies affected by an update of the Plan or the EPIPs.

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9. RECOVERY AND PLANT RESTORATION

In an emergency, the immediate action is directed toward limiting the consequences of the incident in a manner that affords the maximum protection to plant personnel and the general public. Once the corrective and protective actions have established an effective control over the situation, and emergency conditions no longer exist, the emergency response shifts into the recovery phase.

Emergencies may or may not impact plant operations within the scope of NRC-regulated activities. Therefore, it may be possible to continue operations that are not impacted either directly or indirectly by an emergency situation.

It is the responsibility of the CM to determine when the recovery phase of the emergency can be initiated. The following criteria for terminating an emergency and beginning recovery operations are considered as appropriate:

1. If classified emergency conditions no longer meet any emergency classification criteria (EAL),

2. The affected facility/area is in a stable condition and can be maintained in that condition indefinitely,

3. Fire or other similar emergency conditions no longer constitute a hazard,

4. Releases of hazardous materials to the environment have ceased or are controlled,

5. Discussions with the ERO and appropriate offsite agencies identify no valid reason to continue in any emergency classification.

9.1 RECOVERY

The nature and extent of the emergency determines what recovery operations are required and the extent of the recovery organization that must be formed. A recovery plan must be flexible enough to adapt to the existing conditions. It is not possible to anticipate in advance all of the conditions that may be encountered as a result of the emergency. General principles addressed in this section serve as a guide for developing a flexible plan of action.

Recovery includes those actions necessary to return an incident site and the surrounding environment to preemergency conditions to the maximum extent practical. Specific recovery plans are developed in accordance with the applicable EPIP.

The DOE site manager is responsible for ensuring the adequacy and appropriateness of recovery operations involving nonleased portions of the facility.

9.2 RECOVERY ORGANIZATION

Prior to termination of an emergency and deactivation of the ERO, the CM appoints a recovery manager and a recovery organization is established to implement recovery plans. The recovery manager has

overall responsibility for recovery activities, including ensuring that all safety equipment is checked and restored to normal conditions and evaluating and retaining ALARA records. Other duties of the recovery manager include coordination of interactions with vendors and contractors, approval of special procedures and related training, interfacing with offsite Federal, State, and local officials; and assignment of responsibility for compiling, evaluating, and ensuring retention of all records associated with the event. The key operating and management positions of the recovery organization are listed below:

1. Recovery Manager
2. Advisor, Operations
3. Advisor, Maintenance
4. Advisor, Production Support
5. Advisor, Plant Services
6. Advisor, Engineering
7. Deleted
8. Advisor, Public Affairs
9. Health Physics Personnel
10. Protective Force personnel

Personnel radiation exposures during restoration activities shall be maintained in accordance with the As Low As Reasonably Achievable (ALARA) principle. After the emergency condition no longer exists, a thorough radiological evaluation of the situation shall be performed. Plant radiological protection procedures shall be followed during restoration activities.

10. COMPLIANCE WITH COMMUNITY RIGHT-TO-KNOW ACT

The plant complies with the EPA Superfund Amendments and Reauthorization Act (SARA) Title III regulations, also known as the Emergency Planning and Community Right to Know Act. Specific responsibilities include emergency response planning, emergency release reporting, hazardous chemical inventory reporting, and toxic chemical release reporting.

This Plan and appropriate EPIPs are used during any hazardous chemical release emergencies. Plant administrative procedures have been developed for hazardous materials releases that are not classified as emergencies to ensure that the requirements of SARA Title III are met. Material safety data sheets are maintained in several areas throughout the plant.

Hazardous materials spills or releases are reported to the PSS who responds to the incident scene as IC or dispatches a designee in that capacity. The IC directs the emergency containment of spills. Actions to be implemented are described in appropriate EPIPs and include the following:

1. Evacuate/isolate the area of release/spill activity, as necessary, and determine areas of concern,
2. Classify the emergency if appropriate,
3. Determine if activation of additional ERO personnel is necessary,
4. Take measures to minimize safety concerns,
5. Determine a course of action and personal protective equipment requirements,
6. Initiate containment procedures,
7. Terminate the source,
8. Make appropriate notifications to onsite and offsite officials,
9. Determine material disposal, and
10. Terminate the incident and enter recovery.

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Appendix B

LETTERS OF AGREEMENT

1. Pike County Fire Fighters Association
2. Southern Ohio Medical Center
3. Pike Community Hospital
4. Medical Center Hospital
5. Pike County Emergency Medical Service
6. Word Alive Fellowship
7. Eastern High School
8. Waverly High School
9. Valley High School
10. Western High School
11. Pike County Sheriff

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Appendix C

LIST OF SUPPORTING DOCUMENTS

1. Pike County Emergency Management Agency, *Pike County Ohio Emergency Operations Plan, Annex N, Section 2, Site Specific Response Plan for a Hazardous Chemical Emergency.*

2. Ohio Emergency Management Agency, *State of Ohio Hazardous Materials Emergency Management Plan* and its *Department of Energy Facilities Annex to the State of Ohio Hazardous Materials Emergency Management Plan.*

3. USEC, *PORTS Communications Plan.*

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Appendix D

DEFINITIONS/ACRONYMS

Accident — A deviation from normal operations or activities associated with a hazard that has the potential to result in an emergency.

ACR — Area control room.

ALARA — As low as reasonably achievable.

APSS - Assistant Plant Shift Superintendent.

Assessment actions — Those actions taken during or after an accident to obtain and process information that is necessary to make decisions to implement specific emergency measures.

CAAS — Criticality Accident Alarm System.

CAS — Central Alarm System.

CM — Crisis Manager.

Consequence — The result or effect (especially projected doses or dose rates) of a release of radioactive or hazardous materials to the environment.

Corrective actions — Those emergency measures taken to lessen the severity of or terminate an emergency situation at or near the source of the problem to prevent or control a release of radioactive material or to minimize the damage to plant equipment, e.g., shutting down equipment, fire fighting, repair, and damage control.

Decontamination — The removal of surface radioactive/hazardous material from individuals, equipment, surfaces, etc.

DOE — Department of Energy.

Drill — A supervised hands-on instruction period intended to test, develop, or maintain a specific emergency response capability.

EMA — Emergency Management Agency.

Emergency — Any operational, civil, natural-phenomenon or security event that could endanger or adversely affect people, property, or the environment, which requires a time-urgent response for mitigation.

Emergency Action Level (EAL) — Specific, predetermined, observable criteria used to detect recognize, and determine the class of emergencies. An EAL can be an instrument reading, an equipment status indicator, a measurable parameter onsite or offsite, a discrete, observable event, a result of analyses, another observed phenomenon that indicates entry into a particular emergency class.

Emergency Operations Center (EOC) — An emergency response facility that accommodates personnel acting in support of the command and control functions but separate from the Incident Commander and on-scene command post. Under the guidance of the CM, these personnel supply strategic and corrective engineering and radiological, hazardous materials, and environmental support assistance to the PSS and on-scene emergency personnel.

Emergency Response Organization (ERO) — The designated group of personnel responsible for coping with and minimizing or mitigating the effects of any emergency.

Emergency Response Planning Guideline (ERPG) — A hazardous material personnel exposure level or range that, when exceeded by a short-term or acute exposure, will cause irreversible or other serious health effects in humans. The ERPGs are approved by a committee of the American Industrial Hygiene Association.

EPA — Environmental Protection Agency.

EPIP — Emergency Plan Implementing Procedure.

Event — Any real-time occurrence or significant deviation from planned or expected behavior that could endanger or adversely affect people, property, or the environment.

Exercise — A scheduled and planned large-scale activity that tests the integrated capability and most aspects of the emergency management program.

FAA — Federal Aviation Administration.

FBI — Federal Bureau of Investigation.

FEMA — Federal Emergency Management Agency.

GDP — Gaseous Diffusion Plant.

Hazardous Material (HAZMAT) — Any solid, liquid, or gaseous material that is toxic, flammable,

radioactive, corrosive, chemically reactive, or unstable upon prolonged storage in quantities that could pose a threat to life, property, or the environment.

IC - Incident Commander.

Immediate Notification Area (INA) - An area that extends approximately two miles from the center of the plant in which members of the public would be notified by Public Warning System sirens in the event of an emergency.

JPIC — Joint Public Information Center.

Letter of Agreement — An agreement drawn up between the plant and off-site local governments or other organizations for assistance in the event of an emergency (also called Memorandum of Understanding, Mutual Aid Agreement, Memorandum of Agreement and/or Letter of Assistance).

MSDS — Material Safety Data Sheet.

NRC — Nuclear Regulatory Commission.

NWS — National Weather Service.

PA — Public Address.

PCF - Plant Control Facility.

PGDP - Paducah Gaseous Diffusion Plant.

Plan — The plant emergency plan.

PORTS — Portsmouth Gaseous Diffusion Plant.

Protective action — Physical measures, such as evacuation or sheltering, taken to prevent potential health hazards resulting from a release of hazardous materials to the environment from adversely affecting employees or the off-site population.

Protective Action Guide (PAG) — A radiation personnel exposure level or range beyond which protective action should be considered. PAG values should reflect a balance of risks and costs to on-site personnel, public health and safety, and the environment weighed against the benefits obtained from protective actions.

PSS — Plant Shift Superintendent.

PWS - Public Warning System.

Recovery — Actions taken after the emergency to restore the plant or area as nearly as possible to preemergency conditions.

RM — Recovery Manager.

SAE — Site Area Emergency.

SAR — Safety Analysis Report.

TLD — Thermoluminescence Dosimeter.

USEC — United States Enrichment Corporation.

Appendix E

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ENVIRONMENTAL COMPLIANCE STATUS AND ENVIRONMENTAL MONITORING REPORT

PORTSMOUTH GASEOUS DIFFUSION PLANT

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1. INTRODUCTION

As part of its application for a certificate of compliance, 10 CFR 76.35(g) requires that USEC provide an environmental compliance status report describing the status of Federal, State, and local environmental permits, licenses, approvals, and other entitlements, as well as the compliance status with applicable environmental quality standards and requirements as described in 10 CFR 51.45(d) that are applicable to USEC operations. In addition, 10 CFR 76.35(g) requires that the compliance status report contain available environmental and effluent monitoring data. USEC's Environmental Compliance Status Report for the Portsmouth Gaseous Diffusion Plant (PORTS) is provided below. This report covers the compliance status of PORTS with applicable Federal, State and local permits, licenses and other entitlements through the end of calendar 2002 (CY) 2002. Due to the required schedule for submission of this document, effluent and environmental data and the public dose assessments for CY 2002 will not be available in time for inclusion here. Consequently, the effluent and environmental data and dose assessments for CY 2001 are provided instead.

2. DESCRIPTION AND COMPLIANCE STATUS OF PERMITS, REGISTRATIONS, AND OTHER ENTITLEMENTS, AND OTHER APPLICABLE ENVIRONMENTAL QUALITY STANDARDS AND REQUIREMENTS

USEC is required to operate PORTS in compliance with a number of Federal and State environmental permits, registrations, other entitlements, and other applicable environmental quality standards and requirements. The following matrices (Tables 1 and 2) identify each of the environmental permits that govern USEC activities at the PORTS. They also identify the principal permit limits and contain a summary statement on the status of USEC compliance.

2.1 CLEAN AIR ACT

Pursuant to the Federal Clean Air Act (CAA), as amended, and corresponding State laws and regulations, USEC currently holds four active air permits (Permits-To-Operate) issued by the Ohio Environmental Protection Agency (OEPA). USEC also has 99 "registered" sources, which are sources that fall below State specified criteria and are "registered" by OEPA in lieu of issuing formal permits.

PORTS submitted an original Title V air permit application on September 27, 1996 and has submitted three updated applications since then, the most recent on November 1, 2002. The OEPA is currently reviewing the application and expects to issue a draft permit for comment within a few months with the final permit due by September 1, 2003. The existing state air permits will be superseded by the Title V permit when it is issued.

USEC operations at PORTS are covered under the Federal National Emissions Standards for Hazardous Air Pollutants (NESHAP) for radiological emissions (40 CFR Part 61 Subpart H), which constitutes a "permit-by rule" for all DOE owned nuclear facilities. USEC is in compliance with the NESHAP limits on radionuclide emissions.

As reflected in Column 3 of Table 1, USEC was in compliance with its State air emissions permit limits and conditions during 2002.

USEC is in compliance with Federal regulations issued pursuant to the CAA that govern management of asbestos.

The PORTS fire department conducts its own fire training exercises on property leased by USEC from DOE. USEC is in compliance with its OEPA permit governing open burning for this purpose.

2.2 CLEAN WATER ACT

As of the end of 2002, USEC's NPDES permit encompasses eight external outfalls and three internal outfalls discharging process and storm water from USEC-leased facilities along with four monitoring points in the receiving streams. Permit limits for these outfalls are summarized in Table 2. During 2002, USEC was in compliance with the permit limits with the following exceptions:

Total Residual Oxidants		
Daily Concentration	April 10	Outfall 004
Daily Loading	April 10	Outfall 004
Water Temperature		
Monthly Average	April	Outfall 902 (downstream location in Little Beaver Creek)
Nickel		
Monthly Average Loading	July	Outfall 001
Copper		
Daily Concentration	December 4	Outfall 003
Daily Loading	December 4	Outfall 003

None of the exceedances were considered a significant noncompliance by the OEPA and none had any measurable impact on water quality or aquatic life.

Both of the Total Residual Oxidants exceedances at Outfall 004 were caused by a single high oxidant concentration. The actual source of the oxidants could not be identified. The process associated with this outfall (Recirculating Cooling Water Blowdown) was operating normally at the time of the exceedance and there was no apparent reason for the residual oxidant level to be elevated.

The temperature exceedance at Outfall 902 was caused by unusually warm weather during the month of April. The thermal load added to Little Beaver Creek by PORTS discharges was no greater than normal, but the creek's ability to absorb the load without exceeding the winter temperature limit was greatly reduced by the unusually mild spring. Consequently, the monthly average temperature in the stream was 17°C versus a limit of 16.7°C.

The nickel exceedance was caused by a combination of somewhat elevated nickel concentrations and high flows through Outfall 001. (High metal concentrations at this outfall are usually associated with low flows.) All individual daily concentrations were all well below the applicable discharge limit (a maximum of

403 μg/l versus a limit of 1307 μg/l). The concentrations combined with the flow rates exceeded the monthly average loading limit (0.64 kg/d) however. The actual source of the nickel could not be positively identified.

Both copper exceedances were caused by a single high copper concentration found in the December 4 sample (296 μg/l versus a limit of 98 μg/l). A follow-up sample collected on December 11 contained only 3 μg/l. The only identified source of copper in this outfall (a DOE system using a copper-based corrosion inhibitor) was operating normally at this time.

2.3 RESOURCE CONSERVATION AND RECOVERY ACT

USEC generates hazardous and mixed waste, and complies with all requirements for generators, including accumulation of waste in satellite accumulation areas (SAAs) and accumulation of waste in 90-day accumulation areas (90-DAAs). DOE operates all permitted treatment and storage facilities under a RCRA permit. USEC is currently shipping the majority of USEC-generated hazardous and mixed waste directly from 90-DAAs to offsite treatment, storage, and disposal (TSD) facilities. Until treatment facilities are found for all mixed wastes some USEC mixed waste will be sent to DOE-operated storage units.

USEC was in compliance with RCRA during 2002. USEC was last inspected for RCRA Compliance by OEPA on January 14 and 15 of 2002. The inspector found no violations of RCRA requirements.

USEC is also in compliance with OEPA requirements for management of used oil.

2.4 STORAGE TANKS

USEC operates 7 underground storage tanks (USTs): 6 containing diesel fuel and 1 gasoline. The tanks are registered under and in full compliance with all regulations governing USTs, as issued by the Ohio State Fire Marshall Bureau.

USEC also operates approximately 100 aboveground storage tanks. A Spill Prevention, Countermeasures, and Control Plan has been submitted to the United States Environmental Protection Agency (USEPA) and OEPA for these tanks pursuant to the CWA, and a Facility Response Plan has been prepared pursuant to the Oil Pollution Act of 1990.

2.5 POLYCHLORINATED BIPHENYLS

USEC leases transformers and capacitors from DOE that contain greater than 50 parts per million (ppm) polychlorinated biphenyls (PCBs). Matters regarding the management of equipment, including the clean up of spills from these transformers and capacitors, is carried out by USEC in accordance with the applicable sections of 40 CFR 761. The storage and disposal of PCBs, and attention to spills from unleased articles and containers and historical spills of PCBs are the responsibility of DOE pursuant to a Federal Facilities Compliance Agreement between DOE and the USEPA and the lease agreement between DOE and USEC.

