

1870

CHEM-NUCLEAR SYSTEMS

INFORMATION ONLY

CONTROLLED COPY NO. 3278

A - Conforms to the Subcontract Requirements
 B - Minor Comment - Incorporate and Resubmit
 C - Revise and Resubmit
 Sig: *[Signature]* Date: 10-5-98

	PRINTED OR TYPED NAME	SIGNATURE	DATE
PREPARED BY:	David S. Kozlowsky	<i>David Kozlowsky</i>	10/1/98
REVIEWED BY:	Michael D. Mohundro	<i>M D Mohundro</i>	10/1/98
APPROVED BY:	Kelly McCurry	<i>KS McCurry</i>	10/1/98

DOCUMENT TITLE:

QUALITY PLAN FOR THE
 SILOS 1 AND 2
 PROOF OF PRINCIPLE TESTING PROJECT

DOCUMENT NO. PL-CNSI-98-003	REV. 0	PAGE 1 of 8
--------------------------------	-----------	----------------

TABLE OF CONTENTS

	<u>Page No.</u>
1.0 SCOPE.....	3
2.0 QUALITY ASSURANCE PLAN	3
2.1 Management Plan.....	3
2.2 Training and Qualification	4
2.3 Quality Improvement.....	4
2.4 Documents and Records	5
2.5 Work Processes.....	6
2.6 Design.....	6
2.7 Procurement	7
2.8 Inspection and Testing.....	8

2

1.0 SCOPE

This quality plan provides the basic quality requirements established by Chem-Nuclear Systems, LLC (CNS) for controlling activities associated with the Silos 1 and 2 Proof of Principle Testing project. This plan is applicable to personnel performing quality-related activities associated with this project. This Quality Plan, including revisions, shall be approved by CNS and Fluor Daniel Fernald (FDF) project management personnel prior to implementation.

2.0 QUALITY ASSURANCE PLAN

2.1 Management Plan

CNS's Quality Assurance Program, QA-AD-001; project plans/schedules; and implementing procedures delineate those systematic actions necessary to provide the guidance to assure items and activities meet or exceed established requirements. The organizational structure, areas of responsibility, levels of authority and lines of communication are defined in PL-CNSI-98-004, Work Plan and the CNS Quality Assurance Program.

QA/QC inspection personnel are responsible for assuring that a satisfactory level of performance and control is established and implemented. The Project Quality Control Supervisor shall perform inspections or assign appropriately trained QA/QC personnel to perform inspections. Inspection personnel have sufficient access to work areas and the authority to:

- identify quality problems;
- stop work in progress;
- initiate, recommend or provide solutions to problems; and
- verify implementation and adequacy of solutions.

Surveillances of work processes and operations will be completed to ensure quality of performance for this project. Surveillances are conducted by QA personnel in accordance with the CNS Surveillance Procedure, QA-AD-014. A surveillance will be performed during the surrogate preparation and treatment recipe development phase of the project, and a second surveillance will be performed during the POP demonstration testing and product / waste sampling phase. Each surveillance will include verifications that activities are being accomplished in accordance with established procedures and that the required records are being generated and retained. A copy of each surveillance report will be maintained in the project file and will be available for customer review upon request.

2.2 Training and Qualification

Personnel will be trained and qualified, as necessary, to perform assigned tasks during this project. Refer to section 5.1 of the Project Specific Safety and Health Plan (Appendix A of the Work Plan) for a matrix of training requirements for project personnel. Applicable training shall be provided prior to commencement of associated work activities in accordance with the following procedures:

- CN-AD-029, "Personnel Training Policy and Implementation Procedure"
- FO-AD-005, "Nuclear Plant Services Personnel Training Implementation Procedure"
- QA-AD-009, "Quality Assurance Department Training"

2.3 Quality Improvement

Measures are established to assure that conditions adverse to quality are promptly identified and corrected. In the case of a significant condition adverse to quality, the measures assure that the cause of the condition is determined and corrective action taken to preclude repetition. The identification of the significant condition adverse to quality, the cause of the condition, and the corrective action taken is documented and reported to appropriate levels of management.

Controls are established for items or services that do not conform to requirements. The controls include identification, documentation, segregation, disposition, and notification to affected organizations. Nonconforming items are reviewed and accepted, rejected, repaired or reworked in accordance with the following approved procedures:

- CN-AD-005, "Notification and Incident Reporting Procedure"
- CN-AD-015, "Nonconforming Item and Corrective Action Procedure"

Lessons learned during the course of this project will be documented and communicated to project personnel. The documentation for the lessons learned will be included in the project files.

4

2.4 Documents and Records

2.4.1 Document Control

Activities affecting quality are prescribed by documented instructions, procedures and drawings of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures and drawings. The instructions, procedures and drawings include appropriate quantitative and qualitative acceptance criteria for determining that quality related activities are performed satisfactorily. CNS has established measures to control the issuance of documents, such as instructions, procedures and drawings. The measures assure that the documents, including changes, are reviewed for adequacy and approved for release by authorized personnel and are distributed to and used at the location where the prescribed activity is performed. Changes to documents are reviewed and approved by the same organizations that performed the original review and approval. The following procedures provide the necessary controls for establishment, approval and control of instructions, procedures and drawings:

- CN-AD-002, "Document Storage and Control"
- CN-AD-003, "Procedure for Document Preparation"
- EN-AD-001, "Drawing Control Procedure"
- EN-AD-007, "Preparation and Control of Engineering Specifications"

