Rockwell International
Atomics International Division

SUPPORTING DOCUMENT

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FORM 734-C REV. 11-75

ABSTRACT

Title 10, Code of Federal Regulations, Part 71, (10 CFR 71) requires entities licensed to handle special nuclear material by the Nuclear Regulatory Commission (NRC) to establish and maintain a quality assurance program for the design, fabrication, assembly, testing, use, and maintenance of each packaging of quantities of licensed material in excess of type A quantities for shipment. This document describes that program for Energy Systems Group of Rockwell International.

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REV	SUMMARY OF CHANGE	APPROVALS AND DATE
1	Change No. 1 Added SOP K-14 to paragraphs 4.6 and 4.13, corrected typos.	R Danyluk 5/12/78 M E Remley 12 May 78 D M Clair 5/12/78 REL DATE: 5-16-78 JA
A	Changed corporate name from Atomics International (AI) to Energy Systems Group throughout. Updated and upgraded Section 4, implementing procedures, and added Sections 5 and 6. Section 5 provides an annotated bibliography of the implementing procedures, and Section 6 imposes additional requirements on the programs encompassed by this plan.	R Danyluk 11/29/77 D M Clair 11/30/77 M E Remley 12-1-77 R J Thiel 12/2/77 Rel Date 12-5-79 CW

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1.0 INTRODUCTION

Effective October 18, 1977, the Nuclear Regulatory Commission (NRC) amended its regulations for packaging and transport of radioactive material. These amendments, published as changes to CFR Part 71, upgrade requirements for quality assurance in the design, fabrication, assembly, testing, use, and maintenance of packagings for shipping and transporting licensed radioactive material. In general, the upgrading consists of applying the eighteen criteria of 10 CFR 50 Appendix B to the packaging of radioactive material; the criteria are published as 10 CFR 71 Appendix E.

2.0 SCOPE

This QA program applies to all organizations and personnel who perform activities affecting the safety-related functions associated with designing, fabricating, maintaining, and using packages for licensed radioactive material. It does not apply to packages used only for onsite shipments (i.e., where the vehicle never leaves ESG or government-owned land), to license-exempt activities (e.g., where ESG has a GOCO (Government owned-contractor operated) contract with Department of Energy (DOE), or to shipments in government-owned, government-escorted vehicles.

3.0 APPLICATION

In determining how to apply the requirements of this program to a particular activity, responsible management shall consider:

1) The importance of malfunction or failure of the item to safety;
2) The design or fabrication complexity or uniqueness of the item;

3) The need for special controls or surveillance over processes and equipment;
4) The degree to which functional compliance can be demonstrated by inspection or test; and
5) The quality history and degree of standardization of the item.

Any change to design documents that changes conditions specified in the NRC approval of a package or container must also be approved by NRC.

When ESG purchases materials or services, measures to assure adequate quality shall be included in the procurement documents. Subtier contractors shall be required to provide quality assurance programs to the extent necessary to assure adequate quality. The degree to which QA requirements are passed down to subtier suppliers shall specifically be considered by Engineering and QA personnel during P.O. initiation and review.

The documents listed in Section 4, following, as implementing procedures for this QA program are the procedures of the following ESG or departmental manuals. In every case, the latest revision of any procedure referenced must be used.

SOP	Standard Operating Policies
EMP	Engineering Management Procedures Manual
QAOP	Quality Assurance Operating Procedures, Quality Assurance Manual
MM	Manufacturing Manual
HSP	Health and Safety Manual
CMP	Corporate Material Procedures

This matrix, numbered similarly to the criteria in 10 CFR 71 Appendix E, demonstrates how ESG conformance to each criterion is implemented. Section 5, following, provides an annotated bibliography of all listed documents.