2.6 EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW ACT; RELEASE REPORTING UNDER THE COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT

USEC is in compliance with requirements of the Emergency Planning and Community Right-to-Know Act (EPCRA), including the preparation of an emergency response plan under Section 302, hazardous chemical reporting under Sections 311 and 312, and toxic chemical release reporting under Section 313. In addition, during 2002, USEC had no releases of hazardous substances in reportable quantities subject to the reporting requirements under Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended.

3. NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS

Under the requirements of 10 CFR 61 (NESHAPS) Subpart H, emissions of radionuclides to the ambient air from DOE facilities must not exceed those amounts that would cause any member of the public to receive a committed effective dose equivalent (CEDE) of 10 mrem/year.

In 2001, airborne radionuclide emissions from PORTS due to USEC operations resulted in an estimated annual EDE of 0.05 mrem/year to the most exposed member of the public. This includes both measured releases from the major process vents and estimated releases from smaller vents. As in past years, the maximally exposed sector of the reservation boundary was the ENE sector. The 2002 dose assessment will not be completed in time to be included in this document, but is expected to be comparable to or lower than the 2001 dose assessment.

4. ENVIRONMENTAL MONITORING DATA

In addition to the data required by environmental permits and regulations, USEC monitored environmental media for the purpose of identifying possible effects of plant emissions and effluents on the surrounding area. This included soil, and sediment sampling, sampling of food crops and vegetation, monitoring of direct radiation from plant sources, USEC-leased outfall waterborne effluents, and surface water. The data obtained from this monitoring are summarized in Tables 4 through 12.

In addition, PORTS calculates an annual public radiation dose due to waterborne radioactive effluents from USEC-leased outfalls using Regulatory Guide 1.109 pathways. The maximum public radiation dose due to liquid effluents from USEC activities in 2001 was 0.0002 mrem/year (50-year Committed Effective Dose Equivalent). The maximum public radiation dose due to liquid effluents from USEC activities in 2002 is expected to be comparable.

Table 1. Air Permits, 2002

Permit/Description	Principal Permit Limits	Compliance Summary
40 CFR 61, Subpart H National Emission Standards for Emissions of Radionuclides Other Than Radon from Department of Energy Facilities	Total Dose (CEDE) to the most exposed member of the public ≤10 mrem/yr.	No exceedances identified.
0666000000B001 Ohio Permit to Operate X-600 Steam Plant Boiler No. 1	Opacity ≤20%; Sulfur Dioxide ≤6.16 lbs/MBTU Particulates ≤0.19 lbs/MBTU[a]	No exceedances identified. No exceedances identified. No exceedances identified.
0666000000B002 Ohio Permit to Operate X-600 Steam Plant Boiler No. 2	Opacity ≤20%; Sulfur Dioxide ≤6.16 lbs/MBTU Particulates ≤0.19 lbs/MBTU[a]	No exceedances identified. No exceedances identified. No exceedances identified.
0666000000B003 Ohio Permit to Operate X-600 Steam Plant Boiler No. 3	Opacity ≤20%; Sulfur Dioxide ≤6.16 lbs/MBTU Particulates ≤0.19 lbs/MBTU[a]	No exceedances identified. No exceedances identified. No exceedances identified.
0666000000 Ohio Permit to Operate Open Burning for Purpose of Fire Department Training	Procedural requirements only	In Compliance

a. Determined once every 3 years by stack test.

Table 2. Water Discharge Permit (NPDES), 2002

Permit/Description	Principal Permit Limits		Compliance Summary
OEPA 0IS00023*AD Ohio NPDES Permit (Outfall 001, X-230J-7 East Holding Pond)	Total Precipitation	inches	In compliance
	pH	6.5 to 9.0 S.U.	No exceedances identified
	Total Suspended Solids	45 mg/l max 20 mg/l 30 day avg	No exceedances identified No exceedances identified
	Oil and Grease, Total	15 mg/l max 10 mg/l 30 day avg	No exceedances identified No exceedances identified
	Fluoride, Total[a]	mg/l	In compliance
	Arsenic, Total Recoverable[a]	µg/l	In compliance
	Nickel, Total Recoverable	1307 µg/l max 140 µg/l 30-day avg 5.9kg/d max 0.64 kg/d 30-day avg	No exceedances identified No exceedances identified No exceedances identified One exceedance identified
	Zinc, Total Recoverable[a]	µg/l	In compliance
	Copper, Total Recoverable[a]	µg/l	In compliance
	Manganese, Total Recoverable[a]	µg/l	In compliance
	Flow[a]	MGD	In compliance

a. Monitor and report only
b. Summer only

Table 2. Water Discharge Permit (NPDES), 2002 (Continued)

Permit/Description	Principal Permit Limits		Compliance Summary
OEPA 0IO00023*AD Ohio NPDES Permit (Outfall 002, X-230K South Holding Pond)	pH	6.5 to 9.0 S.U.	No exceedances identified
	Total Suspended Solids	45 mg/l max	No exceedances identified
		20 mg/l 30 day avg	No exceedances identified
		96 kg/d max	No exceedances identified
		43 kg/d 30 day avg	No exceedances identified
	Oil and Grease, Total	10 mg/l max	No exceedances identified
	Fluoride, Total[a]	mg/l	In compliance
	Thallium, Total Recoverable[a]	µg/l	In compliance
	Silver, Total Recoverable[a]	µg/l	In compliance
	Manganese, Total Recoverable	980 µg/l max	No exceedances identified
	Flow[a]	MGD	In compliance
	Mercury, Total Recoverable[a]	µg/l	No exceedances identified

a. Monitor and report only
b. Summer only

Table 2. Water Discharge Permit (NPDES), 2002 (Continued)

Permit/Description	Principal Permit Limits		Compliance Summary
OEPA 0IO00023*AD Ohio NPDES Permit (Outfall 003, X-6619 Sewage Treatment Plant)	pH	6.5 to 9.0 S.U.	No exceedances identified
	Total Suspended Solids	18 mg/l max 12 mg/l 30 day avg 41 kg/d max 27.3 kg/d 30 day avg	No exceedances identified No exceedances identified No exceedances identified No exceedances identified
	Oil and Grease, Total[a]	mg/l	In compliance
	Nitrogen, Ammonia (NH_3)[a]	mg/l	In compliance
	Nitrogen, Nitrate (NO_3)[a]	mg/l	In compliance
	Silver, Total Recoverable[a]	µg/l	In compliance
	Zinc, Total Recoverable[a]	µg/l	In compliance
	Copper, Total Recoverable	98 µg/l max 0.223 kg/d max	One exceedance identified One exceedance identified
	Fecal Coliform	2000 colonies/100ml max 1000 colonies/100ml 30 day avg	No exceedances identified No exceedances identified
	Flow[a]	MGD	In compliance
	Chlorine,Total Residual[b]	0.038 mg/l max 0.086 kg/d max	No exceedances identified No exceedances identified
	Acute Toxicity, Ceriodaphina dubia[a] (Water spider)	TUa	In compliance
	Mercury, Total Recoverable[a]	µg/l	In compliance
	CBOD, 5-day	15 mg/l max 10 mg/l 30 day avg 34.1 kg/d max 22.7 mg/d 30 day avg	No exceedances identified No exceedances identified No exceedances identified No exceedances identified

a. Monitor and report only
b. Summer only

Table 2. Water Discharge Permit (NPDES), 2002 (Continued)

Permit/Description	Principal Permit Limits		Compliance Summary
OEPA 0IO00023*AD Ohio NPDES Permit (Outfall 004, X-616 Liquid Effluent Treatment Facility)	pH	6.5 to 9.0 S.U.	No exceedances identified
	Total Suspended Solids	27 mg/l max	No exceedances identified
		18 mg/l 30 day avg	No exceedances identified
		114 kg/d max	No exceedances identified
		76 kg/d 30 day avg	No exceedances identified
	Oil and Grease, Total	20 mg/l max	No exceedances identified
		15 mg/l 30 day avg	No exceedances identified
		84 kg/d max	No exceedances identified
		63 kg/d 30 day avg	No exceedances identified
	Copper, Total[a]	µg/l	In compliance
	Oxidants, Total Residual	0.01 mg/l	One exceedance identified
		0.042 kg/d max	One exceedance identified
	Flow[a]	MGD	In compliance
	Acute Toxicity, Ceriodaphina dubia[a] (Water spider)	TUa	In compliance
	Acute Toxicity, Pimephales promelas[a] (Fathead minnow)	TUa	In compliance
	Total Dissolved Solids	4,000 mg/l max	No exceedances identified
		3,500 mg/l 30 day avg	No exceedances identified
		16,896 kg/d max	No exceedances identified
		14,784 kg/d 30 day avg	No exceedances identified

a Monitor and report only
b. Summer only

Table 2. Water Discharge Permit (NPDES), 2002 (Continued)

Permit/Description	Principal Permit Limits		Compliance Summary
OEPA 0IO00023*AD Ohio NPDES Permit (Outfall 005, X-611B Lime Lagoon)	pH	6.5 to 10.0 S.U.	No exceedances identified
	Total Suspended Solids	10 mg/l 30 day avg 15 mg/l max	No exceedances identified No exceedances identified
	PCBs	No detectable concentrations	No exceedances identified
	Flow[a]	MGD	In complaince
OEPA 0IO00023*AD Ohio NPDES Permit (Outfall 009, X-230L North Holding Pond)	Total Precipitation	inches	In compliance
	pH	6.5 to 9.0 S.U.	No exceedances identified
	Total Suspended Solids	45 mg/l max 30 mg/l 30 day avg	No exceedances identified No exceedances identified
	Oil and Grease, Total	15 mg/l max 10 mg/l 30 day avg	No exceedances identified No exceedances identified
	Fluoride, Total[a]	mg/l	In compliance
	Zinc, Total Recoverable[a]	µg/l	In compliance
	Manganese, Total Recoverable[a]	µg/l	In complaince
	Flow[a]	MGD	In compliance

[a] Monitor and report only
b. Summer only

Table 2. Water Discharge Permit (NPDES), 2002 (Continued)

Permit/Description	Principal Permit Limits		Compliance Summary
OEPA 0IO00023*AD Ohio NPDES Permit (Outfall 010, X-230J-5 Northwest Holding Pond)	Total Precipitation	inches	In compliance
	pH	6.5 to 9.0 S.U.	No exceedances identified
	Total Suspended Solids	45 mg/l max 30 mg/l 30 day avg	No exceedances identified No exceedances identified
	Oil and Grease, Total	15 mg/l max 10 mg/l 30 day avg	No exceedances identified No exceedances identified
	Zinc, Total Recoverable[a]	µg/l	In compliance
	Manganese, Total Recoverable[a]	µg/l	In complaince
	Flow[a]	MGD	In complaince
OEPA 0IO00023*AD Ohio NPDES Permit (Outfall 011, X-230J-6 Northeast Holding Pond)	Temperature (summer)	29.4 °C max 27.8 °C 30 day avg	No exceedances identified No exceedances identified
	Temperture (winter)	21.1 °C max 16.7 °C 30 day avg	No exceedances identified No exceedances identified
	Total Precipitation[a]	inches	In compliance
	pH	6.5 to 9.0 S.U.	No exceedances identified
	Total Suspended Solids	45 mg/l max 30 mg/l 30 day avg	No exceedances identified No exceedances identified
	Oil and Grease, Total	15 mg/l max 10 mg/l 30 day avg	No exceedances identified No exceedances identified
	Fluoride, Total[a]	mg/l	In compliance
	Zinc, Total Recoverable[a]	µg/l	In compliance
	Copper, Total Recoverable[a]	µg/l	In compliance
	Flow[a]	MGD	In compliance

a. Monitor and report only
b. Summer only

Table 2. Water Discharge Permit (NPDES), 2002 (Continued)

Permit/Description	Principal Permit Limits		Compliance Summary
OEPA 0IO00023*AD Ohio NPDES Permit (Outfall 602, X-621 Coal Pile Treatment Facility, No Precipitation)	Total Precipitation[a]	inches	In compliance
	pH	6.0 to 10.0 S.U.	No exceedances identified
	Total Suspended Solids	50 mg/l max 35 mg/l 30 day avg	No exceedances identified No exceedances identified
	Iron, Total	7,000 µg/l max 3.500 µg/l 30 day avg	No exceedances identified No exceedances identified
	Manganese, Total	4,000 µg/l max 2,000 µg/l 30 day avg	No exceedances identified No exceedances identified
	Flow[a]	MGD	In compliance
OEPA 0IO00023*AD Ohio NPDES Permit (Outfall 602, X-621 Coal Pile Treatment Facility, Total Precipitation 1 - 4 inches) [optional]	Total Precipitation[a]	inches	Alternative limits were not used for this outfall during 2002.
	pH	6.0 to 10.0 S.U.	
	Total Suspended Solids[a]	mg/l	
	Residue, Settleable	0.5 mg/l max	
	Iron, Total[a]	µg/l	
	Manganese, Total[a]	µg/l	
	Flow[a]	MGD	
OEPA 0IO00023*AD Ohio NPDES Permit (Outfall 602, X-621 Coal Pile Treatment Facility, Total Precipitation 5 - 20 inches) [optional]	Total Precipitation[a]	inches	Alternative limits were not used for this outfall during 2002.
	pH	6.0 to 10.0 S.U.	
	Total Suspended Solids[a]	mg/l	
	Residue, Settleable[a]	mg/l	
	Iron, Total[a]	µg/l	
	Manganese, Total[a]	µg/l	
	Flow[a]	MGD	

a. Monitor and report only
b. Summer only

Table 2. Water Discharge Permit (NPDES), 2002 (Continued)

Permit/Description	Principal Permit Limits		Compliance Summary
OEPA 0IO00023*AD Ohio NPDES Permit (Outfall 604, X-700 Biodenitrification Facility)	pH	6.5 to 9.0 S.U.	No exceedances identified
	Nitrogen, Nitrate (NO_3)[a]	mg/l	In compliance
	Copper, Total[a]	µg/l	In compliance
	Iron, Total[a]	µg/l	In compliance
	Nickel, Total[a]	µg/l	In compliance
	Zinc, Total[a]	µg/l	In compliance
	Flow[a]	MGD	In compliance

a. Monitor and report only
b. Summer only

Table 2. Water Discharge Permit (NPDES), 2002 (Continued)

Permit/Description	Principal Permit Limits		Compliance Summary
OEPA 0IO00023*AD Ohio NPDES Permit (Outfall 605, X-705 Waste Treatment Facility [Microfiltration])	pH	6.5 to 10.0 S.U.	No exceedances identified
	Total Suspended Solids	30 mg/l max 20 mg/l 30 day avg	No exceedances identified No exceedances identified
	Oil and Grease, Total[a]	mg/l	In compliance
	Nitrogen, Ammonia[a]	mg/l	In compliance
	Nitrogen, Nitrite (NO_2)[a]	mg/l	In compliance
	Nitrogen, Nitrate (NO_3)[a]	mg/l	In compliance
	Nitrogen, Total Kjeldahl[a]	mg/l	In compliance
	Sulfate[a]	µg/l	In compliance
	Chromium, Hexavalent[a]	µg/l	In compliance
	Chromium, Total[a]	µg/l	In compliance
	Copper, Total[a]	µg/l	In compliance
	Iron, Total[a]	µg/l	In compliance
	Nickel, Total[a]	µg/l	In compliance
	Zinc, Total[a]	µg/l	In compliance
	Trichloroethylene[a]	µg/l	In compliance
	Flow[a]	MGD	In compliance

a. Monitor and report only
b. Summer only

Table 2. Water Discharge Permit (NPDES), 2002 (Continued)

