QUALITY ASSURANCE PROGRAM

URANIUM HEXAFLUORIDE CYLINDERS

SPECIALTY CHEMICALS DIVISION

ALLIED CHEMICAL CORPORATION

METROPOLIS WORKS

METROPOLIS, ILLINOIS

LICENSE NO. SUB-526

JUNE 20, 1979

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APPENDIX

REVISION SHEET

Revision Number	Date of Revision	Description of Revision	Signature
0	6/20/79	First issue	
1	10/8/79	Revised sections 1, 2, 3, 4, 13, 18 per NRC's request date September 10, 1979 and Exhibit A	J. A. Thomas 10/12/79

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INTRODUCTION

The purpose of the Quality Assurance Program is to assure that the quality of materials, components and packages procured and used by Allied Chemical Corporation's Metropolis Works for shipment of uranium hexafluoride are adequate to protect the health and safety of the public and complies with those specifications recognized by the Nuclear Regulatory Commission (NRC). The Quality Assurance (QA) Program applies to the design, fabrication, assembly, testing, inspection, use and maintenance of all vessels and components used for the storage and shipment of low specific activity, source material (containing 0.711% or less U-235) uranium hexafluoride (UF_6).

Allied Chemical will delegate some responsibilities contained in the Quality Assurance Program with the understanding that the responsibilities will not be relinquished.

APPENDIX "E" CRITERIA

1. Organization

Allied Chemical shall retain and exercise responsibility for the Quality Assurance Program. Allied Chemical will delegate, but not relinquish some responsibilities to fabricators, contractors, or sub-contractors. Those activities to be delegated will vary on a case by case basis, depending greatly on the competence available and to be applied. Delegated activities will be audited by Allied Chemical.

Metropolis Works Quality Assurance organization shall perform or delegate to other organizations all the functions necessary to assure that appropriate elements of Appendix "E" will be implemented.

Job descriptions and qualifications shall be available for each job function shown on the organizational chart in Exhibit "B".

Overall authority and responsibility for the Quality Assurance Program has been assigned by Division Management to the Plant Manager. The Plant Manager of the Metropolis Plant is responsible for direction of the overall plant operations. With regards to the Quality Assurance Program, the Plant Manager is responsible for developing and directing an organization which will establish and administer a program in accordance with Appendix "E", 10 CFR Part 71. The Plant Manager is responsible for assurance that such programs are implemented and enforced within the framework of Corporate policies and philosophies. The Plant Manager delegates authority to the organizational structure as outlined in Exhibit "B" for execution, control and audit of the Quality Assurance Program. R1

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In relation to the Quality Assurance Program, the qualifications of the Plant Manage' are such to assure that good management practices are implemented. The Plant Manager is educated both formally and through experience such as to be familiar and technically knowledgable of the Quality Assurance Program. The current qualifications of the Plant Manager include a college education with a working knowledge of chemical plant operations and a minimum of five (5) years of related management experience. R1

Allied Chemical Divisional management has delegated in writing, the authority and responsibility for t'e implementation of the Quality Assurance Program to the Metropoli' Works Technical Department. The Technical Department has the authority to stop unsatisfactory work and control further processing, delivery, discard or installation of non-conforming material.

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2. Quality Assurance Program

The Quality Assurance Program is established and administered in accordance with Appendix "E", 10 CFR Part 71. The NRC-approved Quality Assurance Program will be followed by Allied Chemical's Metropolis Works to assure that all UF_6 cylinders meet the provisions of the approved Quality Assurance Program to a minimum. The Plant Manager has issued instructions that the above is Corporate policy and compliance is mandatory.

Metropolis Works management will routinely evaluate the Quality Assurance Program to assure that the program is being effectively administered within the intent of 10 CFR Part 71, Appendix "E" Criteria and this program.

The distribution of controlled Quality Assurance manuals shall be recorded on a distribution sheet. Any additions or deletions of distributed copies shall be noted on the distribution sheet. Any revisions to the Quality Assurance manual will be communicated to all copyholders. Holders of controlled manuals shall be required to return superseded pages.