2.4.2 Quality Assurance Records

Sufficient records are required to be maintained, which furnish evidence of activities affecting quality. Inspection and test records, at a minimum, will identify the inspector or data recorder, the type of observation, the results, the acceptability, and the actions taken in connection with deficiencies noted. Records are required to be identifiable and retrievable. Measures are established for record retention, location and assigned responsibility. At the completion of each project phase, the associated records will be assembled and forwarded to the Project Manager for retention in the project files. The Project Manager is responsible for assembling record packages that are to be submitted to the customer. The following procedures, in addition to the procedure requiring the generation of the record, are used to control records:

- EN-AD-004, "Control of Engineering Records"

- FO-AD-003, "Nuclear Plant Services Quality Assurance Records"
- QA-AD-010, "Quality Assurance Recordkeeping and Storage Procedure"

The following records will be created during the course of this project: sample collection records, including field notebooks; chain of custody records; sample quality control records, including field duplicates; calibration records; general field procedures; laboratory records, including sample data, documentation and test methods, and quality control reports; data handling records, including data reduction, data validation and data assessment; surveillance reports; corrective action records, if applicable; design records, including drawings, specifications and calculations; procurement records; inspection/test procedures and reports; certificates of analysis for chemicals; training records; project related plans; lessons learned documents; and the final report, as described in the project Work Plan.

2.5 Work Processes

Work processes are performed by qualified individuals in accordance with approved controls. Work processes shall be accomplished in accordance with instructions, procedures and drawings. The instructions, procedures and drawings will include appropriate quantitative and qualitative acceptance criteria for determining that quality activities are performed satisfactorily.

The quality verification requirements will be determined during the design process. The verification requirements for this project, including any hold/witness points, will be documented in the specifications, purchase orders or work instructions for the associated systems, structures or components. Hold/witness points are assigned by QA personnel during the review of the associated specification, purchase order or work instruction. Refer to PL-CNSI-98-004, Work Plan, for a general description of the work processes involved in this project, including sampling and analysis activities.

2.6 Design

Design/engineering activities are performed by qualified individuals in accordance with established controls. The controls include assurance that design verification activities are performed by a qualified person, other than the individual that completed the original design. The critical

design requirements will be determined as part of the design process for the project. The critical design elements for components will be documented in the design specification for the associated system. Design verification will be completed for the critical design requirements per the requirements of the Chem-Nuclear's design control procedures. These design control procedures include the following:

- EN-AD-001, "Drawing Control Procedure"
- EN-AD-002, "Engineering Design Control"
- EN-AD-007, "Preparation and Control of Engineering Specifications"

Once the critical design requirements have been determined, they are evaluated for the appropriate quality level per the Quality Level (Q-List) procedure, QA-AD-015. The quality level will determine the appropriate level of verification, via the inspection, surveillance or audit programs.

2.7 Procurement

The procurement of items and services is controlled to assure conformance with the requirements specified in procurement documents. Controls include provisions for source audit/surveillance, receipt inspection, testing and analysis, as deemed appropriate. Established measures assure that applicable regulatory, design, notification of nonconformance disposition "use-as-is" or "repair" and other applicable requirements necessary to assure quality requirements are suitably included or referenced in the documents for procurement of items and services, whether by CNS or its subcontractors. The key procurement requirements will be determined during the design process. The key procurement requirements, including any hold/witness points for vendor activities, will be documented in the purchase orders for the associated components. The following procedures control procurement activities:

- CN-AD-009, "Receipt Inspection"
- CN-AD-007, "Purchasing Procedure"
- QA-AD-003, "Procurement Document Review"
- QA-AD-007, "Vendor Evaluation Procedure"
- QA-AD-008, "Equipment Release Requirements"
- QA-AD-011, "Quality Assurance Audit Procedure"
- QA-AD-014, "CNSI Surveillance Procedure"

The key procurement items/services that have been identified at this point in the project are: chemicals, containers and aggregates used for solidification; and laboratory analysis by General Engineering Laboratories.

2.8 Inspection and Testing

A program for inspection, including surveillances, of activities related to quality is established to verify conformance with documented instructions, procedures and drawings. Inspections will be performed by appropriately trained individuals other than those who performed the activity being inspected. Examinations, measurements or tests of material or products processed will be performed for each work operation where necessary to assure quality.

The established test program addresses the acceptance limits contained in applicable design documents and provides assurance that testing performed demonstrates that structures, systems and components will perform satisfactorily in service. Test procedures include provisions for assuring that prerequisites are met, that adequate test instrumentation is available and used, and that the test is performed under suitable environmental conditions. Test results are documented and evaluated to assure that test requirements are satisfied.

Measures are established to assure that tools, gauges, instruments and other measuring and testing devices used in activities affecting quality are properly controlled, calibrated, and adjusted at specified periods to assure accuracy is maintained within necessary limits.

The quality verification requirements will be determined during the design process and quality level assignment. The verification requirements for this project, including any inspections and tests, will be documented in the specifications, purchase orders or work instructions for the associated systems, structures or components. Refer to PL-CNSI-98-004, Work Plan, for a list of the systems, structures and components included in the scope of this project. The following procedures contain guidance related to CNS's quality verification program:

- CN-AD-011, "Control of Measuring and Test Equipment"
- QA-AD-001, "Quality Assurance Program"
- QA-AD-009, "Quality Assurance Department Training"
- QA-AD-014, "CNSI Surveillance Procedure"
- QA-AD-015, "Quality Level (Q-List)"

8