Permit/Description	Principal Permit Limits		Compliance Summary
OEPA 0IO00023*AD Ohio NPDES Permit (Outfall 801, Scioto River upstream of Outfalls 003 and 004)	Acute Toxicity, Ceriodaphina dubia[a] (Water spider)	TUa	In compliance
	Acute Toxicity, Pimephales promelas[a] (Fathead minnow)	TUa	In compliance
OEPA 0IO00023*AD Ohio NPDES Permit (Outfall 901, Scioto River downstream of Outfalls 003 and 004)	Acute Toxicity, Ceriodaphina dubia[a] (Water spider)	TUa	In compliance
	Acute Toxicity, Pimephales promelas[a] (Fathead minnow)	TUa	In compliance
OEPA 0IO00023*AD Ohio NPDES Permit (Outfall 902, Little Beaver Creek downstream of Outfall 001/031)	Downstream Temperature (summer)	29.4 °C max 27.8 °C 30 day avg	No exceedances identified No exceedances identified
	Downstream Temperature (winter)	21.1 °C max 16.7 °C 30 day avg	No exceedances identified One exceedance identified
OEPA 0IO00023*AD Ohio NPDES Permit (Outfall 903, Big Run Creek downstream of Outfall 002/032)	Downstream Temperature (summer)	29.4 °C max 27.8 °C 30 day avg	No exceedances identified No exceedances identified
	Downstream Temperature (winter)	21.1 °C max 16.7 °C 30 day avg	No exceedances identified No exceedances identified
OEPA 0IO00023*AD Ohio NPDES Permit General Provisions	Prevent discharges to waters of the state except as authorized in the permit		In compliance.
	Prevent bypass of permitted treatment facilities		In compliance
	No apparent foam on waters of the state		In compliance

a. Monitor and report only
b. Summer only

Table 3. Radionuclide Emissions/Discharges from PORTS, 2001

Radionuclide	Released to Atmosphere[a]	Released to Surface Water[b]
Total Uranium[c]	0.029 Ci (1.08 GBq)	0.026 Ci (0.958 GBq)
^{99}Tc	0.172 Ci (6.37 GBq)	0.052 Ci (1.93 GBq)

a. Includes estimated releases from unmonitored vents in accordance with USEPA guidance.
b. Scioto River
c. Includes U^{234}, U^{235}, U^{236}, and U^{238}

Table 4. Airborne Releases, PORTS, 2001

Monitored Vent	Total Uranium mCi/wk					Technetium Beta Activity mCi/wk				
	Number of Samples	LLD	Min	Mean	Max	Number of Samples	LLD	Min	Mean	Max
X-326 T	53	42	<0.004	<0.009	0.049	53	44	<0.017	<0.033	0.291
X-326 S	25	14	<0.007	<0.014	0.035	25	22	<0.017	<0.030	0.171
X-326 E	46	36	<0.012	<0.022	0.122	46	39	<0.017	<0.029	0.205
X-330	53	49	<0.001	<0.004	0.086	53	32	<0.017	<0.179	5.68
X-333 CR	53	50	<0.001	<0.002	0.010	53	53	<0.017	<0.022	<0.034
X-333 BE	23	21	<0.001	<0.003	0.024	23	22	<0.017	<0.024	0.051
A6 SE	52	52	<0.001	<0.001	<0.002	52	52	<0.017	<0.021	<0.034
A5 SE	53	53	<0.001	<0.001	<0.002	53	53	<0.017	<0.021	<0.034
A4 SE	53	53	<0.001	<0.001	<0.002	53	53	<0.017	<0.021	<0.034
A3 SE	53	10	<0.001	<0.007	0.090	53	53	<0.017	<0.021	<0.034
A2 SE	53	39	<0.001	<0.001	0.004	53	53	<0.017	<0.021	<0.034
A1 SE	51	13	<0.001	<0.003	0.009	51	51	<0.017	<0.021	<0.034
X-344A	27	27	<0.001	<0.006	<0.002	27	27	<0.017	<0.025	<0.034
X-343 CT	19	16	<0.001	<0.018	0.236	19	19	<0.017	<0.022	<0.034
X-344 CT	21	15	<0.001	<0.341	3.63	21	21	<0.017	<0.022	<0.051

a. Number of samples with analysis less than the Lower Limit of Detection (LLD).

Table 5. Soil Sampling Results, PORTS, 2001

Area Sampled	Number of Samples	Number of LLD[a]	Min	Mean	Max
		Total Uranium μg/g			
Onsite (within limited area)	38	0	2.7	6.1	23.3
Reservation Boundary	25	0	2.5	3.3	4.2
Offsite to 5 km	14	0	2.3	3.3	4.6
Offsite 5 to 16 km	27	0	2.1	3.3	5.9
Remote (16 km)	8	0	2.7	3.9	6.8
		Gross Alpha Activity pCi/g			
Onsite (within limited area)	38	9	<5	<13	56
Reservation Boundary	25	7	<1	<7	21
Offsite to 5 km	14	10	<2	<6	8
Offsite 5 to 16 km	27	16	<5	<7	12
Remote (16 km)	8	1	<6	<9	16
		Gross Beta Activity pCi/g			
Onsite (within limited area)	38	2	<9	<21	91
Reservation Boundary	25	4	<1	<13	21
Offsite to 5 km	14	5	<8	<15	19
Offsite 5 to 16 km	27	10	<7	<15	47
Remote (16 km)	8	5	<11	<16	25
		Technetium Beta Activity pCi/g			
Onsite (within limited area)	38	6	<0.1	<2.7	44.3
Reservation Boundary	25	14	<0.1	<0.2	1.1
Offsite to 5 km	14	8	<0.1	<0.1	0.2
Offsite 5 to 16 km	27	23	<0.1	<0.1	0.2
Remote (16 km)	8	5	<0.1	<0.2	0.4

a. Number of samples with analysis less than Lower Limit of Detection (LLD).

Table 6. Local Vegetation Sampling Results, PORTS, 2001

Material Sampled	Sample Locations	Number of Samples	Number of LLD[a]	Min	Mean	Max
		Total Uranium μ/g				
Cattle Forage	Reservation Boundary	25	22	<0.25	<0.29	0.90
	Offsite to 5 km	14	12	<0.25	<0.25	0.25
	Offsite 5 to 16 km	27	24	<0.25	<0.25	0.25
	Remote (16 km)	8	7	<0.25	<0.25	0.28
Vegetables & Fruit	Offsite as available from local growers	19	19	<0.5	<0.5	<0.5
		Technetium Beta Activity pCi/g				
Cattle Forage	Reservation Boundary	25	19	<0.1	<0.2	1.1
	Offsite to 5 km	14	10	<0.1	<0.1	0.2
	Offsite 5 to 16 km	27	21	<0.1	<0.2	0.5
	Remote (16 km)	8	7	<0.1	<0.2	0.4
Vegetables & Fruit	Offsite as available from local growers	19	13	<0.09	<0.20	0.86

a. Number of samples with analysis less than the Lower Limit of Detection.

Table 7. Waterborne Effluents, PORTS, 2001

Outfall Number	Gross Alpha[a] mCi/wk					Technetium Beta Activity mCi/wk				
	Number of					Number of				
	Samples	LLD	Min[b]	Mean	Max	Samples	LLD	Min[b]	Mean	Max
Outfall 001	53	36	<0.121	<0.249	0.597	53	37	<0.355	<0.754	3.23
Outfall 002[c]	53	44	<0.003	<0.029	0.147	53	48	0.000	0.012	0.202
Outfall 003	53	13	<0.015	<0.065	0.194	53	15	<0.023	<0.179	1.75
Outfall 004[c]	53	48	<0.008	<0.033	0.167	53	47	0.000	0.020	0.238
Outfall 005[c,d]	35	34	<0.001	<0.038	<0.086	35	34	0.000	0.018	0.636
Outfall 009[c]	53	22	<0.016	<0.070	0.212	53	48	0.000	0.009	0.122
Outfall 010[c]	53	35	<0.005	<0.022	0.111	53	48	0.000	0.008	0.125
Outfall 011[c]	53	48	<0.001	<0.002	0.028	53	49	0.000	0.000	0.010

a. Gross Alpha Activity in outfalls is presumed to be due to Uranium.
b. Number of samples with analysis less than the Lower level of Detection (LLD).
c. Unquantifiable technetium (i.e. LLD) is presumed to be absent in this outfall.
d. Between January 1 and May 14, 2001, only one weekly discharge occurred at this outfall. Since May 14, discharge has been continuous.

Table 8. Surface Water Sampling Results, PORTS, 2001

Sample Location	Number of Samples	LLD	Min	Mean	Max	Number of Samples	LLD	Min	Mean	Max
	Uranium mg/l					Gross Alpha Activity pCi/l				
				Little Beaver Creek						
RW-7	12	0	0.001	0.001	0.002	12	4	<4	<6	8
RW-8	53	12	<0.001	<0.001	0.003	53	33	<2	<5	9
RW-12	12	12	<0.001	<0.001	<0.001	12	11	<3	<6	10
				Big Beaver Creek						
RW-5	12	12	<0.001	<0.001	<0.001	12	11	<2	<5	14
RW-13	12	10	<0.001	<0.001	0.004	12	9	<4	<5	10
				Big Run Creek						
RW-2	12	12	<0.001	<0.001	<0.001	12	12	<2	<6	<13
RW-3	12	1	<0.001	<0.002	0.006	12	9	<3	<8	14
RW-33	12	12	<0.001	<0.001	<0.001	12	12	<2	<5	<8
				Scioto River						
RW-1	52	0	0.001	0.002	0.003	52	39	<2	<6	16
RW-6	52	1	<0.001	0.002	0.033	52	43	<3	<6	9

a. Number of samples with analysis less than Lower Limit of Detection (LLD).

Table 8. Surface Water Sampling Results, PORTS, 2001 (Continued)

Sample Location	Number of Samples	LLD	Min	Mean	Max	Number of Samples	LLD	Min	Mean	Max
	Technetium Beta Activity pCi/l					Gross Beta Activity pCi/l				
					Little Beaver Creek					
RW-7	12	8	<8	<12	31	12	1	<8	<15	28
RW-8	53	40	<8	<12	43	53	23	<7	<13	43
RW-12	12	12	<8	<10	<12	12	8	<8	<12	18
					Big Beaver Creek					
RW-5	12	10	<8	<10	<12	12	6	<8	<12	21
RW-13	12	11	<8	<10	16	12	5	<9	<13	19
					Big Run Creek					
RW-2	12	12	<8	<10	<12	12	8	<8	<12	17
RW-3	12	12	<8	<10	<12	12	8	<8	<15	20
RW-33	12	12	<8	<10	<13	12	7	<10	<14	28
					Scioto River					
RW-1	52	48	<8	<10	14	52	31	<8	<13	27
RW-6	52	47	<8	<10	15	52	30	<9	<13	22

a. Number of samples with analysis less than the Lower Limit of Detection.

Table 9. Sediment Sampling Results, PORTS, 2001

Sample Location	Total Uranium µg/g		Gross Alpha Activity pCi/g		Gross Beta Activity pCi/g		Technetium Beta Activity pCi/g	
	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall
				Outfalls				
Outfall 012	3.4	3.7	<4	13	<7	18	<0.1	0.2
Outfall 010/013	3.1	2.9	<3	8	<7	<8	<0.1	0.3
Outfall 010/013QA	-	3.5	-	10	-	<7	-	0.4
Outfall 001	2.9	2.8	<5	11	13	20	1.6	4.3
Outfall 001QA	3.3	-	<6	-	<7	-	0.7	-
Outfall 001A	4.4	4.9	<6	7	34	16	14.9	3.0
				Little Beaver Creek				
RM-7	5.1	4.4	10	10	31	<11	16.0	6.2
RW-8	4.2	1.8	<6	14	<11	<21	<0.1	7.1
RW-12	3.1	2.9	6	11	18	<12	<0.1	0.1
				Big Beaver Creek				
RW-5	3.2	2.3	<6	9	<7	<10	0.1	0.7
RW-13	5.2	3.9	8	11	22	17	4.2	6.3
				Big Run Creek				
RW-2	4.9	3.2	9	7	16	16	2.7	0.4
RW-3	4.9	4.3	<6	<4	<7	9	0.7	0.6
RW-3QA	-	3.1	-	8	-	12	-	0.7
RW-33	4.1	4.1	10	10	<11	<14	<0.1	<0.1

Suffix "A" refers to a replicate sample collected near the numbered sample location.
Suffix "QA" refers to a duplicate sample collected at a numbered sample location.

Table 9. Sediment Sampling Results, PORTS, 2001 (Continued)

Sample Location	Total Uranium ug/g		Gross Alpha Activity pCi/g		Gross Beta Activity pCi/g		Technetium Beta Activity pCi/g	
	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall
				Scioto River				
RW-1	2.2	3.2	<7	<7	<12	<15	<0.1	<0.1
RW-6	2.6	0.9	7	7	16	<7	<0.1	<0.1
				Remote (background, ~ 16 km)				
RM-10W	5.2	5.6	11	13	15	17	<0.1	<0.1
RM-10S	3.1	3.2	<7	<6	12	16	2.7	<0.1
RM-10E	2.4	2.7	<7	<5	11	9	<0.1	<0.1
RM-10N	3.3	1.9	<7	9	12	<12	<0.1	<0.1

Suffix "A" refers to a replicate sample collected near the numbered sample location.
Suffix "QA" refers to a duplicate sample collected at a numbered sample location.

Table 10. Fish Sampling Results, PORTS, 2001

Parameter Tested	Units	Number of Samples	LLD[a]	Min	Mean	Max
Total Uranium	ug/g	9	9	<0.005	<0.08	<0.4
Gross Alpha Activity	pCi/g	6	6	<4	<5	<6
Gross Beta Activity	pCi/g	6	6	<8	<10	<12
Technetium Beta Activity	pCi/g	9	9	<0.14	<0.17	<0.28

a. Number of samples with analysis less than the Lower Level of Detection (LLD).

Table 11. Ambient Gamma Levels, PORTS, 2001 μR/hr

Area Monitored	Number of Readings	Min	Mean	Max
Perimeter Road[a]	32	6.2	10	16
TLD Location 874[b]	4	66	75	85
Reservation Boundary	30	6.2	10	25
Piketon[c]	4	8.7	9.2	10
Camp Creek[d]	3	8.3	9.7	11

a. Includes all onsite TLD locations except TLD Location 874.
b. Located at NW corner of DOE Cylinder Storage Yard.
c. Nearest community to the plant site.
d. Background location for direct gamma exposure.

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RADIOACTIVE WASTE MANAGEMENT PROGRAM

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1. MANAGEMENT OF MIXED AND RADIOACTIVE WASTE

As part of its application for a certificate of compliance, 10 CFR 76.35(m) requires that USEC provide:

> "A description of the program, as appropriate, for processing, management, and disposal of mixed and radioactive wastes and depleted uranium generated by operations. This description must be limited to processing, management, and disposal activities conducted during operation of the facilities while under lease to the Corporation..."

This section addresses the management of radioactive and mixed wastes. The management of depleted uranium is addressed in a separate section of this application. Information in this section pertains only to USEC-generated wastes and USEC-leased facilities.

2. WASTE MINIMIZATION

The site waste minimization and pollution prevention activities are coordinated by the Environmental Compliance/Waste Management and Industrial Safety Group.

It is the policy of the Portsmouth Gaseous Diffusion Plant (PORTS) to:

- Promote the use of nonhazardous materials in plant operations to minimize the potential risk to human health and the environment.
- Reduce or eliminate pollution to all media (i.e., land, water, air) at the source to the lowest reasonably achievable level through material substitution, process optimization and innovation, in-process closed-loop recycle, and waste segregation.
- Use, reuse, reclaim, or recycle to the maximum extent practical those waste streams that cannot be eliminated or minimized by source reduction.
- Promote the continual evaluation and implementation of waste minimization and pollution prevention opportunities in ongoing plant operations, technical support activities, and project design.
- Develop in all employees an awareness of environmental problems through participation in the Waste Minimization and Pollution Awareness Program activities.
- Conduct and implement waste minimization activities with full regard to requirements for quality, productivity, safety, and environmental compliance.

To this end, activities will be evaluated for waste minimization opportunities with emphasis on

those that generate hazardous wastes, hazardous and radioactive wastes, and low-level radioactive wastes (LLRW). Waste that is nevertheless generated will be treated to the extent practical to reduce the volume, toxicity, or mobility before storage or disposal.

This applies to site operations, associated support operations, and site subcontractors that generate waste. A copy of the Waste Minimization and Pollution Prevention Awareness Program Plan is available under separate cover.

The Waste Minimization and Pollution Prevention Plan is updated and issued as necessary. The Plan explains program requirements and identifies goals and objectives.