Suppliers and contractors shall have an acceptable Quality Assurance Program that is in compliance with this Quality Assurance Program.

The design, purchase, fabrication, inspection, testing, maintenance, and shipments of UF_6 cylinders; the purchase, inspection, testing and installation of UF_6 cylinder valves; the purchase, inspection and installation of UF_6 cylinder plugs; and the calibration, inspection and maintenance of the UF_6 cylinder scales shall be controlled by the Quality Assurance Program. R1

Any quality-related disputes shall be resolved by Metropolis Works management without sacrifice of safety standards.

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Personnel performing quality-related activities shall be properly indoctrinated and trained to assure competent implementation of quality assurance procedures. The method of training and the names of those individuals that have been trained to perform various quality-related activities shall be documented.

The Quality Assurance procedures shall specify special equipment and environmental conditions where applicable, for the performance of quality-related activities. Inspection and tests shall not be performed until all specified prerequisites have been satisfied. R1

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3. Design Control

The design of UF_6 cylinders and safety related components shall be performed in accordance with approved engineering standards or shall be proven adequate by test. Quality standards shall be specified in the design documents.

Measures shall be established to correctly translate the applicable regulatory requirements and design basis into specifications, drawings, written procedures, and instructions. R1

Design conditions and materials specified shall not be altered unless approved by Metropolis Works management. Design changes shall be based on documented evidence that such changes will not diminish any safety-related aspect of the cylinder and are subject to the same design controls that were applicable to the original design. Design details incorporated in an NRC Certificate of Compliance will not be altered without prior NRC approval.

The design shall be reviewed to assure that the design characteristics can be controlled, inspected and tested, and that inspection and test criteria are identified.

The proper selection and accomplishment of design verification or checking processes such as by design reviews, alternate calculations, or qualification testing shall be performed. The individuals or groups responsible for design verification shall be different from the original designer and his immediate supervisor. Test programs shall be performed with a prototype unit under design conditions. R1

The personnel or groups responsible for design reviews and verification activities and their authority and responsibility shall be identified and controlled by written procedures.

Corrective action shall be taken to prevent repetition of design errors and deficiencies affecting safety-related items and such action shall be documented.

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4. Procurement Document Control

Procedures shall be established to assure that procurement documents are properly prepared, reviewed, approved and controlled to assure that procurement functions are accomplished in accordance with specified codes, standards, drawings and specifications.

The procurement document shall identify the applicable 10 CFR Part 71, Appendix E requirements which must be complied with and described in the supplier's Quality Assurance Program. R1

Quality Assurance personnel shall review all procurement documents to determine that the procurement document is in accordance with the Quality Assurance Program requirements.

The procurement document shall contain or reference the design basis technical requirements including applicable regulatory requirements, material and component identification requirements, drawings, specifications, codes and industrial standards, test and inspection requirements, and special process instructions.

The procurement document shall specify documentation such as drawings, specifications, personnel qualifications, inspection and test records, and/or other procedures necessary for Allied Chemical's review and approval. A record of qualified suppliers shall be maintained.

All procurement documents (or copies thereof) shall be retained for the life of the cylinder(s) to which they apply.

The procurement document shall identify those records that are to be delivered to Allied Chemical prior to completion of the contract and that Allied Chemical personnel shall have the right of access to supplier's facilities and records for source inspection and audit.

Any changes or revisions to procurement documents are subject to at least the same review and approval as the original document.

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5. Instructions, Procedures and Drawings

Those activities necessary to assure the quality of UF_6 cylinders shall be performed in accordance with written instructions, procedures or drawings.

The preparation, review, approval and control of quality-related instructions, procedures and drawings shall be performed in a prescribed manner.

Qualified Quality Assurance personnel shall review and concur with inspection plans, test, calibration, and special process procedures, drawings and specifications.