4.0 QUALITY ASSURANCE PROGRAM

10 CFR 71 Appendix E Requirement		ESG Implementing Document Number	Title
4.1	Organization	SOP	Organization Section
		SOP Q-10	ESG Quality Assurance Program
		SOP E-15	Manager Selection
4.2	QA Program	SOP K-17	Audits of Special Nuclear Material Control and Radioactive Material Shipping Systems
		SOP A-01	ESG Policies and Procedures
		SOP Q-10	ESG Quality Assurance Program
		SOP Q-12	Quality Assurance Program Audits
		EMP 3-42	Engineering Management System for Specifications
		QAOP N1.01	QA Department Functions
		QAOP N1.20	QA Program Administrator
		QAOP N7.00	Product Acceptance Tests
4.3	Design Control	SOP M-10	Program Management
		SOP Q-14	Corrective Action System
		EMP 1-1	Engineering Systems Management
		EMP 3-1	Engineering Documentation Process
		EMP 2-8	Engineering Studies
		EMP 2-9	Design and Acceptance Criteria
		EMP 3-42	Engineering Management System for Specifications
		EMP 3-22	Interface Requirements Control
		EMP 4-1	Test Engineering Process
		EMP 5-3	Design Reviews
		EMP 5-17	Engineering Drawing Checking
		EMP 5-24	Application of Standards

	10 CFR 71 Appendix E Requirement	ESG Implementing Document Number	Title
4.4	Procurement Document Control	SOP J-12	Preparation and Processing of the Purchase Requisition
		SOP K-78	Procurement and Control of Supplier Data
		QAOP N4.00	Procurement Documents
		QAOP N4.01	Supplier Evaluation and Approval
		QAOP N4.02	Procurement Quality Verification Instructions
4.5	Instructions, Procedures, and Drawings	EMP 2-9	Design and Acceptance Criteria
		EMP 3-1	Engineering Documentation Process
		EMP 3-42	Engineering Management System for Specifications
		QAOP N5.01	Shop Travellers
		QAOP N7.00	Product Acceptance Tests
4.6	Document Control	EMP 3-1	Engineering Documentation Process
		EMP 3-5	Drawing Preparation - Standard Release System
		EMP 3-42	Engineering Management System for Specifications
		EMP 3-21	Engineering Change Control
		EMP 3-46	Document Release and Control Systems
		EMP 3-52	Engineering Release Plan of Action
		EMP 5-17	Engineering Drawing Checking
		SOP K-14	Shipping Radioactive Materials
		SOP M-18	Configuration Management
		QAOP N2.02	Document Review
		QAOP N5.01	Shop Travellers
		MM M-2-22	Revision Instructions, MPO/MOR
		MM M-3-3	Document Distribution
		MM M-3-21	Change Letter/Engineering Order - Documentation on Manufacturing Work Orders

	10 CFR 71 Appendix E Requirement	ESG Implementing Document Number	Title
4.7	Control of Purchased Material, Equipment, and Services	SOP J-58	Receiving and Inspection of Incoming Material and Equipment
		SOP Q-12	QA Program Audits
		QAOP N1.04	QA Audits
		QAOP N1.22	QA Acceptance Procedures
		QAOP N4.01	Supplier Evaluation and Approval
		QAOP N4.02	Procurement Quality Verification Instructions
		QAOP N4.03	Source Inspection/Surveillance
		QAOP N4.04	Receiving Inspection
		QAOP N9.00	Stamp Control
		QAOP N13.02	QA Data Packages
4.8	Identification and Control of Materials, Parts, and Components	SOP J-58	Receiving and Inspection of Incoming Material and Equipment
		SOP K-84	Warehousing of Direct-Charged Purchased Materials by Traffic and Warehousing
		QAOP N4.02	Procurement Quality Verification Instructions
		QAOP N5.01	Shop Travellers
		QAOP N6.04	Weld Material Control
		QAOP N9.02	Serialization of Hardware
		QAOP N10.00	Nonconforming Material and Items
		MM M-3-6	Productive Material Control
		EMP 3-28	Component Traceability
		EMP 3-29	Engineering Requirements for Serialization
4.9	Control of Special Processes	QAOP N6.01	Qualification of Welding Procedures and Personnel
		QAOP N6.02	Qualification and Certification of NDE Personnel
		QAOP N6.03	Nondestructive Examination Procedures
		QAOP N6.04	Weld Material Control
		QAOP N6.05	Qualification of Special Processes