3. WASTE STREAM DESCRIPTIONS

The following are the principal radioactive waste streams generated as a result of USEC plant operations:

	Waste Stream Description	Waste Category ID No. (see Tables 1 and 2)
1.	Aqueous wastes	RD-112, RW-112
2.	Petroleum/organic liquids	RD-111, RW-117, RW-118, RW-119, RW-121, RW-122
3.	Hardware/scrap metal/metal bearing solids	RD-102, RD-113, RW-103, RW-104, RW-105, RW-106, RW-107, RW-108
4.	Dry active waste (DAW)	RD-101, RD-110
5.	Rubble/aggregates	RD-107, RD-108
6.	Treatment residues	RD-109, RD-115, RD-116, RD-117
7.	Laboratory wastes	RD-104, RW-111, RW-120
8.	Sealed sources	RD-105
9.	Other process wastes	RD-103, RD-114, RW-101, RW-102, RW-109, RW-110, RD-113, RW-114, RW-115, RW-116

Many of these categories encompass waste streams that have both a mixed waste component and a LLRW component. Table 1 lists the mixed waste streams, and Table 2 lists the LLRW streams generated by USEC at PORTS. The identification numbers for mixed wastes are prefixed with the letters "RW," and LLRW identification numbers are prefixed with the letters "RD." The name of the waste stream along with its corresponding identification number, description, physical form, and projected annual generation volume are included in both Tables. The narrative cross references the specific waste streams listed in the two Tables with their associated principal waste category.

Aqueous waste is comprised primarily of various metal-bearing solutions generated from processes such as equipment cleaning, decontamination, and maintenance. Mixed wastes in this category are hazardous due to the presence of heavy metals, which cause the waste to exhibit the toxicity characteristic. This category of waste encompasses one mixed waste stream, RW-112, and one LLRW stream, RD-112.

Petroleum/organic liquid wastes include wastes generated from vehicle and equipment maintenance, degreasing, painting and related activities, and waste generated from maintenance and repair of non-polychlorinated biphenyl (PCB) electrical equipment. Mixed wastes in this group are hazardous because they meet a listed waste description, exhibit the characteristic of ignitability, or exhibit the toxicity characteristic due to the presence of organic compounds. This category contains mixed waste streams RW-117, RW-118, RW-119, RW-121, and RW-122, and one LLRW stream, RD-111.

Hardware/scrap metal/metal-bearing solid wastes in this mixed waste category are hazardous because they exhibit the hazardous characteristic due to the presence of toxic heavy metals. Scrap metal, however, is excluded from hazardous waste management rules. Hardware and scrap metal are generated from a wide variety of plant processes and maintenance activities. Replacement of spent bulbs and batteries, repair and discard of electronic/electrical equipment, metal-working, and repair and discard of equipment are all examples of activities that generate discarded hardware and scrap metal. Processes that generate metal-bearing solids include wastewater treatment, air pollution control, spill cleanup, use of personal protective equipment, painting, metal cleaning, photographic processes, and general equipment maintenance. This waste category encompasses mixed waste streams RW-103, RW-104, RW-105, RW-106, RW-107, and RW-108, and LLRW streams RD-102 and RD-113.

Dry active waste (DAW) is generated as a result of day-to-day operations involving facilities throughout the plant site. Radioactively contaminated wastes consisting primarily of paper, personal protective equipment (used for protection from both chemical and radiological hazards), cardboard, fiberglass, cloth, rubber, and air filters are examples of DAW. This category contains LLRW streams RD-101 and RD-110.

The rubble/aggregates category of waste consists of glass that is generated primarily in the laboratory from analytical processes, and sand, soil, gravel, concrete, and clay adsorbents generated from decontamination and spill cleanup activities. The LLRW streams in this category are RD-107 and RD-108.

The treatment residues category consists of residuals from the smelting of radioactive scrap metal, ash from the incineration of DAW, residuals from the treatment of mixed waste, and compacted solids from volume reduced radiological waste. LLRW streams RD-109, RD-115, RD-116, and RD-117 fall within this category.

The mixed wastes that fall within the laboratory waste category are generated from processes such as sample preparation, sample analyses (including samples from off-site sources), cleaning of laboratory equipment, and discard of off-specification chemicals. They are comprised of a variety of listed and characteristic hazardous wastes and may be in solid or liquid form. Mixed waste streams RW-111 and RW-120 fall into this category. The LLRW stream RD-104 is also in this category.

The sealed source category of waste consists primarily of radioactive instrument and calibration sources no longer needed for their intended purpose. This category contains LLRW stream RD-105.

The category of other plant wastes is comprised of solids and liquids and is generated in a wide variety of settings on the plant site. Solids are generated from spill cleanup activities, discarded personal protective equipment, metal-working, filtering of process liquids, and trapping of contaminants generated in venting systems. Processes associated with cleaning and decontamination of equipment or buildings, spill cleanup, and uranium recovery generate the various metal-bearing solvent and corrosive liquid wastes in this category. These wastes may exhibit one or more of the hazardous characteristics of ignitability, corrosivity, reactivity, and toxicity as well as meet the descriptions for certain listed hazardous waste. Mixed waste streams RW-101, RW-102, RW-109, RW-110, RW-113, RW-114, RW-115, and RW-116 fall within this waste category. LLRW streams RD-103 and RD-114 are in this category.

The projected USEC annual LLRW generated at PORTS is expected to be approximately 12,056 cubic ft. The projected USEC annual mixed waste generated at PORTS is expected to be approximately 703 cubic ft. The projected USEC annual generation rates for each specific waste stream are included in Table 1 and Table 2 for both mixed and LLRW respectively.

4. RADIONUCLIDES

The principal radiological contaminants in waste generated at PORTS are uranium (^{238}U, ^{235}U, ^{234}U) and technetium (^{99}Tc). Other identified contaminants may include trace quantities of transuranics, fission products and uranium daughter products. Also, residues from the off-site treatment (e.g., incineration, smelting, etc.,) of USEC wastes at commercial facilities could contain traces of radionuclides other than those normally found at PORTS. These radionuclides may have been introduced into the treatment system with waste from other facilities which were processed prior to wastes from USEC.

5. RADIOLOGICAL CHARACTERIZATION

5.1 RADIOLOGICAL CHARACTERIZATION CRITERIA

USEC-generated wastes are radiologically characterized as suitable or not suitable for release to unrestricted areas by one or more of the following methods: radiological surveys; laboratory analysis; and/or radiological status of area of generation.

5.2 SOLID WASTE CHARACTERIZATION

The criteria for characterization of solid wastes (such as hardware/scrap metal) based on radiological surveys are shown in Table 5.3-2 of the SAR. Wastes with survey results below these levels, and for which there is no reasonable possibility of bulk/volumetric contamination, may be released to unrestricted areas and may be disposed of or recycled onsite or offsite.

Waste generated in areas controlled for loose radioactive contamination, for which volumetric/bulk contamination is a reasonable possibility (such as loose solids), will be managed as low-level waste. Request for disposal of such materials as not being low level waste will be submitted to the NRC under the provisions of 10 CFR 20.2002, should USEC desire to dispose of such materials in a manner other than as specified in 10 CFR 20.2001.

Waste from areas not controlled for radioactive contamination in accordance with SAR Section 5.3 may be released to unrestricted areas without survey or sampling and analysis.

5.3 LIQUID WASTE CHARACTERIZATION

5.3.1 Aqueous Wastes

Aqueous wastes meeting the applicable release requirements of 10 CFR 20.1302 may be discharged. Wastes with radioactivity exceeding the limits of 10 CFR 20.1302 are treated to reduce the radioactivity levels to less than those limits or are managed and/or disposed of as radioactive waste in accordance with the requirements of 10 CFR 20.2001.

Aqueous waste from areas not controlled for radioactive contamination in accordance with SAR Section 5.3 may be discharged without sampling and analysis.

5.3.2 Nonaqueous Wastes

Nonaqueous liquid waste generated in areas controlled for loose radioactive contamination, for which volumetric/bulk contamination is a reasonable possibility, will be managed as low-level waste. Request for disposal of such materials as not being low-level waste will be submitted to the NRC under the provisions of 10 CFR 20.2002, should USEC desire to dispose of such materials in a manner other than as specified in 10 CFR 20.2001.

Nonaqueous wastes from areas not controlled for radioactive contamination in accordance with SAR Section 5.3 may be released to unrestricted areas and may be disposed of or recycled at onsite or approved offsite locations.

5.4 RADIOACTIVE WASTE CLASSIFICATION

Wastes not suitable for release to unrestricted areas are classified in accordance with 10 CFR 61.55 prior to disposal.

6. WASTE MANAGEMENT

6.1 WASTE SEGREGATION AND COLLECTION

USEC-generated wastes are collected and packaged, where feasible, by the waste generator. Wastes known to be suitable for release to unrestricted areas based on the point and process of generation are segregated at the source, when possible, from wastes not suitable for release to unrestricted areas. Wastes from areas controlled for loose radioactive contamination are considered to be potentially contaminated until characterized. Wastes requiring characterization to determine whether they may be released to unrestricted areas are segregated upon completion of such characterization.

6.2 WASTE PACKAGING AND LABELING

Containers known to contain radioactive waste, including packaging, are labeled in accordance with SAR Section 5.3.1.7 or are managed in accordance with SAR Section 5.3.4.1.

Waste is packaged in appropriate containers to meet Department of Transportation (DOT) and 10 CFR 71 requirements. Some general types of waste packaging include, but are not limited to:

Solid Waste	5-, 30-, 55-, or 110-gal drums
Liquid Wastes	5-, 30-, or 55-gal drums
Corrosives, Acids	Polybottles or polydrums
Scrap Metal	B25 boxes or other similar boxes; various drums

In addition, 85- and 110-gal overpacks may be used for appropriate wastes and damaged containers.

6.3 RADIOACTIVE WASTE STORAGE

Those USEC wastes that are regulated for radiological content only are removed from the generating facility and stored at a USEC radioactive waste storage facility prior to final disposal. USEC-generated mixed wastes are stored locally for up to 90 days pending treatment, disposal, or transfer to a DOE-owned storage facility. The USEC radioactive waste storage facility is the XT-847 waste staging facility. Operations performed at this facility are described in Chapter 3 of the SAR. Other areas may be utilized as waste storage facilities as required by facility operations. If outdoor storage is necessary, radioactive wastes with removable contamination are packaged in containers, wrapped or covered to prevent the release of radioactivity. Storage areas are posted in accordance with SAR Section 5.3.

Access to waste storage containers is restricted to trained personnel in accordance with 10 CFR 20.1905. Containers are inspected quarterly, at a minimum, to ensure container integrity and to identify and correct any leaks or other problems.

When near-term treatment/disposal of USEC-generated mixed wastes cannot be completed within 90 days, such wastes are transferred to DOE owned and operated facilities for storage until treatment and/or disposal can be accomplished. Such transfers are documented through the Request for Disposal system.

6.3.1 Deleted

6.3.2 Deleted

6.3.3 Deleted

6.4 RADIOACTIVE WASTE TREATMENT

USEC operates a waste processing facility in the X-705 Decontamination Building. This facility is designed to treat aqueous wastes containing enriched uranium. Solid treatment residues are managed as waste not suitable for release to unrestricted areas. Processed water is discharged to the onsite sewage treatment facility. The facility and process description in Chapter 3 provides detailed operational information on the X-705 Decontamination Building. Figure 2 provides a diagram of X-705 aqueous radioactive waste processing. LLRW and mixed waste solutions may temporarily reside in on-site DOE storage or the XT-847 pending treatment in X-705.

Mixed aqueous wastes that cannot be processed in USEC facilities are transferred to DOE for onsite storage until treatment is available at treatment facilities that are licensed in accordance with 10 CFR 61, or applicable Nuclear Regulatory Commission (NRC) Agreement State requirements, or a foreign facility licensed in accordance with the rules and regulations of that country.

6.5 OFFSITE WASTE SHIPMENTS

Offsite shipments of radioactive wastes are manifested in accordance with 10 CFR 20.2006. Waste shipments are packaged, labeled, and manifested in accordance with applicable State, DOT, NRC, and Environmental Protection Agency (EPA) requirements.

6.6 WASTE DISPOSAL

USEC-generated wastes are disposed of at disposal facilities that are licensed in accordance with 10 CFR Part 61 or applicable NRC Agreement State requirements or a foreign facility licensed in accordance with the rules and regulations of that country. Packages are inspected prior to shipment, as appropriate, to verify compliance with applicable packaging and transportation requirements. Copies of the disposal site license are retained in accordance with 10 CFR 76.83.

Waste disposals are in compliance with 10 CFR Part 20, Subpart K. Waste disposal records are retained in accordance with 10 CFR 20.2108.

6.7 WASTE TRACKING AND DOCUMENTATION

All LLRW and mixed waste generated at PORTS is tracked through a Request for Disposal system. Each waste container is given a unique identification number. The identification numbers are entered and maintained in a computer-based data base. The data base is updated to reflect location, characterization, treatment data, and waste disposal information.

7. SECTION DELETED

Table 1. PORTS mixed waste streams.

Waste Stream and ID No.	Description	Form	Projected Annual Generation (ft^3)
Aerosol Cans (RW-101)	Flammable/Nonflammable Aerosol Cans	S	25
Reactives (RW-102)	Lithium Batteries, Developer Solution, Cyanide-Bearing Solution	L,S,G	2
Ni-Cad Batteries (RW-103)	Ni-Cad Batteries	S	15
Mercury Batteries (RW-104)	Mercury Batteries	S	0
Broken Lead-Acid Batteries (RW-105)	Broken Lead-Acid Batteries	S	0
Circuit Boards and Misc. Electronic Compounds (RW-106)	Circuit Boards, Color Monitors, etc.	S	0
Misc. Metal-Bearing Solids (RW-107)	Incandescent Bulbs, Fuses, Starters, Bullets, Photoreceptors, Brass Shell Casings, Brass Shavings, HEPA Filters, PPE, Dust/Debris, Weapons Cleaning Patches/Wipes, Tamper Indicating Device, Cable, Lead Washers, Solder, Latex Paint Rags, Chromic Oxide, Residues, Concrete, Ceramic Media, F_2 Generator Sludge, Rags, Absorbent Material, Sand Blast Residues, Blass Beads, Silver Electrodes, Silver Recovery Cartridges, Microfiltration Sludge, Machine Grinding Sludge, Lead Seals, Cement Dust, Microfilm, Floor Sweepings, Paint Chips, Grease	S	27
Misc. Mercury-Bearing Solids (RW-108)	Fluorescent Bulbs, Mercury Vapor Bulbs, High Pressure Sodium Bulbs, Metallic Mercury, Thermometers, Debris, PPE, Switches, HEPA Filters, Respirator Canisters, Heavy Metal Sludge, Ion Exchange Resin, Filter Table Gunk	S	14
Solvent-Laden Solids (RW-109)	Rags, Gloves, Wipes, Absorbent Material, Paint Spray Booth Sludge	S	30
Metal-Bearing Solvent-Laden Solids (RW-110)	Rags, Gloves, Wipes, Absorbent Material, Decontamination Solids, Bag Filters, Oil and Grease Removal Cake, Machine Turnings, Degreaser Sludge	S	0
Laboratory & Non-laboratory Off-Specification Chemicals (RW-111)	Standards, Reagents, Chemicals, etc.	L,S,G	25

Table 1 (Continued)

Waste Stream and ID No.	Description	Form	Projected Annual Generation (ft^3)
Misc. Metal-Bearing Aqueous Solutions (RW-112)	Antifreeze, Photographic Fixer Solution, Graphic Arts Solution, Silver Solution, Machine Coolant, Motor Cleaning Solution	L	329
Metal-Bearing Corrosive Solutions (RW-113)	Flushing Solution, Sodium Hydroxide and Sulfamic Acid Solution, SX-11, Aqueous Laboratory Solution, Arsenic Trioxide Solution	L	35
Mercury-Bearing Corrosive Solution (RW-114)	Mercuric Nitrate, Uranium Recovery Solvent	L	1
Misc. Acids and Bases (RW-115)	X-Ray Solution, Sodium Hydroxide Solution, Decontamination Solution, Gas Analyzer Solution, Sulfamic Acid, Phosphoric Acid, Mixed Acids	L	147
Metal-Bearing Organic Solutions (RW-116)	Decontamination Solutions, Parts Cleaning Solution, Machine Coolant	L	1
Solvent Solutions (RW-117)	TCA	L	19
Misc. Flammables (RW-118)	Gas Analyzer Solution, Kerosene, Mineral Spirits, Electrostatic Plotter Solution, Gasoline, Acetone, Paint Waste, Xylol, Blankrola	L	26
Metal-Bearing Flammables (RW-119)	Gasoline, Waste Solvents, Acetone	L	0
Ignitable Corrosive (RW-120)	Lab Waste	L	7
Waste Oils (RW-121)	Waste Oil	L	0
Metal-Bearing Oils (RW-122)	Non-PCB Capacitors, Waste Oil	L	0
Total			703