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6. Document Control

All documents concerning the design, fabrication, inspection, operating and maintenance instructions, procurement, and Quality Assurance procedures must be approved by qualified Quality Assurance personnel and Metropolis Works management before the activities described in the documents are pursued. This control applies to the activities affecting the quality of existing UF_6 cylinders, as well as those affecting new cylinders. Applicable and current documents shall be available at the location where the work is being performed.

Any approved modifications to instructions, procedures, drawings, or specifications shall be added to the documents prior to implementation and superseded documents disposed of (one copy shall be kept as a historical record). All revised documents shall require the same reviews and approvals as the original document. Appropriate record management shall be maintained to prevent the inadvertent use of obsolete documents.

A master list shall be established to identify the current revision numbers for instructions, procedures, specifications, drawings and procurement documents.

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7. Control of Purchased Materials, Parts and Components

Qualified personnel shall evaluate suppliers to assure that they are capable of providing acceptable quality services and products. This evaluation will be based on the suppliers (1) capability to comply with applicable elements of 10 CFR Part 71, Appendix "E" and this program, (2) provisions, records, and performance relating to the same or similar articles or (3) a survey of supplier's facilities and Quality Assurance Program. The results of supplier evaluations shall be documented and retained.

Qualified personnel shall audit suppliers and/or inspect procured materials or equipment during fabrication, inspection, testing, and shipment as necessary to assure conformance to the purchase order requirements.

The supplier shall furnish documentary evidence that purchased material or equipment conforms to the procurement specifications. The supplier shall identify any procurement specifications which were not met together with a description of those nonconformances dispositioned "accept as is", "repair", or "discard", and shall promptly so notify Allied Chemical.

Inspection records or certificates of conformance attesting to the acceptance of material or components shall be available prior to installation or use. Items accepted and released for use shall be identified by tags or other acceptable means of identification. Non-conforming items shall be identified and controlled until final disposition has been made to avoid the inadvertent use of non-conforming material, components or equipment.

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8. Identification and Control of Materials, Parts, and Components

Measures shall be established for the identification and control of safety-related materials, parts and components, including partially fabricated assemblies. Identification shall be maintained either on the item or on records traceable to the item to preclude use of incorrect or defective items. The method of identification shall not affect the fit, function, or quality of the item being identified.

Measures shall be established for tracing safety-related materials, parts and components to appropriate documentation such as drawings, specifications, purchase orders, manufacturing and inspection documents, deviation reports, and physical and chemical mill test reports.

Correct identification of materials, parts, and components shall be verified and documented prior to release for fabrication, assembling, installation, or use.

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9. Control of Special Processes

Procedures shall be established to assure that special processes such as welding, heat treating, nondestructive testing, and cleaning are performed by qualified personnel and in accordance with applicable codes, standards, and specifications.

Qualification records of procedures, equipment and personnel associated with special processes shall be established as required, filed and kept current.

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10. Inspection

An inspection program shall be established, documented, and accomplished in accordance with written and controlled procedures to assure conformance of quality-affecting activities. All modifications, repairs, and replacements shall be inspected in accordance with the original design and inspection requirements, or approved alternatives. The inspection procedures shall identify any required mandatory inspection hold points for witness by an inspector.

Inspection personnel shall be qualified in accordance with applicable codes, standards, and company training programs, and shall be independent from the individuals performing the activity being inspected. The inspector's qualifications shall be kept current.

Indirect control by monitoring shall be provided when direct control by inspection is not practical.

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11. Test Control

Written controlled procedures shall be established for test programs that will demonstrate that safety-related items and components are in accordance with design specifications. The procedures shall include testing instructions, qualifications, equipment, testing conditions, and limits, as applicable.

Modifications, replacements and repairs shall be tested in accordance with original design and testing requirements, or approved alternatives.

Test results shall be documented, evaluated and their acceptability determined by a qualified, responsible individual.

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12. Control of Measuring and Test Equipment

Measuring and test equipment used in activities affecting quality shall be calibrated at specified intervals based on required accuracy, degree of usage, purpose, and other characteristics and conditions affecting measurements.