	10 CFR 71 Appendix E Requirement	ESG Implementing Document	
		Number	Title
4.10	Inspection	QAOP N1.21	QA Plans
		QAOP N1.22	QA Acceptance Procedures
	(This section addresses inspection of production, not of procurements. Those are covered in Section 4.7.)	QAOP N5.01	Shop Travellers
		QAOP N6.03	Nondestructive Examination Procedures
		QAOP N6.05	Qualification of Special Processes
		QAOP N7.00	Product Acceptance Tests
		QAOP N7.01	Pressure Testing
		QAOP N7.02	Qualification and Certification of Visual and Dimensional Inspection Personnel
		QAOP N9.00	Stamp Control
4.11	Test Control	EMP 4-1	Engineering Test Process
		EMP 4-3	Test Plans
		EMP 4-4	Test Procedures
		EMP 4-5	Test Reports
		QAOP N1.22	QA Acceptance Procedures
		QAOP N7.00	Product Acceptance Tests
4.12	Control of Measuring and Test Equipment	SOP K-68	Calibration of Measuring Instruments and Equipment
		QAOP N3.00	Control of Measuring and Test Equipment (M&TE)
		QAOP N3.02	ESG Special Tooling
4.13	Handling, Storage, and Shipping	SOP J-60	Handling and Storage of Project Critical Hardware
		SOP K-44	Shipping
		SOP K-50	Material Handling Equipment
		EMP 3-43	Packaging Engineering
		QAOP N6.05	Qualification of Special Processes
		QAOP N12.00	Packaging and Shipping Inspection
		MM M-3-6	Productive Material Control
		MM M-3-10	Packaging and Shipping
		SOP K-14	Shipping Radioactive Materials

	10 CFR 71 Appendix E Requirement	ESG Implementing Document Number	Title
4.14	Inspection, Test, and Operating Status	HSP 29	Health and Safety "Red Tag" - Form N44-1
		QAOP N5.01	Shop Travellers
		QAOP N9.00	Stamp Control
		QAOP N10.00	Nonconforming Material and Items
4.15	Nonconforming Materials, Parts, or Components	QAOP N10.00	Nonconforming Material and Items
		SOP J-58	Receiving and Inspection of Incoming Material and Equipment
		SOP Q-14	Corrective Action System
4.16	Corrective Action	SOP Q-14	Corrective Action System
		QAOP N10.00	Nonconforming Material and Items
		QAOP N14.00	Corrective Action
4.17	QA Records	SOP Q-18	Quality Records
		EMP 3-1	Engineering Documentation Process
		CMP 2-126	Case File Documentation
		QAOP N2.03	Document Control
		QAOP N13.02	QA Data Packages
		QAOP N13.03	Use of QA Laboratory Test Report - Form 711-V
		QAOP N13.04	Preparation and Use of Inspection Test Report - Form 732Q
4.18	Audits	SOP K-17	Audits of Special Nuclear Material Control and Radioactive Material Shipping Systems
		SOP Q-12	Quality Assurance Program Audits
		QAOP N1.04	Quality Assurance Audits

5.0 PROCEDURE DESCRIPTIONS

This section briefly describes the directives listed in the Section 4 matrix of implementing procedures for the criteria of 10 CFR 71 Appendix E.

QA FUNCTIONAL PLAN
PROCEDURE DESCRIPTIONS

STANDARD OPERATING POLICIES (SOP's)

SOP Organization Section

This section of the SOP contains organization charts depicting all levels of management within ESG and demonstrates independence of QA Department from other line functions.

SOP A-01 - ESG Policies and Procedures

This SOP defines the types of ESG administrative policies and procedures authorized and establishes minimum format and distribution requirements for such policies and procedures.

It identifies the highest level of management, corporate or otherwise, responsible for establishing quality policies, goals, and objectives. A clear path of communication between Quality Assurance organization and corporate management is defined.

Positions and groups responsible for defining both content and changes to the Quality Assurance Program and manuals are identified, in addition to the management level responsible for the approval of the Quality Assurance Program and manuals. Provisions are established for controlling and distribution of Quality Assurance manuals and revisions.

SOP E-15 - Manager Selection

This SOP defines basic policy and assigns specific responsibilities relative to selection and assignment of individuals to fill new or vacant management positions.