Table 2 PORTS LLRW Streams

Waste Stream and ID No.	Description	Form	Projected Annual Generation (ft^3)
Dry Active Waste (RD-101)	PPE, Plastic, Paper, Rubber, Wood, Filters, Clothing, Floor Sweepings, Oil Absorbents, Insulation, Heavy Metal Filter Paper	S	6165
Scrap Metal (RD-102)	Copper, Steel, Aluminum, Empty Drums, Filters	S	3160
Trap Media (RD-103)	Alumina, NaF, MgF2	S	40
Chemical Compounds (RD-104)	Excess Nonhazardous Chemicals	S	0
Sealed Sources (RD-105)	Instrument Sources	S	1
U Compounds (RD-106)	U Metal, Depleted UF_4	S	0
Rubble (RD-107)	Glass, Sand, Gravel, Concrete, Clay Absorbents	S	90
Soil (RD-108)	Soil	S	0
Metal Slag (RD-109)	Residue from Metal Melt	S	0
Compactibles (RD-110)	PVC Pipe, Insulation, Respirator Cartridges, Filters	S	0
Waste Oil (RD-111)	Used Oil	L	20
Aqueous Solutions (RD-112)	Decontamination Solutions, Machine Coolant, Antifreeze	L	50
Refrigeration Equipment (RD-113)	Water Coolers, AC Units, Refrigerators	S	180
Sludges (RD-114)	Uranium Precipitate	S	2350
Ash (RD-115)	Incineration Residues	S	0
Treatment Residues (LDR) (RD-116)	Residues from Treatment of Characteristic RCRA Waste	S	0
Compacted Solids (RD-117)	Volume Reduced Solids	S	0
Total			12,056

Table 3 Deleted

Table 4 Deleted

DECEMBER 13, 1999

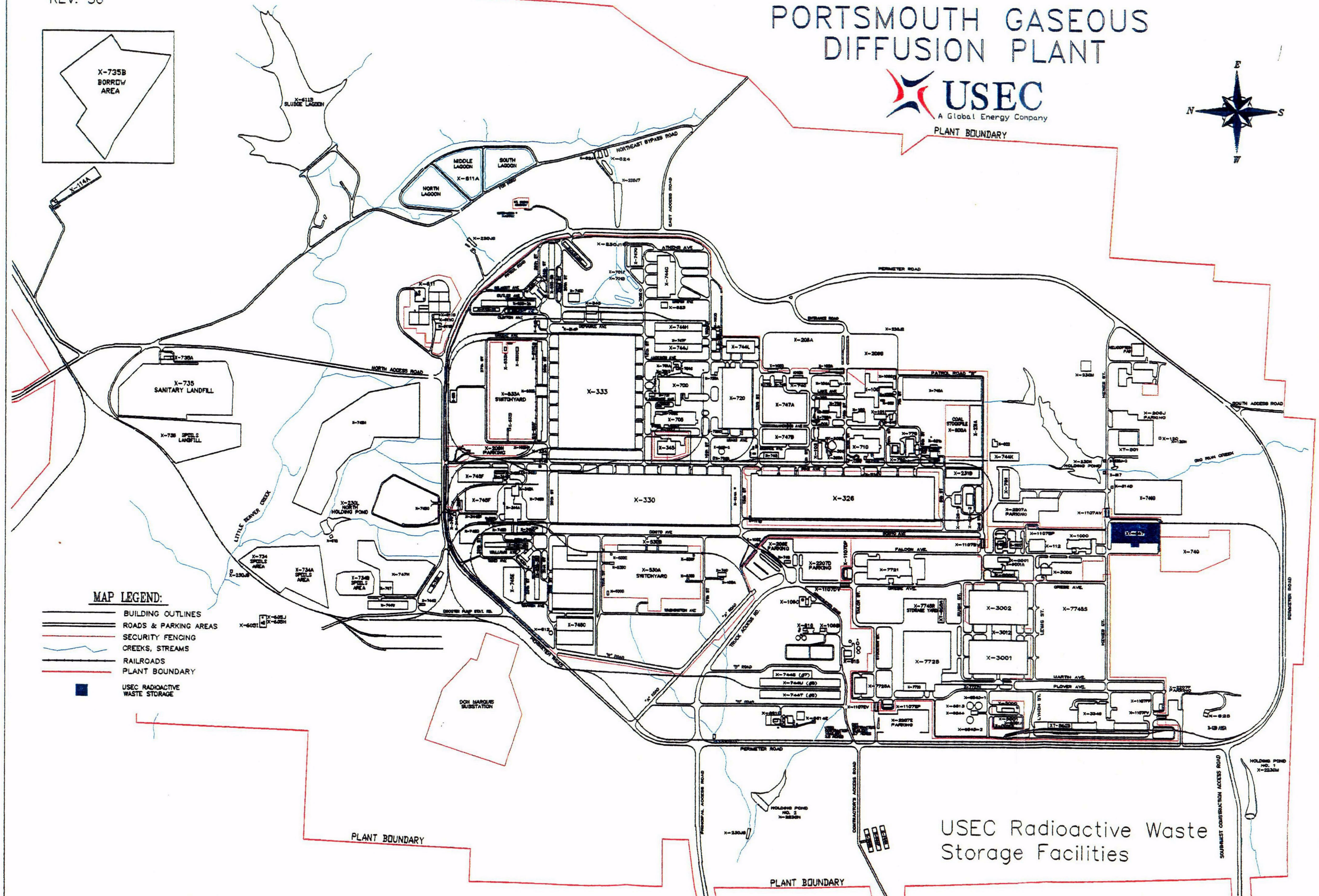

FIGURE 1

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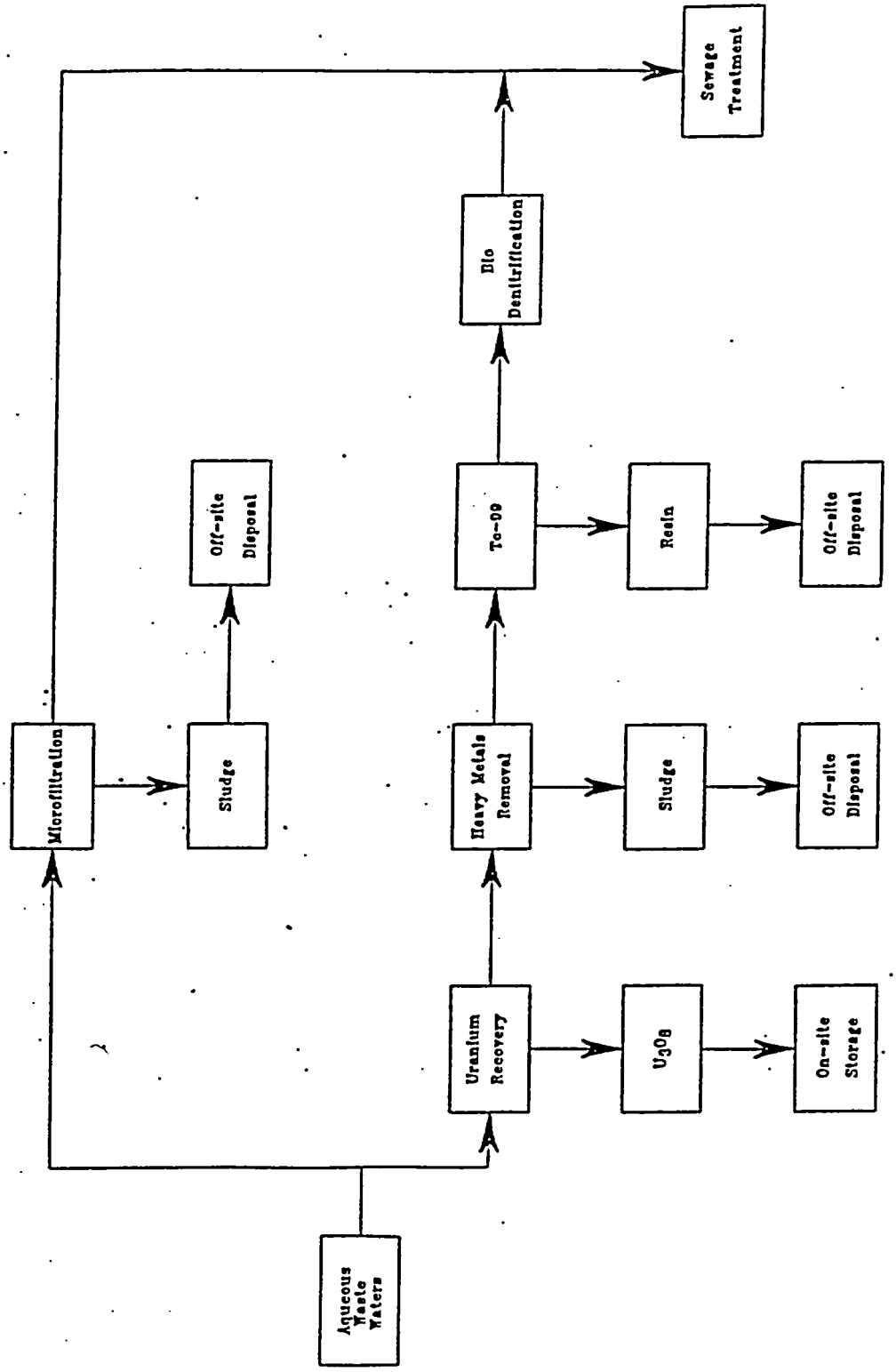

Figure 2. Aqueous Radioactive Waste Processing Diagram for the X-705 facility

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DEPLETED URANIUM MANAGEMENT PLAN

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1.0 INTRODUCTION

Under 10 CFR 76.35(m), the United States Enrichment Corporation (USEC) is required, as part of its application for a certificate of compliance, to provide:

> "A description of the program, as appropriate, for processing, management, and disposal of mixed and radioactive wastes and depleted uranium generated by operations. This description must be limited to processing, management, and disposal activities conducted during operation of the facilities while under lease to the Corporation. The application must also include a description of the wastestreams generated by enrichment operations, annual volumes of depleted uranium and waste expected, identification of radioisotopes contained in the waste, physical and chemical forms of the depleted uranium and waste, plans for managing the depleted uranium and waste, and plans for ultimate disposition of the waste and depleted uranium before turnover of the facilities to the Department of Energy under the terms of the lease agreement between the United States Enrichment Corporation and the Department."

In accordance with 10 CFR 76.35(m), this plan describes USEC's program for the management and disposition of the depleted uranium (DU) produced as part of the enrichment activities at the Portsmouth (PORTS) and Paducah (PGDP) Gaseous Diffusion Plants (GDPs). USEC's program for the processing, management, and disposal of mixed and radioactive wastes is described in the Radioactive Waste Management Plan submitted as part of this application.

2.0 DEPLETED URANIUM PRODUCTION ESTIMATES

The production of depleted uranium will continue throughout the period that enrichment activities are conducted at the GDPs. The production rate of depleted uranium is a function of the demand for enriched uranium, the portion of that demand supplied by the Russian enriched uranium, and the operating mode of the plants (determined by power load, power costs, enrichment levels, and other factors). USEC's projected depleted uranium production estimates for both GDPs cover the period of the current Nuclear Regulatory Commission (NRC) Certificate of Compliance. The estimates are provided in Table 1, along with the amount of depleted uranium that USEC is responsible for taking into account the factors discussed in Section 3.0 below.

The estimates are sensitive to changes in the expected mode of operation of each plant, the enriched product requirements, the costs of power, and the amount of Russian uranium. The funds set aside for the disposition of depleted uranium at the GDPs will be based on the actual production rates of depleted uranium at the plant during the period that the plant is operated under the USEC/DOE Lease Agreement. USEC's funding plan for the disposition of depleted uranium is described in the Decommissioning Funding Program Description submitted as part of this application.

3.0 MANAGEMENT AND DISPOSITION PLAN

The depleted uranium is currently being stored as solid uranium hexafluoride (UF_6) in carbon steel cylinders at the GDP plant sites (cylinder storage is described in PGDP SAR Section 3.7.2 and PORTS SAR Section 3.2.4.4). The cylinders meet specific design requirements and special procedures and handling equipment are used for DU cylinder handling, movement, and stacking. USEC can continue to store depleted uranium in the solid state in these cylinders for an extended period without undue risk. In addition, cylinder inspections are conducted, as described below, to provide evidence of continued cylinder integrity.

The cylinders used for the storage of depleted uranium are inspected by Operations prior to being filled. After filling, the cylinder is cooled and then moved to a cylinder yard and stacked in place. After the cylinder is stacked in position, a baseline (initial) storage inspection is conducted at which point any damage to the cylinder is identified. If the cylinder is damaged, supervision is notified promptly and the damage evaluated for any actions required; the range of actions are to be commensurate with the cylinder damage. Actions could include continuing normal inspections, more frequent inspections, repair, or emptying of the cylinder. After the initial inspection, the cylinders are inspected every four years thereafter (except for any cylinders identified in the initial inspection as requiring a more frequent inspection); the condition of each cylinder is documented using a cylinder inspection data sheet.

Initial and quadrennial inspections are conducted on full cylinders that are normally single or double stacked. These inspections, conducted from ground level, with or without visual aids, are made using the following criteria:

- Cylinders positioned incorrectly (e.g., with valves in other than top center position); this often is an indication of potential stacking damage.

- Improperly stacked cylinders with potentially damaging contact (e.g., lifting lug resting on cylinder body, stiffening ring resting on stiffening ring, other criteria as described in the inspection procedure).

- Dents, bulges, cracks, metal loss, apparent by visual inspection, on the longitudinal and circumference welds.

- Dents, bulges, cracks, gouges, stacking damage, excessive scale or rust, apparent by visual inspection, on the cylinder shell.

- Bends, cracks or breaks from shell, impact damage, gouges, apparent by visual inspection, on the stiffening rings.

- Tears, dents, cracks, excessive scale or rust, or plugged weep hole, apparent by visual inspection, on the cylinder skirt (or valve protector).

Depleted uranium in the form of solid UF_6 is suitable for conversion to other chemical forms. For example, the solid UF_6 could be converted to U_3O_8, UF_4, or uranium metal. There are a number of existing and potential uses for depleted uranium, including uses in radiation shielding material, armor-piercing projectiles and counterweights. It is possible that increased energy costs may make recovery of additional ^{235}U from the depleted uranium economically feasible in the future and that other potential uses may also be identified. However, the conversion of the depleted uranium to one of these other forms in the near term could either foreclose other uses and disposition options because of the difficulty of processing some of these uranium compounds and the lack of processing facilities, or increase the cost of the ultimate disposition.

Moreover, the amount of depleted uranium that will be produced by USEC in the near term will be relatively small in comparison with the DOE's existing depleted uranium inventory. DOE is currently storing approximately 739,000 MTU of depleted uranium as solid UF_6 in approximately 61,400 cylinders stored at various locations on the DOE portions of the GDP plant sites. The Energy Policy Act of 1992 requires DOE to conduct a study to address the issue of depleted uranium disposition. As part of this study, DOE has solicited recommendations for the long-term management of the DOE depleted uranium inventory. USEC presently anticipates that the bulk of its inventory of depleted uranium will ultimately be dispositioned in the same manner as the larger DOE depleted uranium inventory.

In the meantime, USEC has established agreements with other entities that will reduce the amount of USEC-generated depleted uranium to ultimately be disposed of. The first of these agreements was with Starmet CMI for the transfer and processing of certain amounts of depleted uranium. The original agreement with Starmet CMI was for the transfer and processing of approximately 4,100 metric tons uranium (MTU) through fiscal year 2001 (June 30, 2001). This agreement was modified to provide for approximately 16 additional cylinders per month to be delivered to Starmet CMI through December 2002.

Starmet CMI was using this material in a demonstration project that, if successful, would have resulted in an option for processing USEC depleted uranium in the future. In conjunction with this agreement, the amount of depleted uranium remaining for USEC to manage and ultimately dispose of is reduced by the amount of material transferred to Starmet CMI. The quantities transferred are shown in Table 1. No transfers to Starmet, CMI, beyond those noted in Table 1, are anticipated at this time.

USEC has also established agreements with DOE that affect USEC's liability associated with the disposal of depleted uranium generated by USEC. These agreements are the

"Memorandum of Agreement Between the United States Department of Energy and the United States Enrichment Corporation Relating to Depleted Uranium," dated June 30, 1998 and the "Agreement Between the U.S. Department of Energy ("DOE") and USEC Inc. ("USEC")", dated June 17, 2002.