Calibrations shall be made using known or national standards whenever possible. If known or national standards are not available, documented calibration procedures describing techniques, frequency and course of action shall be applied.

Measures shall be taken and documented to determine the validity of previous inspections performed when measuring and test equipment is found to be out of calibration.

Measuring and test equipment shall be identified and traceable to the calibration test date.

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13. Handling, Storage, and Shipping

Procedures shall be established for the handling, storage, cleaning, packaging, shipping, preservation and inspection of material and equipment to prevent and/or detect damage or deterioration. The work and inspection shall be performed by trained personnel.

Shipments shall not be made unless all necessary tests, inspections, certifications, and approvals have been performed to assure the safe transportation of the package and that the package complies with applicable NRC and DOT regulations. Shipping papers shall be prepared prior to shipment.

The departure, arrival time, and destination of a package shall be established and monitored to a degree consistent with the safe transportation of the package. R1

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14. Inspections, Test and Operating Status

Measures shall be established for communicating methods of identification of inspection, test and operating status to the necessary organizations.

The application and removal of inspection and test status indicators and departure from requirements for inspection, testing, or other critical operations shall be procedurally controlled.

Nonconforming, inoperative, or malfunctioning packages or components shall be identified and segregated to prevent inadvertent use pending disposition.

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15. Nonconforming Material, Parts, or Components

Materials, parts, or components which do not conform to requirements shall be marked, tagged, or disposed of to prevent their inadvertent use or installation. Procedures shall be established for the identification, documentation, segregation, review, disposition, and prompt notification to affected organizations for nonconforming materials, parts, or components which are likely to jeopardize the safe use or operation of such items.

Nonconforming items shall be reviewed and accepted, rejected, repaired or reworked according to documented procedures.

The acceptability of reworked or repaired materials, parts, or components shall be verified by reinspection and retesting using the original inspection and testing procedures, or an equally approved alternative.

Documentation shall identify the nonconforming item, nature of nonconformance, inspection requirements, and disposition or corrective action.

16. Corrective Action

All conditions that are adverse to quality, such as deficiencies, deviations, defective material and equipment, and nonconformances shall be promptly corrected.

Measures shall be taken by responsible personnel to assure that the cause of significant conditions adverse to quality is determined and corrective action taken to preclude repetition. The identification of a condition adverse to quality, cause of the condition, and the corrective action taken shall be documented.

Inspection procedures shall be revised, as necessary, for prompt identification of conditions that are adverse to quality.

Follow-up reviews shall be conducted to verify proper implementation of corrective actions and to close out the corrective action documentation.

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17. Quality Assurance Records

Identifiable and retrievable records shall be maintained to provide documentary evidence of the quality and safety of items covered by this program and the activities affecting quality and safety.

Quality Assurance records shall contain applicable information and documentation such as; results of reviews, inspections, tests, audits, and material analyses; qualification of personnel, procedures, and equipment; drawings, specifications, procurement documents, calibrating procedures and reports; nonconformance reports; and corrective action reports.

A list of the required records, retention times and their storage locations shall be maintained. Design-related records shall be maintained for the life of shipping packages.

Inspection and test records shall contain the following where applicable:

1. A description of the type of observation.
2. Evidence of completing and verifying a manufacturing, inspection, or test operation.
3. The date and results of the inspection or test.
4. Information related to conditions adverse to quality.
5. Inspector or data recorder identification.
6. Evidence as to the acceptability of the results.

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18. Audits

Audits shall be performed in accordance with pre-established written procedures or check lists and conducted by personnel not directly responsible in the areas being audited.

Audits of the Quality Assurance Program shall be performed at least annually based on the safety significance of the activity being audited. The frequency shall change according to the number of faults, deviations, or noncompliances discovered during inspections, tests, or audits. R1

Audit results shall be documented and reviewed with management in the area being audited. Responsible management shall take the necessary action to correct deficiencies revealed by an audit.