SOP J-12 - Preparation and Processing of the Purchase Requisition

This SOP establishes methods and policies applicable to the preparation and processing of the Purchase Requisitions (Form N25-R-2). The requisition is used for authorizing procurement, through Purchasing, of materials, equipment, and services from suppliers.

Procedures are established that delineate the sequence of actions to be accomplished in preparation, review, approval, and control of the Purchase Requisition.

SOP J-58 - Receiving and Inspection of Incoming Material and Equipment

Receiving inspection of supplier-furnished material and equipment is performed in accordance with the following. The material is properly identified and corresponds with receiving documentation. Inspection is performed and judged acceptable, in accordance with predetermined instructions, prior to use. Items accepted and released are identified as to their inspection status, prior to release. Nonconforming items are segregated, controlled, and identified until proper disposition is made.

SOP J-60 - Handling and Storage of Project Critical Hardware

Special handling, preservation, storage, packaging, and shipping requirements are specified and performed by qualified personnel under predetermined instructions.

SOP K-14 - Shipping Radioactive Materials

This procedure establishes the methods and responsibilities for the shipment of radioactive material from ESG sites, whether to customers, associate contractors, suppliers, or other ESG sites.

SOP K-17 - Audits of Special Nuclear Material Control and Radioactive Material Shipping Systems

This procedure requires that QA perform annual audits of SNM Control (Accountability) systems, SNM Physical Protection systems, and Radioactive Material Shipping systems, and to perform additional quarterly audits of selected operations significant to the safety of shipments and receipts.

SOP K-44 - Shipping

Special packaging and shipping requirements are specified and accomplished by qualified individuals, in accordance with predetermined instructions. Procedures are prepared in accordance with design and specification requirements which control the packaging and shipping of materials, components, and systems to preclude damage, loss, and deterioration.

SOP K-50 - Material Handling Equipment

Special handling requirements are specified and accomplished by qualified individuals, in accordance with predetermined instructions. Procedures are prepared in accordance with design and specification requirements which control the handling of materials, components, and systems, to prevent damage.

SOP K-68 - Calibration of Measuring Instruments and Equipment

Procedures describe the calibration technique and frequency, maintenance, and control for all measuring instruments and test equipment which are used for obtaining data, where traceable calibrations are required. Measuring and test equipment is identified, and the calibration test data is identified with the associated equipment. Measurement and test equipment are calibrated at specified intervals, based on the conditions affecting the measurement. When measuring and test equipment is found to be out of

calibration, any items measured with this equipment are withheld until the accuracy of the results is evaluated. The complete status of all items under the calibration is recorded and maintained. Reference and transfer standards are traceable to national standards. If national standards do not exist, the basis for calibration is documented.

SOP K-78 - Procurement and Control of Supplier Data

Procedures are established for preparation, review, and control of instructions, procedures, drawings, and changes thereto. These documents and changes thereto are procedurally controlled to assure adequacy. Provisions are established, identifying the personnel responsible for these activities. Changes are reviewed by the same organizations that performed the original review, unless delegated by the applicant to qualified responsible organizations. Approved changes are promptly included in the appropriate documents.

SOP K-84 - Warehousing of Direct-Charged Purchased Materials by Traffic and Warehousing

Methods are specified to identify and control materials. Verification of correct identification of material, prior to release, is required. Material shall be protected against loss, damage, or deterioration from environmental conditions.

SOP M-10 - Program Management

This SOP sets forth principles and guidelines for the managements of Energy Systems Group Business Programs. The guidelines include organizational framework, program management processes, performance monitoring, and reporting systems.

SOP M-18 - Configuration Management

This procedure establishes general policy for the application and implementation of configuration management, to assure that the physical and functional characteristics of the end product are adequately identified, controlled, and accounted for.

SOP Q-10 - ESG Quality Assurance Program

This procedure defines the Quality Assurance Program to be applied to all ESG products and services, in compliance with applicable contract, federal, or state requirements. Management regularly assesses the Quality Assurance Program effectiveness, and coordinates quality assurance activities of ESG with those of customers or subcontractors. QA Program functions are described, as are the QA Director's responsibilities for assuring ESG's conformance. Responsibilities include stopping or controlling nonconforming work. The establishment of indoctrination and training programs appropriate to the various functions is required.