The "Memorandum of Agreement between the United States Department of Energy and the United States Enrichment Corporation Relating to Depleted Uranium," dated June 30, 1998 provides for the transfer to DOE of 2,026 48G cylinders containing approximately 16,674,000 Kg of depleted uranium generated by USEC's operations. In accordance with the agreement, USEC has made the required full payment of over $50M to DOE, covering the entire quantity of depleted uranium to be transferred. Therefore, the liability to dispose of the full amount of USEC's depleted

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uranium specified in the agreement now rests with DOE, further reducing the quantity of depleted uranium to be ultimately disposed of by USEC. Within these major parameters of the agreement, USEC and DOE have also agreed to implement the actual transfer of the material on a schedule covering the period of FY 1999 through 2004. Table 1 reflects the transfer schedule.

The "Agreement Between the U.S. Department of Energy ("DOE") and USEC Inc. ("USEC")", dated June 17, 2002, provides, in part, for the DOE taking possession of depleted uranium from USEC's operations during fiscal years 2002 and 2003 and one-half the amount of depleted uranium generated during the USEC's fiscal years 2004 and 2005. Therefore, as a result of this June 17, 2002 agreement, USEC's liability associated with the disposal of USEC generated depleted uranium has been reduced by the quantity of depleted uranium specified in this June 17, 2002 agreement. The quantity of depleted uranium associated with this agreement is specified in Table 1.

In addition to the foregoing outlet, USEC will, to the extent practicable, continue to market depleted uranium for uses in military applications, counterweights, and shielding applications. Efforts will also be made to develop other commercial uses that could include shielding for high-level waste storage and shipping casks, or multi-purpose canisters being developed for the DOE high-level waste program.

The remaining inventory will continue to be stored as solid UF_6 until it can be processed in accordance with the disposition strategy established by DOE for its inventory.

The estimated cost of conversion and disposition of the depleted uranium is provided in the Decommissioning Funding Program, along with a description of the funding mechanisms that will be used to address USEC's funding liabilities.

4.0 ITEMS ADDRESSED BY COMPLIANCE PLAN

Section Deleted.

Table 1. Estimated amount of depleted uranium (DU) generated by USEC and its disposition, in metric tons uranium (MTU) for PORTS and PGDP combined.

Year	DU Generated by USEC	DU Transfers to Starmet CMI	DU Transfers to DOE under 6/30/98 agreement[3]	DU Transfers to DOE under 6/17/02 agreement[4]	Other DU to DOE[2]	Estimated net cumulative USEC DU
July 1, 1993 - June 30, 1997	67,874	0	0	0	(67,874)	0
FY 1998	11,554	0	0	0	(11,554)	0
FY 1999	13,193	(1,120)	(820)	0	(373)	10,880
FY 2000	11,708	(1,639)	(3,367)	0	0	17,582
FY 2001	8,070	(773)	(1,249)	0	0	23,630
FY 2002	8,200	(342)	(3,010)	(8,200)	0	20,278
July 1, 2002 - June 30, 2003	8,525	(0)	(3,663)	(8,525)	0	17,615
July 1, 2003 - Dec. 31, 2003[1]	3,375	0	(1,492)	(1,688)	0	17,810
Totals	133,499	(3,874)	(12,601)	(18,413)	(79,801)	17,810

Notes:

1. Projections are provided through current NRC Certification of Compliance expiration date, December 31, 2003.

2. DOE retains liability for depleted uranium generated prior to USEC's privatization (July 28, 1998) per USEC Privitization Act (Public Law 104-134, Sec 3109, paragraph (a)(3)).

3. Total to be transferred to DOE is the quantity in 2026 48G cylinders, estimated to total approximately 16,674 MTU. These transfers extend into calendar year 2004.

4. Under the June 17, 2002 agreement, DOE will take possession of depleted uranium from USEC operations during USEC's fiscal years 2002 and 2003 (July 1, 2002 through June 30, 2003) and one-half the amount of depleted uranium generated during USEC's fiscal years 2004 and 2005.

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PORTSMOUTH GASEOUS DIFFUSION PLANT
DECOMMISSIONING FUNDING PROGRAM DESCRIPTION

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1.0 INTRODUCTION

As a condition of certification, 10 CFR 76.35(n) requires the United States Enrichment Corporation (USEC) to submit, as part of its application for an NRC certificate of compliance:

> A description of the funding program to be established to ensure that funds will be set aside and available for those aspects of the ultimate disposal of waste and depleted uranium, decontamination and decommissioning, relating to the gaseous diffusion plants leased to the Corporation by the Department of Energy, which are the financial responsibility of the Corporation.

Section 76.35(n) also requires USEC to establish financial surety arrangements to provide the requisite funding. The funding mechanism must ensure availability of funds for activities required to be completed both before and after the return of the GDPs to the Department of Energy (DOE) in accordance with the July 1, 1993 Lease Agreement between DOE and USEC (Lease Agreement). The funding program must also contain a basis for cost estimates used to establish funding levels, and means of adjusting such cost estimates and associated funding levels over the duration of the lease. Finally, USEC is not required to provide funding for "those aspects of decontamination and decommissioning . . . assigned to the Department of Energy under the Atomic Energy Act of 1954, as amended."

In accordance with 10 CFR 76.35(n), USEC hereby submits a description of its program to ensure adequate funds are available for the disposal of waste and the disposition of depleted uranium generated at the GDP's and for which USEC is financially responsible under the Atomic Energy Act (AEA).

2.0 SCOPE OF USEC'S DECOMMISSIONING FINANCIAL RESPONSIBILITY

USEC began to operate the Paducah (PGDP) and Portsmouth (PORTS) plants on July 1, 1993, in accordance with the AEA, as amended, and the July 1, 1993 Lease Agreement. Prior to July 1, 1993, DOE operated the plants for about 40 years. Section 1403(d) of the AEA provides that "[t]he payment of any costs of decontamination and decommissioning . . . with respect to conditions existing before the transition date [July 1, 1993], in connection with property of the Group leased under subsection (a), shall remain the sole responsibility of the Group." Accordingly, USEC is not financially responsible for, and this Program Description does not provide funding assurance for, decontamination or decommissioning costs associated with any operations at the gaseous diffusion plants (GDPs) prior to July 1, 1993.

Furthermore, the GDPs, including the Leased Premises, will ultimately be decommissioned by DOE, which is solely responsible for the conduct of decontamination and decommissioning activities at the plant, and which also bears sole financial responsibility for the bulk of these activities. Section 4.6 of the Lease Agreement states that:

> Except as provided in Section 4.5© of this Lease, the Department will be responsible for and will pay the costs of all Decontamination and Decommissioning, including the costs of Decontamination and Decommissioning of the Leased Premises, the Leased Personalty, any personal property found on the Leased Premises, regardless of ownership, and any Capital Improvement.

In addition, Section 4.3(b) of the Lease Agreement states that "[t]he Corporation shall be entitled, should it choose, to leave any of its personal property (including personal property contaminated by radioactive materials) on the Leased Premises at the end of the Lease Term-for Decontamination and Decommissioning by the Department".

However, USEC does have certain specific financial responsibilities with respect to some of these activities. Under Section 4.4© of the Lease Agreement, USEC is "responsible for the ultimate treatment and disposal of any waste generated by the Corporation, and for which the Department is not responsible . . . ." Under this provision, USEC is financially responsible for, and this Program Description addresses, the disposal of low-level radioactive waste (LLRW) and "mixed" hazardous and radioactive waste generated by USEC at the GDPs after the date of privatization, July 28, 1998. 1/

In addition, as discussed above, Section 4.6 of the Lease Agreement provides that the Department will pay the costs of all decontamination and decommissioning, "[e]xcept as provided in Section 4.5© of this Lease . . . ." Section 4.5© authorizes USEC to remove any capital improvement at the GDPs, but "if such removal increases the costs of the Department for the Decontamination and

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1/ A more detailed description of USEC's plans to manage and dispose of LLRW and mixed waste generated at the GDPs is provided in the Radioactive Waste Management Program, which is included as part of each certificate of compliance application.

Decommissioning of the Leased Premises to which any such Capital Improvement was attached, the Corporation will pay any such increase in Decontamination and Decommissioning costs." At this time, USEC does not anticipate removing any capital improvement from the plant site. Therefore, no financial assurance for Decontamination and Decommissioning cost increases arising out of such removal is currently being provided.

Finally, USEC is generating depleted uranium as a result of its operation of the GDPs. Section 3109(a)(3) of the USEC Privatization Act (passed April 1996) states that:

> All liabilities arising out of the disposal of depleted uranium generated by the Corporation between July 1, 1993 and the privatization date shall become the direct liabilities of the Secretary [Secretary of Energy].

Therefore, this Program Description also describes USEC's funding program to ensure funds are available for the ultimate disposition of the depleted uranium generated by USEC's operation after July 28, 1998. 2/

USEC established an agreement with Starmet CMI for the transfer and processing of depleted uranium. As described in the Depleted Uranium Management Plan, Starmet CMI was using this material in a demonstration project that, if successful, would have resulted in an option for processing USEC depleted uranium in the future. The amount of depleted uranium to be disposed of by USEC has been reduced by the amount of material that has been transferred to Starmet CMI, as shown in Table 1 of the Depleted Uranium Management Plan. No additional transfers to Starmet CMI are anticipated at this time.

In addition, under the "Memorandum of Agreement Between the United States Department of Energy and the United States Enrichment Corporation Relating to Depleted Uranium," dated June 30, 1998 and described in the Depleted Uranium Management Plan, USEC has fully paid the fee for DOE's responsibility to take 2,026 48G cylinders containing approximately 16,674 MT of depleted uranium generated by USEC's operations. The material is to be transferred to DOE on the schedule shown in Table 1 of the Depleted Uranium Management Plan; however, notwithstanding the transfer schedule, DOE's liability at any point in time is to take the aforementioned quantity less any amounts that may have already been transferred to DOE under this agreement.

Furthermore, as described in the Depleted Uranium Management Plan, the "Agreement Between the U.S. Department of Energy ("DOE") and USEC Inc. ("USEC")," dated June 17, 2002, provides, in part, for the DOE taking possession of depleted uranium from USEC operations during USEC's fiscal years 2002 and 2003 and one-half the amount of depleted uranium generated during USEC's fiscal years 2004 and 2005. The quantity of depleted uranium associated with this agreement, and the transfer schedule for this material, is specified in Table 1 of the Depleted Uranium Management Plan.

2/ The Depleted Uranium Management Plan describes in greater detail USEC's plans for the management and disposition of depleted uranium.

3.0 DECOMMISSIONING COST ESTIMATE

In accordance with 10 CFR 76.35(n), USEC has estimated the costs associated with the disposal of LLRW and mixed waste, and the disposition of depleted uranium generated by its operations at the GDPs. These costs are not considered decontamination and decommissioning costs, but rather production costs since they are incurred during the operation and maintenance of the plant. These cost estimates are cumulative, and are calculated one year in advance. The estimated cost for calendar year (CY) 2003 for the disposal of waste and for the disposition of depleted uranium generated by USEC at the GDPs

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is as follows:

Low Level and Mixed Waste	$ 6.73M
Depleted Uranium	43.96M
Labor Cost	0.50M
CY03 Cost	$ 51.19M

To account for uncertainties associated with either the estimated volumes or costs associated with the above cost estimates, a contingency factor of 10% is applied to the CY 03 cost. A 10% contingency is appropriate considering USEC's limited decontamination and decommissioning liability as described in the Decommissioning Funding Program Description (DFP), the Certificate Condition which requires an annual review and update, as necessary, of the DFP cost estimate and the relative stability of the factors which are utilized to generate USEC's depleted uranium volume estimate, the disposal of which is the major contributor to USEC's decommissioning funding liability. After application of the 10% contingency, USEC's total projected decommissioning funding liability for calendar year 2003 is $56.31 million.

The bases for these cost estimates are described below in their respective subsection. USEC's cost estimates will be reviewed annually and revised, as necessary, to reflect any change in USEC's projected liability.

3.1 LOW LEVEL AND MIXED WASTE DISPOSAL

USEC generates many types of LLRW and mixed (hazardous and radioactive) waste at the GDPs, as described in the Radioactive Waste Management Program (RWMP) for each site. For the most part, all wastes are routinely treated on-site or treated and disposed of off-site as the wastes are generated. There are, however, a small number of mixed waste streams for which no treatment and/or disposal option exists in the US. These wastes are authorized to be stored in Department of Energy permitted storage at each site under agreements with the appropriate state agencies. There is also a quantity of LLRW at each plant that will remain onsite at the end of CY2003. At PGDP, the LLRW does not meet the disposal facilities waste acceptance criteria as stored, while at PORTS, most of these wastes currently do not have a disposal option. These wastes are being stored in compliance with USEC's Certificate of Compliance. USEC's LLRW and mixed waste decommissioning liability is calculated as the sum of the liability associated with the cost of disposal of that amount of waste estimated to be generated during the calendar year plus the liability associated with the estimated amount of mixed waste that remains in storage at the end of the calendar year. Cost of disposal includes disposal cost, container cost, and transportation costs.

Estimated waste generation volumes are based on historical waste generation for each plant. Each individual LLRW and mixed waste stream has a different estimated volume and a different disposal cost. For the year, the different volumes of waste generated and their disposal cost estimates are averaged to establish an average disposal cost. USEC's cost estimate is based on the weighted average cost to manage waste. The disposal cost estimate for each waste stream in the weighted average cost is based upon existing contract prices.

Based on historical information, the cost of containers for waste disposal is approximately 8.1% of the disposal cost. Historical information also shows that the transportation cost associated with waste is approximately 9.1% of the disposal costs.

Except for those mixed wastes and LLRW noted earlier that do not currently have a disposal outlet, USEC anticipates that its waste disposal activities will be such that LLRW and most mixed waste generated in any given year will be disposed of within that year, or shortly thereafter. USEC funds this disposal cost out of accrued cash generated from operations. The decommissioning liability associated with the mixed waste that remains in storage at the end of the calendar year at each site will be calculated based on the estimated volume of waste in storage at the end of the calendar year.

3.1.1 LOW LEVEL RADIOACTIVE WASTE DISPOSAL

USEC anticipates generating a total of approximately 53,500 ft^3 of LLRW from routine operations and projects at the Paducah plant for calendar year 2003. USEC has assumed disposal of Paducah's LLRW at various commercial disposal facilities at an average weighted cost of $32.30/ ft^3. The disposal cost for LLRW generated by USEC at the Paducah plant for calendar year 2003 is therefore estimated to be:

Paducah LLRW: 53,500 ft^3 x $32.30/$ft^3$ = $1.73 million for the year

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Likewise at the Portsmouth plant, USEC anticipates generating a total of approximately 12,100 ft^3 of LLRW from routine operations, projects, shutdown, and lease turnover. USEC has assumed disposal of Portsmouth's LLRW at various commercial disposal facilities at an average weighted cost of \$26.30/ft^3. The disposal cost for LLRW generated by USEC at the Portsmouth plant for calendar year 2003 is therefore estimated to be:

Portsmouth LLRW: 12,100 ft^3 x \$26.30/ ft^3 = \$0.32 million for the year

The cost of disposal of USEC's LLRW for CY 2003 is \$2.05 million.

3.1.2 MIXED WASTE DISPOSAL

USEC anticipates generating a total of approximately 700 ft^3 of mixed waste at the Paducah plant in calendar year 200 3. The current average cost estimate for disposing of this mixed waste produced at Paducah is \$190.00/ft^3. The disposal cost for this mixed waste generated at the Paducah plant for calendar year 2003 is therefore estimated to be:

Paducah Mixed Waste: 700 ft^3 x \$190.00/ ft^3 = \$0.13 million for the year

Likewise at the Portsmouth plant, USEC anticipates generating a total of approximately 710 ft^3 of mixed waste for CY 2003. The current average cost of disposal of such waste at Portsmouth is \$161.90/ft^3. The disposal cost for this mixed waste generated at the Portsmouth plant for calendar year 2003 is therefore estimated to be:

Portsmouth Mixed Waste: 710 ft^3 x \$161.90/ ft^3 = \$0.12 million for the year

The cost of disposal of USEC's mixed waste for CY 2003 is \$0.25 million.

3.1.3 COST OF CONTAINERS AND TRANSPORTATION

The cost of disposal of USEC's waste for CY 2003 has been estimated to be \$2.05 million for LLRW and \$0.25 million for mixed waste for a total of \$2.30 million. The estimated cost of containers for USEC's waste in CY 2003 is 8.1% of the cost of disposal.

Cost of containers: 8.1% of \$2.30 million or \$0.19 million.

The estimated cost of transportation for the disposal of USEC's waste in CY 2003 is estimated to be 9.1% of the cost of disposal.

Cost of transportation: 9.1% of \$2.30 million or \$0.21 million.

The total estimated cost associated with the containers and transportation necessary for the disposal of USEC's waste in CY 2003 is \$0.40 million.