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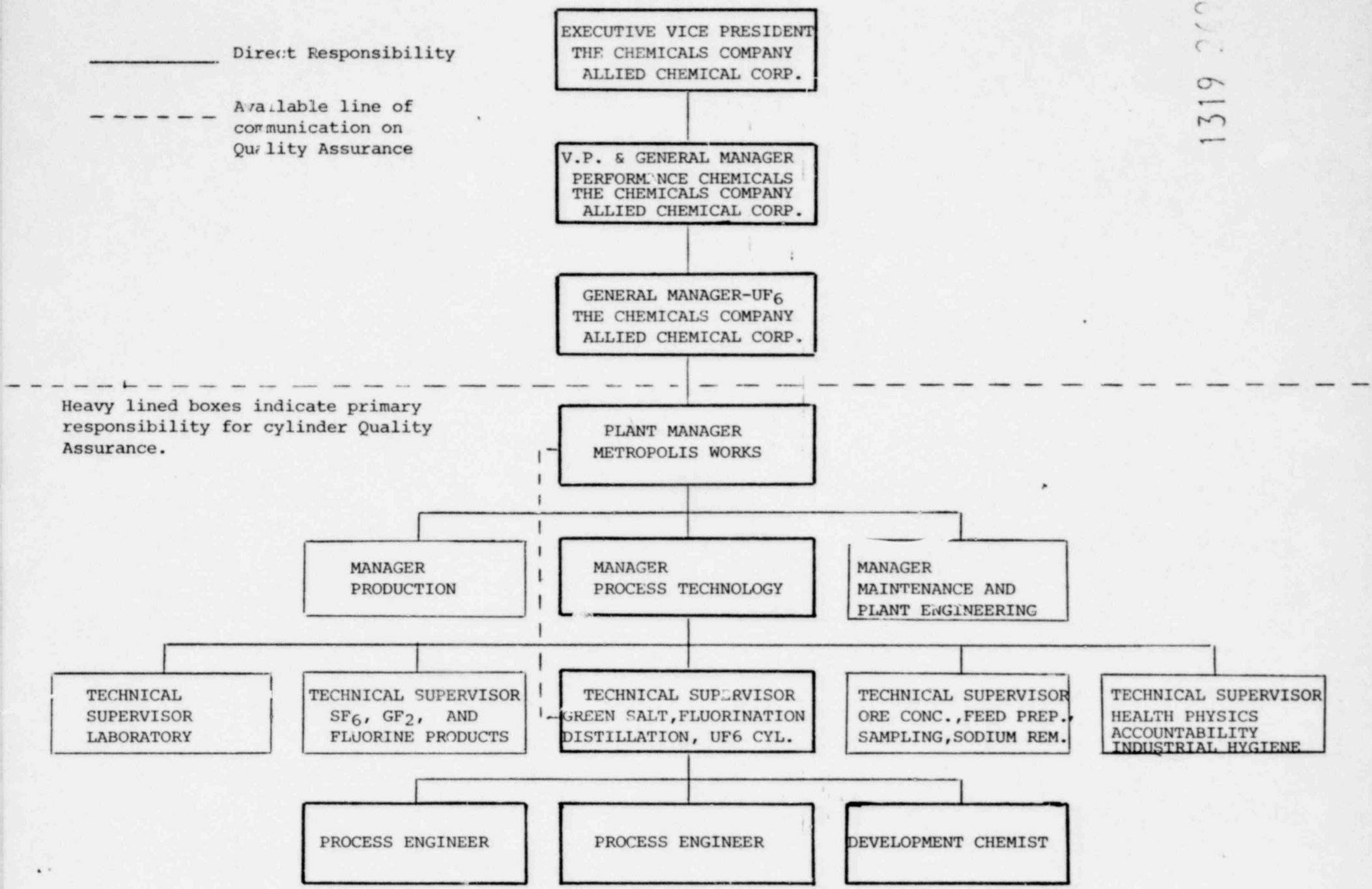