SOP Q-12 - Quality Assurance Program Audit

Procedures and responsibilities for assuring the adequacy and effectiveness of the ESG Quality Assurance Program through audits of procedures, standards, methods, and practices used in producing ESG hardware or software products are established by this SOP.

Audits are performed in accordance with pre-established written procedures or checklists and are conducted by trained personnel not having direct responsibilities in the areas being audited. The audits include an objective evaluation of quality-related practices, procedures, and instructions, and the effectiveness of implementation and conformance with policy directives.

Audit data are analyzed and reports indicating quality trends and the effectiveness of the Quality Assurance Program are provided to management. The audit results are documented and then reviewed with management having responsibility in the area audited. Subsequently, responsible management takes the necessary action to correct the deficiencies revealed by audit.

SOP Q-14 - Corrective Action System

Evaluation of nonconformances and determination of the need for corrective action follow established procedures. Prompt corrective action is initiated, following the determination of nonconformance to procedural or technical requirements. Adverse conditions significant to quality, their causes, and corrective actions are reported to the appropriate levels of management.

SOP Q-18 - ESG Quality Records

ESG Quality Records are defined, and responsibilities for their retention are established by this SOP. Its purpose is to establish standards for meeting ESG and customer requirements for filing, storing, and retrieving of quality history information on ESG products and services.

Quality Assurance records include: (1) operating logs, (2) results of reviews, inspections, tests, audits, and material analyses, (3) monitoring of work performance, (4) qualification of personnel, procedures, and equipment, and (5) other documentation, such as drawings, specification, procurement documents, calibration procedures and reports, and nonconforming and corrective action reports. The records are to be readily identifiable and retrievable.

Requirements and responsibilities for record transmittals, retention and maintenance subsequent to work completion must be consistent with applicable codes, standards, and procurement documents.

Record storage facilities are to be constructed, located, and secured to prevent loss or destruction of the records or their deterioration by environmental conditions.

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ENGINEERING MANAGEMENT PROCEDURES (EMP's)

EMP 1-1 - Engineering Systems Management

This procedure presents a summary of the salient features of a formalized system for implementation of the Integrated Engineering Process and defines how this process will be managed, particularly so as to assure accurate translation of requirements into design and fabrication documents.

EMP 2-8 - Engineering Studies

This procedure establishes the requirement for conducting studies to establish that the design meets the design criteria, is based upon proven practices or analysis, and is adequate for the intended service. It describes the method for preparing, releasing, and controlling Engineering Studies.

EMP 2-9 - Design and Acceptance Criteria

This procedure delineates the need for design and acceptance criteria to be defined and published in the appropriate design basis documents.

EMP 3-1 - Engineering Documentation Process

This procedure describes the scope of the procedures which control the preparation, release, and control of specifications, drawings, and reports by Engineering, including control of changes. For convenience, Manufacturing and QA procedures (but not shop travellers) are released through the Engineering document control system.

EMP 3-5 - Standard Release System

This procedure provides instructions for the preparation, numbering, release, and control of drawings for the Standard Release System and provides guidelines for application of the standard release.

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EMP 3-21 - Engineering Change Control

This procedure defines the method for requesting, evaluating, approving, and executing engineering changes.

EMP 3-22 - Interface Control

This procedure establishes the criteria for interface definition and the methods for describing and controlling the interface in appropriate documentation drawings and specifications.

EMP 3-28 - Component Traceability

This procedure defines the basic elements for the traceability system at ESG, including identification of items by part number and/or individual item batch, heat, or lot serial number.

EMP 3-29 - Engineering Requirements for Serialization

This procedure provides conditions under which Engineering may require serialization and the methods by which unique numbers, on an individual or lot basis, are affixed to parts or assemblies.

EMP 3-42 - Engineering Management System for Specifications

This procedure defines the method for the preparation and control of Engineering specifications.

EMP 3-43 - Packaging Engineering

This procedure defines the steps required to assure that ESG products as well as incoming shipments from suppliers are adequately preserved against corrosion and packaged and packed to prevent physical damage during storage and shipment. Implementation of this procedure will also assure compliance with all regulations applicable to special materials and special containers.

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EMP 3-46 - Document Release and Control Systems

This procedure describes the Engineering Order Release System, the Supporting Document Release System, and the Technical Data Transmittal System.