3.1.4 MIXED WASTE IN STORAGE

As described earlier, there is an amount of mixed waste that will remain in storage at the end of CY 2003. At Paducah, this volume is estimated to be 31 ft^3. Due to the unknown future costs associated with these wastes an additional \$1,500/ft^3 may be necessary for disposal. The additional estimated cost associated with the disposal of this waste is:

Paducah mixed waste in storage: 31 ft^3 x \$1,500/ft^3 = \$0.05 million

Likewise, at the Portsmouth plant, USEC estimates that 1,100 ft^3 of mixed waste will be in storage at the end of CY 2003. Due to the unknown future costs associated with these wastes an additional \$1,500/ft^3 may be necessary for disposal. The additional estimated cost associated with the disposal of this waste is:

Portsmouth mixed waste in storage: 1,100 ft^3 x \$1,500/ft^3 = \$1.65 million

The total addition cost estimated for the disposal of mixed waste in storage at the two GDPs in CY 2003 is \$1.70 million.

3.1.5 LOW-LEVEL RADIOACTIVE WASTE IN STORAGE

As described earlier, there is an amount of LLRW that will remain in storage at the end of CY 2003. This waste will be disposed at a later date at an estimated cost of \$28/ft^3. This disposal cost is determined based on the weighted average cost for this particular waste stream. At Paducah, this LLRW volume is estimated to be 22,500 ft^3.

The disposal cost for this LLRW that will remain on site at Paducah at the end of CY 2003 is estimated to be:

Paducah LLRW in storage: 22,500 ft^3 x \$28/ft^3 = \$0.63 million

Likewise at the Portsmouth Plant, USEC estimates that 8,000 ft^3 of LLRW will remain on site at the end of CY 2003, and disposed at a later date. Therefore, the disposal cost for this LLRW that will remain on site at Portsmouth at the end of CY 2003 is estimated to be:

Portsmouth LLRW in storage: 8,000 ft^3 x \$28/ft^3 = \$0.22 million

Therefore, the cost to dispose of the LLRW in storage in a subsequent calendar year is \$0.85 million. As previously described in Section 3.1.3, the estimated cost for containers d transportation for this LLRW is 8.1 percent and 9.1 percent, respectively. Therefore, the total cost for disposal of this LLRW in storage, including transportation and container costs, is estimated to be \$1.0 million.

In addition, 4424 ft^3 of LLRW for which USEC does not currently have a disposal outlet will remain in storage at Portsmouth. Due to the unknown future costs associated with disposal of this 4424 ft^3 of LLRW, an additional \$300 may be necessary for disposal. Therefore, the disposal cost for this LLRW that will remain in storage at Portsmouth at the end of CY 2003 is estimated to be:

Portsmouth LLRW in storage: 4424 ft^3 x \$300/ft^3 = \$1.33 million

The total additional cost estimated for the disposal of LLRW in storage at the two GDPs in CY 2003 is \$2.33 million.

3.2 DEPLETED URANIUM DISPOSITION

The estimate of decommissioning liability for depleted uranium is based on the generation of depleted uranium as described in the Depleted Uranium Management Plan, the scope of USEC's contract with Starmet CMI, and the agreements discussed above in Section 2.0. The cost for processing the remaining depleted uranium per kilogram was estimated to be \$2.99/KgU for CY 2003 based on the fixed price contract with Starmet CMI and the cost per KgU in the DOE/USEC Agreement of June 30, 1998 (within 1 cent/KgU of the Starmet price). Based on the Depleted Uranium Management Plan, USEC's projected maximum liability at the end of calendar year 2003 for the disposition of depleted uranium generated by its Paducah and Portsmouth operations is 13.737 million kilograms, (please refer to Table 1 in the Depleted Uranium Management Plan).

- Estimated amount of USEC DU on hand by end of FY C 2003 — 17, 810 MTU
- Total liability of DOE remaining under 06/30/98 Agreement after transfers through CY 2003 (16674-820-3367-1249-3010-2663-1492) — (4,073)
- USEC's net liability for DU, CY 2003 — 13,737 MTU or 13,737,000 KgU.

Total processing cost for depleted uranium is then 13,737,000 kilograms of depleted uranium times \$2.99 per kilogram = \$41,073,630 or, rounding up,\$41.08M.

The above cost estimate includes processing as well as transportation and disposal of any by-product related to processing of the depleted uranium. To obtain the total cost associated with disposition of depleted uranium, the cost for transporting the depleted uranium to the processing facility must be included. The estimated cost associated with transporting USEC's depleted uranium liability for CY 2003 is estimated as follows:

$$\frac{(13{,}737\ \text{MTU})(\$1760/\text{cylinder}^*)}{(8.4\text{MTU/cylinder})^{**}} = \$\,2{,}878{,}229 \text{ or } \$\,2.88\text{M}$$

* Based on freight invoices to Starmet CMI
**Approximate average MTU/cylinder, based on shipping weights

Therefore, USEC's total estimated liability for disposition of depleted uranium for CY 2003 is the sum of processing costs and transportation costs which equates to $ 43.96M.

3.3 LABOR COSTS

To account for labor costs associated with disposal of USEC generated waste, USEC has include provisions for two crews (one for each facility) comprised of 1 supervisor, 3 laborers, 1 health physics technician and 1 engineer. Since disposal of waste is not a continuous process, the labor costs are calculated assuming the crews are available for a six month duration, with the health physics technician and engineer available for half-time (3 months duration). Labor costs were estimated based on the costs provided in NUREG/CR-6477, "Revised Analyses of Decommissioning Reference Non-Fuel-Cycle Facilities," dated July 1998. Based on these assumptions, the labor costs associated with disposal of USEC generated waste is $500,000 ($ 250,000 per site).

4.0 REVIEW AND ADJUSTMENT OF DECOMMISSIONING COSTS AND FUNDING LEVELS

USEC will review the decommissioning cost estimates and associated funding levels over the duration of the lease and adjust them when necessary. These adjustments will take into account such factors as changes in volume and cost estimates, inflation, changes in plant conditions, and changes in expected decontamination and decommissioning procedures. USEC will conduct such reviews in October of each year.

5.0 DECOMMISSIONING FUNDING MECHANISM

USEC utilizes payment surety bond(s) and standby trust agreement(s) to ensure that sufficient funds will be available for waste disposal, depleted uranium disposition, and decontamination and decommissioning of the GDPs as set forth in this Program Description. The instruments closely adhere to the recommended wording for such instruments set forth in NRC Regulatory Guide 3.66, "Standard Format on and Content of Financial Assurance Mechanisms Required for Decommissioning under 10 CFR Parts 30,40,70, and 72" (June 1990). Non-executed versions are included in this plan. Executed documents are submitted to the NRC for reviews as they are required and re-issued.

6.0 SECTION DELETED

7.0 SECTION DELETED

PAYMENT SURETY BOND - NON-EXECUTED VERSION

Date bond executed: _____

Effective date: _____

Principal: United States Enrichment Corporation
6903 Rockledge Drive
Bethesda, MD 20817

Type of organization: Delaware Chartered Corporation

NRC certificate of compliance number: GDP-1 and GDP-2

Name and address of facilities: Paducah Gaseous Diffusion Plant
Portsmouth Gaseous Diffusion Plant

Amount(s) for decommissioning activity guaranteed by this bond: Estimated at $56,310,000

Surety(ies) [names(s) and business address(es)]

Type of organization: [insert "proprietorship," "joint venture," "partnership," or "corporation"]

State of incorporation: _____ (if applicable)

Surety's qualification in jurisdiction where facility is located.

Surety's bond number: _____

Total penal sum of bond: $ _____

Know all persons by these presents, That we, the Principal and Surety(ies) hereto, are firmly bound to the U.S. Nuclear Regulatory Commission (herein called NRC), in the above penal sum for the payment of which we bind ourselves, our heirs, executors, administrators, successors, and assigns jointly and severally; provided that, where the Sureties are corporations acting as co-sureties, we, the Sureties, bind ourselves in such sum "jointly and severally" only for the purpose of allowing a joint action or actions against any or all of us, and for all other purposes each Surety binds itself, jointly and severally with the Principal, for the payment of such sum only as is set forth opposite the name of such Surety; but if no limit of liability is indicated, the limit of liability shall be the full amount of the penal sum.

WHEREAS, the NRC, an agency of the U.S. Government, pursuant to the Atomic Energy Act of 1954, as amended, and the Energy Reorganization Act of 1974, has promulgated regulations in Title 10, Chapter I of the Code of Federal Regulations, Part 76, applicable to the Principal, which require that the holder of a

certificate of compliance for a gaseous diffusion plant, or an applicant for a certificate of compliance for such a facility provide financial assurance that funds will be available when needed for those aspects of the ultimate disposal of waste and disposition of depleted uranium, decontamination and decommissioning of such a facility which are the financial responsibility of such holder or applicant (collectively, "decommissioning");

NOW, THEREFORE, the conditions of the obligation are such that if the Principal shall faithfully, before the beginning of decommissioning of each facility identified above, fund the standby trust fund in the amount(s) identified above for the facility;

Or, if the Principal shall fund the standby trust fund in such amount(s) after an order to begin facility decommissioning is issued by the NRC or a U.S. district court or other court of competent jurisdiction;

Or, if the Principal shall provide alternative financial assurance and obtain the written approval of the NRC of such assurance, within 30 days after the date a notice of cancellation from the Surety(ies) is received by both the Principal and the NRC, then this obligation shall be null and void; otherwise it is to remain in full force and effect.

The Surety(ies) shall become liable on this bond obligation only when the Principal has failed to fulfill the conditions described above. Upon notification by the NRC that the Principal has failed to perform as guaranteed by this bond, the Surety(ies) shall place funds in the amount guaranteed for the facility(ies) into the standby trust fund established by the Principal with [name of trustee] pursuant to the Standby Trust Agreement dated [date].

The liability of the Surety(ies) shall not be discharged by any payment or succession of payments hereunder, unless and until such payment or payments shall amount in the aggregate to the penal sum of the bond, but in no event shall the obligation of the Surety(ies) hereunder exceed the amount of said penal sum. The Surety(ies) may cancel the bond by sending notice of cancellation by certified mail to the Principal and to the NRC provided, however, that cancellation shall not occur during the 90 days beginning on the date of receipt of the notice of cancellation by both the Principal and the NRC, as evidenced by the return receipts.

The Principal may terminate this bond by sending written notice to the NRC and to Surety(ies) 90 days prior to the proposed date of termination, provided, however, that no such notice shall become effective until the Surety(ies) receive(s) written authorization for termination of the bond from the NRC.

If any part of this agreement is invalid, it shall not affect the remaining provisions which will remain valid and enforceable.

In Witness Whereof, the Principal and Surety(ies) have executed this financial guarantee bond and have affixed their seals on the date set forth above.

The persons whose signatures appear below hereby certify that they are authorized to execute this surety bond on behalf of the Principal and Surety(ies).

Principal: United States Enrichment Corporation

[Signature(s)]

[Name(s)]

[Title(s)]

[Corporate Seal]

Corporate Surety(ies)

[Name and address]

State of incorporation: _____

Liability limit: $ _____

[Signature(s)]

[Names(s) and title(s)]

[Corporate Seal]

[For every co-surety, provide signature(s), corporate seal, and other information in the same manner as for Surety(ies) above.]

Bond premium: $ _____

STANDBY TRUST AGREEMENT - NON-EXECUTED VERSION

TRUST AGREEMENT, the Agreement entered into as of [date] by and between the United States Enrichment Corporation, a Delaware chartered corporation, herein referred to as the "Grantor," and [name and address of a national bank or other Trustee acceptable to the U.S. Nuclear Regulatory Commission], the "Trustee."

WHEREAS, the U.S. Nuclear Regulatory Commission (NRC), an agency of the U.S. Government, pursuant to the Atomic Energy Act of 1954, as amended, add the Energy Reorganization Act of 1974, has promulgated regulations in Title 10, Chapter I of the Code of Federal Regulations, Part 76. These regulations, applicable to the Grantor, require that a holder of, or an applicant for, a Part 76, certificate of compliance provide assurance that funds will be available when needed for required decommissioning activities.

WHEREAS, the Grantor has elected to use a surety bond to provide part of such financial assurance for the facilities identified herein; and

WHEREAS, when payment is made under a surety bond this standby trust shall be used for the receipt of such payment; and

WHEREAS, the Grantor, acting through its duly authorized officers, has selected the Trustee to be the trustee under this Agreement, and the Trustee is willing to act as trustee,

NOW, THEREFORE, the Grantor and the Trustee agree as follows:

Section 1. Definitions. As used in this Agreement:

(a) The term "Decommissioning" means those aspects of the ultimate disposal of waste and disposition of depleted uranium, decontamination and decommissioning of the Paducah and Portsmouth Gaseous Diffusion Plant (GDPs) which are the financial responsibility of the Grantor.

(b) The term "Grantor" means the United States Enrichment Corporation and any successors or assigns thereof.

(c) The term "Trustee" means the trustee who enters into this Agreement and any successor Trustee.

Section 2. Costs of Decommissioning. This Agreement pertains to the costs of decommissioning the materials and activities identified in Certificate of Compliance Number GDP-1 and GDP-2 issued pursuant to 10 CFR Part 76.

Section 3. Establishment of Fund. The Grantor and the Trustee hereby establish a standby trust fund (the Fund) for the benefit of the NRC. The Grantor and the Trustee intend that no third party have access to the Fund except as provided herein.

Section 4. Payments Constituting the Fund. Payments made to the Trustee for the Fund shall consist of cash, securities, or other liquid assets acceptable to the Trustee. The Fund is established initially as consisting of the property which is acceptable to the Trustee, described in Schedule B attached hereto. Such property and

any other property subsequently transferred to the Trustee are referred to as the "Fund," together with all earnings and profits thereon, less any payments or distributions made by the Trustee pursuant to this Agreement. The Fund shall be held by the Trustee, IN TRUST, as hereinafter provided. The Trustee shall not be responsible nor shall it undertake any responsibility for the amount of, or adequacy of the Fund, nor any duty to collect from the Grantor, any payments necessary to discharge any liabilities of the Grantor established by the NRC.

Section 5. Payment for Required Activities Specified in the Plan. The Trustee shall make payments from the Fund to the Grantor upon presentation to the trustee of the following:

a. A certificate duly executed by the Secretary of the Grantor attesting to the occurrence of the events, and in the form set forth in the attached Specimen Certificate, and

b. A certificate attesting to the following conditions:

(1) that decommissioning is proceeding pursuant to an NRC-approved plan.

(2) that the funds withdrawn will be expended for activities undertaken pursuant to that Plan, and

(3) that the NRC has been given 30 days' prior notice of the Grantor's intent to withdraw funds from the escrow fund.

No withdrawal from the fund can exceed 10 percent of the outstanding balance of the Fund unless NRC approval is attached.

In the event of the Grantor's default or inability to direct decommissioning activities, the Trustee shall make payments from the Fund as the NRC shall direct, in writing, to provide for the payment of the costs of required activities covered by this Agreement. The Trustee shall reimburse the Grantor, or other persons as specified by the NRC, from the Fund for expenditures for required activities in such amount as the NRC shall direct in writing. In addition, the Trustee shall refund to the Grantor such amounts as the NRC specifies in writing. Upon refund, such funds shall no longer constitute part of the Fund as defined herein.

Section 6. Trust Management. The Trustee shall invest and reinvest the principal and income of the Fund and keep the Fund invested as a single fund, without distinction between principal and income, in accordance with general investment policies and guidelines which the Grantor may communicate in writing to the Trustee from time to time, subject, however, to the provisions of this section. In investing, reinvesting, exchanging, selling, and managing the Fund, the Trustee shall discharge its duties with respect to the Fund solely in the interest of the beneficiary and with the care, skill, prudence, and diligence under the circumstances then prevailing which persons of prudence, acting in a like capacity and familiar with such matters, would use in the conduct of an enterprise of a like character and with like aims; except that:

(a) Securities or other obligations of the Grantor, or any other owner or operator of the facilities, or any of their affiliates as defined in the investment Company Act of 1940, as

amended (15 U.S.C. 80a-2(a)), shall not be acquired or held, unless they are securities or other obligations of the Federal or a State government;

(b) The Trustee is authorized to invest the Fund in time or demand deposits of the Trustee, to the extent insured by an agency of the Federal Government, and in obligations of the Federal Government, and in obligations of the Federal Government such as GNMA, FNMA, and FHLM bonds and certificates or State and Municipal bonds rated BBB or higher by Standard and Poor's or Baa or higher by Moody's Investment Services; and

(c) For a reasonable time, not to exceed 60 days, the Trustee is authorized to hold uninvested cash, awaiting investment or distribution, without liability for the payment of interest thereon.