EXHIBIT A

10/8/79 R1

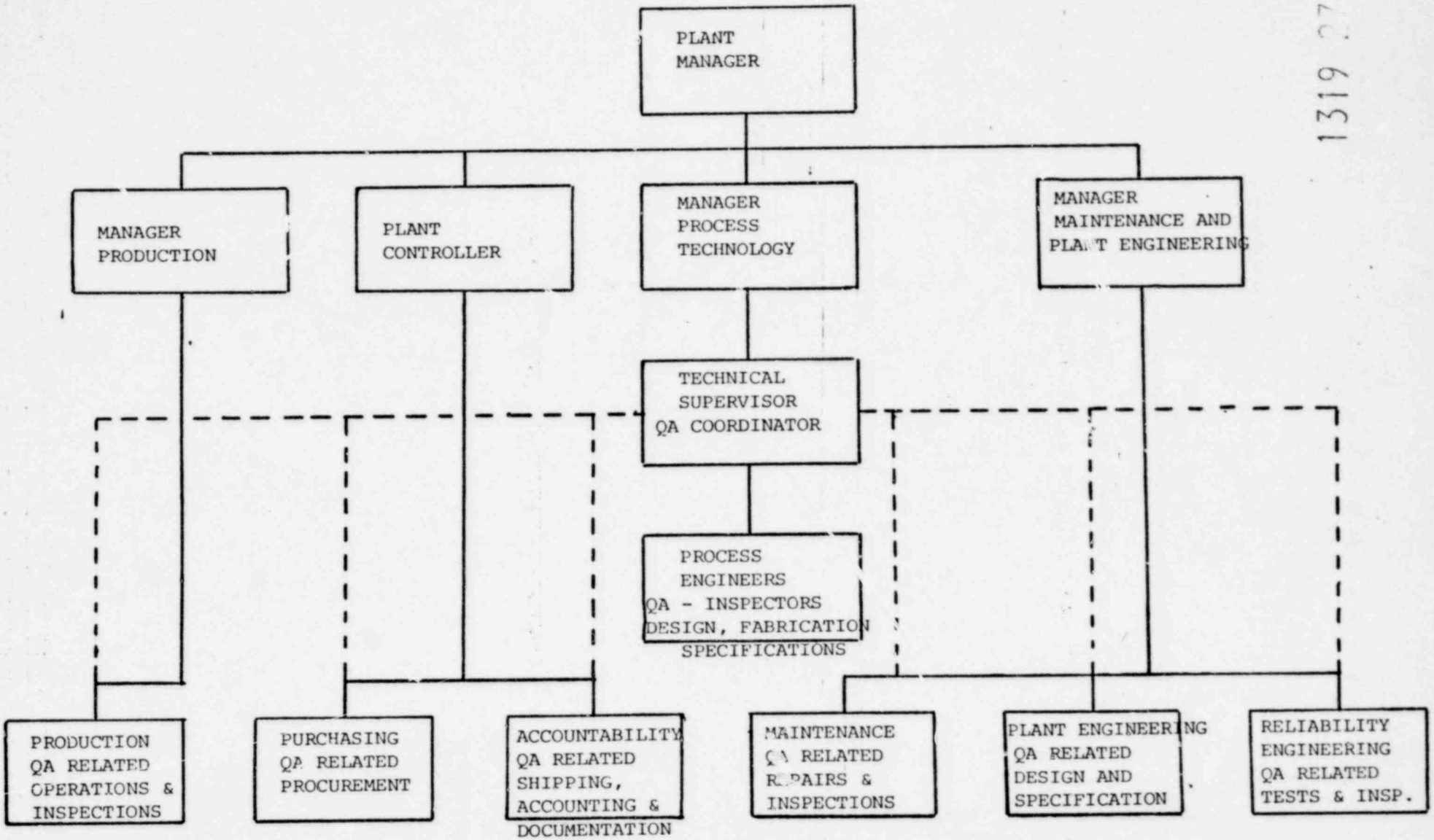

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EXHIBIT B

6/20/79