EMP 3-52 - Engineering Release Plan of Action

This procedure gives the format and requirements for a plan describing the means of preparation and release and approval of program documents.

EMP 4-1 - Engineering Test Process

This procedure defines the manner and sequence in which engineering test functions are performed. Tests are performed when a need is identified for experimentally derived design information, demonstration of design characteristics, or performance verification.

EMP 4-3 - Test Plans

This procedure establishes the requirement for the preparation, approval, distribution, and revision of Test Plans. Test Plans are prepared to describe how test requirements will be met, in response to a Request for Test or other requirements documents.

EMP 4-4 - Test Procedures

This procedure establishes the requirement for the preparation, approval, distribution, and revision of Test Procedures. Test Procedures are detailed instructions containing sufficient information to allow those performing the test to proceed independently in accordance with the provisions of the Test Plan.

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EMP 4-5 - Test Reports

This procedure establishes the requirements for Test Reports, which will contain all significant data, reference other pertinent data, and include an evaluation of test results and observations.

EMP 5-3 - Design Reviews

This procedure establishes the requirements for independent design reviews, and the means of their scheduling, conduct, and reporting.

EMP 5-17 - Checking of Engineering Drawings

This procedure establishes the responsibilities for checking of all engineering drawings.

EMP 5-24 - Application of Standards

This procedure provides guidance and direction for the application of codes and standards. It categorizes various types of standards, establishes responsibilities for their collection, application, and change control, and applies to parts and materials as well as to documents.

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QUALITY ASSURANCE OPERATING PROCEDURES (QAOP's)

QAOP N1.01 - Quality Assurance Department Functions

This document outlines the functions of the individual groups within the QA department.

QAOP N1.04 - Quality Assurance Audits

This procedure outlines the Quality Assurance responsibilities for implementing and maintaining an audit program to determine the overall effectiveness of the ESG and supplier quality programs and to identify areas where corrective prevention action is required.

QAOP N1.20 - Quality Assurance Program Administrator

This procedure defines the activities of a QA Program Administrator, which include resolution of disputes between QA and other functions.

QAOP N1.21 - Quality Assurance Plans

This procedure defines Quality Assurance Department responsibilities for participating in the preparation of Quality Assurance Program Plans or Quality Assurance Program Indexes and for preparing Quality Assurance Functional Plans.

QAOP N1.22 - Quality Assurance Acceptance Procedures

This procedure defines requirements and responsibilities of the Quality Assurance Department for the preparation, release, and control of Quality Assurance Acceptance Procedures (QAP's).

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QAOP N2.02 - Document Review

This procedure identifies requirements, assigns responsibility, and defines procedure for review by QA prior to release of drawings, specifications, and technical procedure/instruction documents.

QAOP N2.03 - Document Control

This procedure provides direction for the control of engineering and shop drawings, including customer drawings applicable to products to be fabricated in the ESG Manufacturing Shops. The purpose of such control is to assure the fabrication, processing, inspection, and testing of products to the proper drawings.

QAOP N3.00 - Calibration of Measuring and Test Equipment

This procedure defines requirements for calibration control of tools, gauges, instruments, and test equipment used by Manufacturing and Quality Assurance to measure products (materials, parts, components, and appurtenances) or to control processes related to the product.

QAOP N3.02 - Control of ESG Tooling

This procedure defines the requirements and responsibilities for control of tooling used by Manufacturing and Quality Assurance Departments in product fabrication.

QAOP N4.00 - Procurement Documents

This procedure defines requirements and responsibilities for preparation, review, and approval of procurement documents associated with the purchase of materials, parts, and services.

QAOP N4.01 - Approved Procurement Sources

This procedure defines Quality Assurance Department requirements for evaluation and approval of procurement sources (suppliers) of material, parts, and services used in ESG products. Suppliers are evaluated to applicable standards by survey or evaluation of previous performance.

QAOP N4.02 - Procurement Inspection Instructions

This procedure defines Quality Assurance Department requirements and responsibilities for preparing inspection instructions applicable to procured items and services.

QAOP N4.03 - Source Inspection/Surveillance

This procedure defines Quality Assurance Department requirements and responsibilities for inspection of procured items and services at a supplier's facility.