Section 7. Commingling and Investment. The Trustee is expressly authorized in its discretion:

(a) To transfer from time to time any or all of the assets of the fund to any common, commingled, or collective trust fund created by the Trustee in which the Fund is eligible to participate, subject to all of the provisions thereof, to be commingled with the assets of other trusts participating therein; and

(b) To purchase shares in any investment company registered under the Investment Company Act of 1940 (15 U.S.C. 80a-1 et seq.), including one that may be created, managed, underwritten, or to which investment advice is rendered, or the shares of which are sold by the Trustee. The Trustee may vote such shares in its discretion.

Section 8. Express Powers of Trustee. Without in any way limiting the powers and discretion conferred upon the Trustee by the other provisions of this Agreement or by law, the Trustee is expressly authorized and empowered:

(a) To sell, exchange, convey, transfer, or otherwise dispose of any property held by it, by public or private sale, as necessary to allow duly authorized withdrawals at the joint request of the Grantor and the NRC or to reinvest in securities at the direction of the Grantor;

(b) To make, execute, acknowledge, and deliver any and all documents of transfer and conveyance and any and all other instruments that may be necessary or appropriate to carry out the powers herein granted;

(c) To register any securities held in the Fund in its own name, or in the name of a nominee, and to hold any security in bearer form or in book entry, or to combine certificates representing such securities with certificates of the same issue held by the Trustee in other fiduciary capacities, to reinvest interest payments and funds from matured and redeemed instruments, to file proper forms concerning securities held in the Fund in a timely fashion with appropriate government agencies, or to deposit or arrange for the deposit of such securities in a qualified central depository even through, where so deposited, such securities may be merged and held in bulk in the name of the nominee or such depository with other

securities deposited therein by another person, or to deposit or arrange for the deposit of any securities issued by the U.S. Government, or any agency or instrumentality thereof, with a Federal Reserve bank, but the books and records of the Trustee shall at all times show that all such securities are part of the Fund;

(d) To deposit any cash in the Fund in interesting-bearing accounts maintained or savings certificates issued by the Trustee, in its separate corporate capacity, or in any other banking institution affiliated with the Trustee, to the extent insured by an agency of the Federal government; and

(e) To compromise or otherwise adjust all claims in favor of or against the Fund.

Section 9. Taxes and Expenses. All taxes of any kind that may be assessed or levied against or in respect of the Fund and all brokerage commissions incurred by the Fund shall be paid from the Fund. All other expenses incurred by the Trustee in connection with the administration of this Trust, including fees for legal services rendered to the trustee, the compensation of the trustee to the extent not paid directly by the Grantor, and all other proper charges and disbursements of the Trustee shall be paid from the Fund.

Section 10. Annual Valuation. After payment has been made into this standby trust fund, the Trustee shall annually, at least 30 days before the anniversary date of receipt of payment into the standby trust fund, furnish to the Grantor and to the NRC a statement confirming the value of the Trust. Any securities in the Fund shall be valued at market value as of no more than 60 days before the anniversary date of the establishment of the Fund. The failure of the Grantor to object in writing to the trustee within 90 days after the statement has been furnished to the Grantor and the NRC, shall constitute a conclusively binding assent by the Grantor, barring the Grantor from asserting any claim or liability against the Trustee with respect to the matters disclosed in the statement.

Section 11. Advice of Counsel. The trustee may from time to time consult with counsel with respect to any question arising as to the construction of this Agreement or any action to be taken hereunder. The Trustee shall be fully protected, to the extent permitted by law, in acting on the advice of counsel.

Section 12. Trustee Compensation. The Trustee shall be entitled to reasonable compensation for its services as agreed upon in writing with the Grantor. (See Schedule C.)

Section 13. Successor Trustee. Upon 90 days notice to the NRC, the Trustee may resign; upon 90 days notice to NRC and the Trustee, the Grantor may replace the Trustee; but such resignation or replacement shall not be effective until the Grantor has appointed a successor Trustee and this successor accepts the appointment. The successor Trustee shall have the same powers and duties as those conferred upon the Trustee hereunder. Upon the successor Trustee's acceptance of the appointment, the trustee shall assign, transfer, and pay over to the successor Trustee the funds and properties then constituting the Fund. If for any reason the Grantor cannot or does not act in the event of the resignation of the Trustee, the Trustee may apply to a court of competent jurisdiction for the appointment of a successor Trustee or for instructions. The successor Trustee shall specify the date on which it assumes administration of the trust in writing sent to the Grantor, the NRC, and the present Trustee by certified mail 10 days before such changes become effective. Any expenses

incurred by the Trustee as a result of any of the acts contemplated by this section shall be paid as provided in Section 9.

Section 14. Instructions to the Trustee. All orders, requests, and instructions by the Grantor to the Trustee shall be in writing, signed by such persons as are signatories to this agreement or such other designees as the Grantor may designate in writing. The Trustee shall be fully protected in acting without inquiry in accordance with the grantor's orders, requests, and instructions. If the NRC issues orders, requests, or instructions to the Trustee these shall be in writing, signed by the NRC, or its designees, and the Trustee shall act and shall be fully protected in acting in accordance with such orders, requests, and instructions. The Trustee shall have the right to assume, in the absence of written notice to the contrary, that no event constituting a change or a termination of the authority of any person to act on behalf of the Grantor, or the NRC, hereunder has occurred. The Trustee shall have no duty to act in the absence of such orders, requests, and instruction from the Grantor and/or the NRC, except as provided for herein.

Section 15. Amendment of Agreement. This Agreement may be amended by an instrument in writing executed by the Grantor, the Trustee and the NRC, or by the Trustee and the NRC, if the Grantor ceases to exist.

Section 16. Irrevocability and Termination. Subject to the right of the parties to amend this Agreement as provided in Section 15, this trust shall be irrevocable and shall continue until terminated at the written agreement of the Grantor, the Trustee, and the NRC, or by the Trustee and the NRC, if the Grantor ceases to exist. Upon termination of the trust, all remaining trust property, less final trust administration expenses, shall be delivered to the Grantor or its successor.

Section 17. Immunity and Indemnification. The Trustee shall not incur personal liability of any nature in connection with any act or omission, made in good faith, in the administration of this trust, or in carrying out any directions by the Grantor, or the NRC, issued in accordance with this Agreement. The Trustee shall be indemnified and saved harmless by the Grantor or from the trust fund, or both, from and against any personal liability to which the Trustee may be subjected by reason of any act or conduct in its official capacity, including all expenses reasonably incurred in its defense in the event the Grantor fails to provide such defense.

Section 18. This Agreement shall be administered, construed, and enforced according to the laws of the United States.

Section 19. Interpretation and Severability. As used in this Agreement, words in the singular include the plural and words in the plural include the singular. The descriptive headings for each section of this Agreement shall not affect the interpretation or the legal efficacy of this Agreement. If any part of this agreement is invalid, it shall not affect the remaining provisions which will remain valid and enforceable.

IN WITNESS WHEREOF the parties have caused this Agreement to be executed by the respective officers duly authorized and the incorporate seals to be hereunto affixed and attested as of the date first written above.

ATTEST:

[Insert name of Grantor]
[Signature of representative of Grantor]
[Title]

[Title]
[Seal]

[Insert name of Trustee]
[Signature of representative of Trustee]
[Title]

ATTEST:
[Title]
[Seal]

ATTEST:

[Insert name of Grantor]
[Signature of representative of Grantor]
[Title]

[Title]
[Seal]

[Insert name of Trustee]
[Signature of representative of Trustee]
[Title]

ATTEST:
[Title]
[Seal]

United States Enrichment Corporation
Standby Trust Agreement

SCHEDULE A

This Agreement demonstrates financial assurance for the following cost estimates for the following licensed activities:

U.S. NUCLEAR REGULATORY COMMISSION CERTIFICATE OF COMPLIANCE NUMBER	GDP-1 AND GDP-2
NAME AND ADDRESS OF LICENSEE	United States Enrichment Corporation 6903 Rockledge Drive Bethesda, Maryland 20817 3930 State Route 23/Perimeter Road Piketon, Ohio 45661 5600 Hobbs Road Paducah, Kentucky 42001
COST ESTIMATE FOR REGULATORY ASSURANCES DEMONSTRATED BY THIS AGREEMENT	[Insert amount of agreement]

The cost estimates listed here were submitted to the NRC on [insert date]

The Total Cost of decommissioning the GDP's, assuming no liability for decontamination, is as per the decommissioning cost estimates on file with the NRC.

United States Enrichment Corporation _____

First Union Bank _____

United States Enrichment Corporation
Standby Trust Agreement

SCHEDULE B

AMOUNT:
AS EVIDENCED BY: Payment Surety Bond dated [insert date]
[Insert name of Surety Bond holder and Surety Bond number] as on file with the NRC.

United States Enrichment Corporation _____

First Union Bank _____

United States Enrichment Corporation
Standby Trust Agreement

SCHEDULE C

Trustee will be paid [insert amount] annually for services being provided under the standby trust agreement. This fee will apply whether or not payment has been made to the standby trust fund.

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SUPPLEMENTAL ENVIRONMENTAL INFORMATION

RELATED TO COMPLIANCE PLAN

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1. INTRODUCTION

10 CFR 76.35(c) requires that USEC provide:

> Any relevant information concerning deviations from the published Environmental Impact Statement, Environmental Assessments, or environmental permits under which the plants currently operate from which the Commission can prepare an environmental assessment related to the compliance plan.

Detailed information concerning USEC's status of compliance with the environmental permits under which the Portsmouth Plant currently operates is contained in the Environmental Compliance Status Report submitted as part of this application. The additional information required by 10 CFR 76.35(c) is set forth below. This supplemental information demonstrates that: (a) the continued operation of the Portsmouth Plant in accordance with the application and accompanying Plan for Achieving Compliance (Compliance Plan) will not result in any significant deviation from USEC's existing environmental permits; (b) the environmental impacts associated with the operation of the Portsmouth Plant in this manner will remain bounded by the impacts described in the Environmental Impact Statement and Annual Environmental Reports previously prepared in connection with the operation of the Portsmouth Plant; and (c) correction of the areas of non-compliance described in the Compliance Plan will produce no significant adverse environmental impacts.

2. ENVIRONMENTAL PERMITS

The Environmental Compliance Status Report summarizes USEC's status of compliance with federal, state, and local environmental permits and other environmental quality standards and requirements applicable to the Portsmouth Plant. As discussed in greater detail in that report, USEC has obtained the necessary federal, state, and local permits required to operate the Portsmouth Plant and substantially complies with the effluent and emission limitations and other restrictions set forth in these permits. Neither, the operation of the Portsmouth Plant in accordance with the Application and the Compliance Plan nor the actions taken to correct the areas of noncompliance are expected to result in any significant change in the current effluent or emission levels from the plant.

3. ENVIRONMENTAL ASSESSMENT AND REPORTS

DOE issued two separate Environmental Statements for the Portsmouth Plant. The first, the Final Environmental Impact Statement (EIS), Portsmouth Gaseous Diffusion Plant Site, ERDA-1555 (May 1977), contains a detailed description of the environmental impacts associated with the uranium enrichment operation and activities conducted at the Portsmouth Plant at the time the EIS was issued. The second, the Final Environmental Statement, Portsmouth Gaseous Diffusion Plant Expansion, ERDA-1549 (September 1977) contains a detailed assessment of the impacts associated with the planned

construction and operation of a gaseous centrifuge plant at the Portsmouth Plant to expand DOE's uranium enrichment capabilities. This expansion was never completed. The operations currently being conducted at the Portsmouth Plant, therefore, do not have environmental impacts that are significantly different in degree or kind than those previously considered by DOE in the Portsmouth Plant's original EIS, ERDA-1555. DOE's Annual Site Environmental Reports for the Portsmouth Plant that have been published since ERDA-1555 serve as a bridge between the 1977 EIS and the environmental impacts associated with current plant operations. USEC/EA-95001, Environmental Assessment for the Privatization of the United States Enrichment Corporation, March 1995, and the associated Finding of No Significant Impact provides a synopsis of the affected environment surrounding the plant. The NRC has determined that there are no significant differences in operations at the Portsmouth Plant previously evaluated by DOE that would result in current operations having significantly different environmental effects than those already evaluated in the Portsmouth Plant's EIS and the DOE's Annual Site Environmental Reports for the Portsmouth Plant (59 Federal Register 48944; September 23, 1994).

The actual emission levels and other environmental impacts associated with USEC's uranium enrichment operations and related activities at the Portsmouth Plant are generally lower and/or less significant than the emission levels and environmental impacts described in ERDA-1555. First, federal and state environmental standards applicable to operations at the plant, reflected in the various environmental permits issued to the plant, have become increasingly rigorous since the publication of ERDA-1555 resulting in lower permissible emission and discharge limits. As shown in the Portsmouth Environmental Compliance Status Report and the DOE's Annual Site Environmental Reports for the Portsmouth Plant, the Portsmouth Plant is in substantial compliance with these standards.

Second, although the uranium enrichment process at the Portsmouth Plant has not changed significantly since the preparation of ERDA-1555, certain manufacturing processes and activities supporting uranium enrichment that are described in the EIS have been either modified or eliminated resulting in a reduction in the total site-wide environmental impacts. For example, the Portsmouth Plant has:

1. Eliminated use of trichloroethylene as a degreaser;
2. Eliminated the use of chromate as a corrosion inhibiter in the recirculating and chilled water systems, replaced with phosphate;
3. Ceased on-site burial of low level radioactive waste and classified waste;
4. Eliminated several air emission sources, including the Portsmouth waste incinerator;
5. Substantially reduced chlorine released from outfalls through the use of a dechlorination agent;
6. Reduced PCB releases to the environment through the collection of PCB drips in cascade facilities and removal of PCB contaminated lube oil.

Finally, certain environmental control and effluent monitoring systems at the Portsmouth Plant have been expanded and upgraded since ERDA-1555 was published in 1977. For example:

1. Outfall sample quality and flow measurements have been improved by installing refrigerated autosamplers, specialized flumes, and additional instrumentation;
2. Extensive QA/QC control over environmental sampling has been provided through the development of the Environmental Monitoring Plan; and
3. Improvements to the ambient air monitoring system have been implemented.

DOE's Annual Site Environmental Reports for the Portsmouth Plant contain site-wide environmental and waste management information including environmental improvements that have been implemented at the site since the publication of ERDA-1555.

A description of the site-wide environmental monitoring and control systems currently in place at the Portsmouth Plant may be found in the Portsmouth Plant's Annual Site Environmental Report for 1993 (ES/ESH-50, POEF-3050), prepared by DOE. In addition, USEC has prepared USEC/EA-95001, Environmental Assessment for the Privatization of the United States Enrichment Corporation, published March 1995. This environmental assessment was also reviewed and considered in the preparation of this supplemental information.

4. ENVIRONMENTAL IMPACTS ASSOCIATED WITH COMPLIANCE PLAN

The NRC has concluded that operation of the Portsmouth Plant in accordance with 10 CFR 76 would not have a significant impact on the human environment. USEC has determined that the areas of noncompliance and the actions taken to address those noncompliances described in the accompanying Compliance Plan will not adversely affect compliance with current federal, state, and local environmental permits or other environmental quality standards and requirements and will produce no significant adverse environmental impacts.

DOE's Plan for Achieving Compliance with NRC Regulations at the Portsmouth Gaseous Diffusion Plant and USEC's Recommendations were reviewed. Individual areas of noncompliance were evaluated to determine whether the noncompliant condition, the associated corrective action, or the implementation of the corrective action, could result in any changes to routine air and water emissions, result in any uncontrolled releases, or otherwise adversely affect the environment. The majority of the individual areas of noncompliance identified in the Compliance Plan involve activities by USEC to upgrade plantwide programs, procedures, training, document and record controls, and other related administrative and procedural requirements to conform to applicable NRC requirements. Such programmatic and administrative noncompliance and the associated corrective actions, by their very nature, will not have a negative impact on the level of emissions or effluents from plant operations or otherwise adversely affect the environment.

All of the evaluated Compliance Plan actions have been completed.

5. CONCLUSION

The continued operation of the Portsmouth Plant in accordance with the Application and the Compliance Plan and the actions taken to correct the areas of noncompliance: (a) will not result in any significant deviations from the environmental permits under which the Portsmouth Plant currently operates; (b) will not result in environmental impacts beyond those previously considered by DOE, and (c) will not have any significant adverse environmental impact.

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