QAOP N4.04 - Receiving Inspection

This procedure defines Quality Assurance Department requirements and responsibilities for inspecting and testing incoming procured items and services.

QAOP N5.01 - Shop Travellers

This procedure defines the requirements and responsibilities for the preparation and utilization of the Manufacturing Production Order (MPO) and Manufacturing Operationg Records (MOR), which are ESG's shop travellers.

QAOP N6.01 - Qualification of Welding Procedures and Personnel

This procedure establishes requirements and responsibilities for qualifying welding procedure specifications and welding personnel.

QAOP N6.02 - Qualification and Certification of Nondestructive Examination Personnel

This procedure establishes requirements and responsibilities for the training, examination, qualification, and certification of Energy Systems Group personnel engaged in the following nondestructive examination processes:

Radiographic	Liquid Penetrant
Magnetic Particle	Eddy Current
Ultrasonic	Leak Detection

QAOP N6.03 - Nondestructive Examination Procedures

This procedure establishes requirements and assigns responsibilities for preparing and controlling nondestructive examination (NDE) procedures used for determining compliance of products to requirements of applicable codes and standards.

QAOP N6.04 - Weld Material Control

This procedure defines requirements and responsibilities for issuance and control of welding materials (electrodes, rods, spools, and flux).

QAOP N6.05 - Qualification of Special Processes

This procedure defines requirements and responsibilities for qualification of special processes used during fabrication or inspection of products at Energy Systems Group.

QAOP N7.00 - Product Acceptance Tests

This procedure defines requirements and responsibilites of Quality Assurance Department personnel in performing acceptance tests, or witnessing acceptance tests performed by others on parts, material, subassemblies, assemblies, subsystems, and systems (items) that require acceptance by Quality Assurance, and requires provisions for satisfaction of test prerequisites, suitable environments, and appropriate equipment.

QAOP N7.01 - Proof Pressure Testing of Pressure Vessels

This procedure defines the requirements and responsibilities for performing hydrostatic or pneumatic tests of ESG-fabricated ASME Code or other products.

QAOP N7.02 - Qualification and Certification of Dimensional Inspection Personnel

This procedure defines requirements and responsibilities to provide a mandatory program of training, examination, and certification for personnel performing dimensional inspection. The program will provide periodic updating to accommodate changes in requirements and maintain the level of knowledge necessary to perform dimensional inspection assignments.

QAOP N9.00 - Stamp Control

This procedure defines the requirements and responsibilities for the issuance, application, and control of stamps used for markings that identify personnel performing examination, inspection, test, welding, and brazing operations.

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QAOP N9.02 - Serialization of Hardware

This procedure defines Manufacturing and Quality Assurance Department requirements associated with the serialization of parts and assemblies that are fabricated or procured by Manufacturing.

QAOP N10.00 - Nonconforming Materials, Parts, and Components

This procedure defines reuqirements and responsibilities for control and disposition of nonconforming materials and items in the product manufacturing/procurement processes.

QAOP N12.00 - Packaging and Shipping Inspection

This procedure defines Quality Assurance Department responsibilities for inspecting the packaging and the preparation for shipment of ESG products. It applies to products requiring Quality Assurance acceptance that are shipped from ESG, to an ESG construction site, to an ESG customer, or to an ESG supplier.

QAOP N13.02 - Quality Assurance Data Packages

This procedure provides format and content requirements for QA data packages, which include, inter alia, configuration summaries, shop travellers and supporting documentation, procurement data, personnel qualifications and certifications, and engineering documents.

QAOP N13.03 - Use of QA Lab Test Report - Form 711-V

This procedure provides for the use of the QA Lab Test Report to report results of chemical, physical, mechanical property, NDE, and other tests performed by the QA Lab.

QAOP N13.04 - Preparation and Use of Inspection and Test Report, Form 732Q

The purpose of this procedure is to establish requirements for use of the Inspection Test Report to report results of tests performed by QA when other report forms are not specified.

QAOP N14.00 - Corrective Action

This procedure establishes requirements for taking action to correct conditions causing nonconforming material, parts, and components. Its purpose is to provide increased assurance that ESG products will meet design, configuration, and performance requirements.

MANUFACTURING MANUAL (MM)

M-2-22 - Revision Instructions, MPO/MOR

This procedure provides instructions and responsibilities when revisions to an MPO/MOR (shop travellers) are required due to Engineering document changes or are requested by Manufacturing or QA.

M-3-3 - Document Distribution

This procedure provides the direction and responsibilities for the distribution and control of Engineering, Manufacturing, and QA documents used for fabrication, processing, inspection, and testing in ESG shops, including document changes.

M-3-6 - Material Control

This procedure provides direction for the control of material whose fabrication or initiation of procurement action is under the jurisdiction of Manufacturing.

M-3-10 - Packaging and Shipping

This procedure delineates the responsibilities for, and the methods of assuring, proper packaging of components, materials, assemblies, and tooling when special in-plant handling containers are required, or when the items are prepared for storage or shipment to the customer.

M-3-21 - Change Letter/Engineering Order - Documentation on Manufacturing Work Orders

This procedure establishes instructions for statusing Engineering and shop-floor document changes to shop travellers.

HEALTH AND SAFETY PROCEDURES (HSP)

HSP-29 - Health and Safety "Red Tag" Form N44-1

This procedure describes the function of the Red Tag, which is placed by Health, Safety, and Radiation Services personnel to prohibit use of equipment or areas that could produce imminent hazards to personnel or property, or that are not in compliance with existing codes.

CORPORATE MATERIAL PROCEDURES (CMP's)

CMP 2.126 - Case File Documentation

This procedure establishes the documentation required to be accumulated in procurement case files.

6.0 ADDITIONAL REQUIREMENTS

This section applies certain additional requirements on programs that package licensed radioactive material for shipment that are not specifically addressed in existing ESG or departmental procedures. These requirements are listed below and numbered similarly to the criteria in Section 4, preceding.

4.2: QA Program

Requirement: Management (i.e., above or outside the QA organization) regularly assesses the scope, status, implementation, and effectiveness of the QA program to assure that the program is adequate and complies with 10 CFR 71 Appendix E criteria.

Discussion: Fortuitously, ESG is required by the Clinch River Breeder Reactor Program PSAR to undergo sesquiannually an audit of our compliance with the requirements of the ASME Code Section III and 10 CFR 50 Appendix B by a Rockwell International audit team independent of ESG. These audits satisfy the requirement stated above, because of the similarity between 50 Appendix B and 71 Appendix E. However, should ESG's involvement with CRBRP end, so will the requirement for those audits. In that event, it is ESG's position that the audits required by SOP K-17 still satisfy the requirement because the audit team is selected from a group within QA (QA Audits and Controls) which is independent from those who perform the work being audited (Manufacturing, Purchasing, or Research and Engineering), from those who perform inspection activities (Inspection & Test), and from those responsible for establishing the QA programs (QA Engineering).

4.4: Procurement Document Control

Requirement: Procurement documents for spare or replacement parts of safety-related structures, systems, and components are subject to controls at least equivalent to those used for the original equipment.

Discussion: No ESG procedure specifically adresses spares and replacements. However, since those are deliverable end items, they will be handled the same as any other deliverable end item, including the imposition of the same controls as would be to end items identified as plant units.

4.6: Document Control

Requirement: The documents that are controlled under this subsection are identified in the PSAR. (Minimum list provided.)

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Discussion: Reference to a PSAR is not appropriate for this program. However, each of the items listed (except for the PSAR) is addressed elsewhere in this QFP.

4.7: Control of Purchased Material, Equipment, and Services

Requirement: Suppliers' certificates of conformance are periodically evaluated by audits, independent inspections, or tests to assure they are valid.

Discussion: ESG does not routinely require overchecks of certificates of conformance. However, items purchased for packaging of licensed radioactive material for shipping shall have their certificates overchecked at intervals consistent with their contribution to safety.

4.8: Identification and Control of Materials, Parts, and Components

Requirement: The location and method of identification do not affect the fit, function, or quality of the item being identified.

Discussion: Other than for small parts, this requirement is not addressed in ESG directives. Shop travellers shall specify the method and location of identification markings so that the fit, function, or quality of the item is not impaired.

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