

CHEM-NUCLEAR SYSTEMS

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DOCUMENT TITLE:

TRANSPORTATION AND EMERGENCY RESPONSE PLAN
FOR ST. LUCIE UNIT 1 STEAM GENERATOR PROJECT
PROJECT NO. 46621

DOCUMENT NO. PL-CNSI-97-004	REV. 0	PAGE 1 of 22
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1.0 SCOPE

1.1 Purpose

The purpose of this plan is to provide comprehensive management, coordination, and control of the shipment of two steam generators (SGs) from Florida Power and Light's (FPL) St. Lucie Unit 1 Plant to Chem-Nuclear Systems' (CNS) Waste Management Facility, located in Barnwell, South Carolina (Barnwell site). The plan also contains instructions for emergency response during land and water transit between St. Lucie and the Barnwell site.

1.2 Applicability

This document is applicable to all FPL, CNS, and CNS subcontractors who are involved in the transportation of the SGs. The SGs will be prepared for transit in the laydown area at St. Lucie per reference 2.1. The transportation of the SGs will commence upon their departure from the laydown area in route to the barge slip.

2.0 REFERENCES

- 2.1 CNS Procedure, WI-CNSI-97-025, "Work Instruction For Preparation, Loading and Off Loading of St. Lucie Unit 1 Steam Generators, Project No. 46621"
- 2.2 CNS Procedure, PL-CNSI-97-003, "Project Plan For The St. Lucie Unit 1 Steam Generator Project, Project No. 46621"
- 2.3 CNS Procedure, CN-SF-020, "Minimum Industrial Safety Standards for Chem-Nuclear"
- 2.4 CNS Procedure, CN-AD-019, "Chem-Nuclear (CNSI) ALARA Policy"
- 2.5 CNS Procedure, CN-AD-020, "Chem-Nuclear (CNSI) Health Physics Policy Manual"
- 2.6 Title 49, Code of Federal Regulations
- 2.7 SC Department of Health and Environmental Control (DHEC) 61-83 Regulation
- 2.8 CNS Procedure, CN-EM-002, "CNSI Transportation Emergency Response Plan"
- 2.9 Attending Marine Surveyor's Report For St. Lucie Unit 1 SG Project

- 2.10 CNS Procedure, QP-16, "Quality Plan For The St. Lucie Unit 1 Steam Generator Disposal Project, Project No. 46621"
- 2.11 FPL Haul Route Drawing
- 2.12 CNS Procedure, WI-CNSI-97-026, "Work Instruction For Installation And Removal Of St. Lucie Unit 1 Steam Generator Tie-down Hardware and Personnel Barrier, Project No. 46621"
- 2.13 FPL Haul Route Evaluation
- 2.14 FPL Rad Waste Shipping Procedure
- 2.15 46 CFR Part 15.705
- 2.16 CNS Procedure, CN-AD-005, "Notification and Incident Reporting Procedure"
- 2.17 CNS Procedure, S20-RP-003, "Health Physics Radwaste Receipt, Offload, And Release Operations"
- 2.18 CNS Procedure, NS-AD-011, "Special Projects Quality Assurance Records"

3.0 RESPONSIBILITIES

Overall project responsibilities and staffing are set forth in reference 2.2. Responsibilities relating to the transportation of the SGs are summarized below.

3.1 Chem-Nuclear Systems. L.L.C. (CNS)

- 3.1.1 The CNS Project Manager is responsible for the overall execution of land and water transportation of the SGs. The Project Manager will coordinate his actions with the FPL Site Coordinator, the Lockwood Brothers and Mammoet Superintendents, and SRS (Savannah River Site) Project Manager. The Project Manager shall also ensure adherence to the industrial safety and radiological standards of reference 2.3, 2.4 and 2.5, shipper requirements of reference 2.6 and reference 2.7, and support emergency actions as may be required by reference 2.8 and section 8.0 of this plan.
- 3.1.2 The CNS Health Physics Technician is responsible for providing health physics surveillance during transportation of the SGs and for responding to radiological emergencies. The technician will



maintain the principles of ALARA per reference 2.4 and radiological controls per reference 2.5. This includes providing radiological training/indoctrination, maintaining the dosimetry program, and conducting radiation and contamination surveys.

3.2 Lockwood Brothers Inc. (LBI) LBI, under contract to CNS, will provide support services for the transportation of the SGs in conjunction with Davenport Mammoet. This includes tie-down and personnel barrier installation/removal, barge and tug service, temporary bridge and loading ramp installation/removal, and crane/rigging services at the Savannah River Site (SRS) and at the Barnwell site.

3.2.1 The LBI Superintendent, or designee, is responsible for supervision of their respective crews for compliance to the requirements in this plan and adherence to ALARA and industrial safety requirements. The Superintendent is also responsible for implementation of the Emergency Response Plan per section 8.0.

3.2.2 The licensed tugboat Captain is responsible for the safety of the barge and crew under his direction, compliance with applicable maritime regulations directing immediate actions in the event of an emergency per section 8.0, complying with the recommendations of reference 2.9, and supervision of the tug crew to fulfill requirements of this plan and all applicable regulations.

3.3 Davenport Mammoet, L.L.C. (Mammoet) Mammoet, under contract to CNS, will provide heavy haul and rigging services, in conjunction with LBI, to transport the SGs. Mammoet will supply a self propelled modular trailer (SPMT), transportation specialists to operate the SPMT, and crane service at the St. Lucie barge slip. Mammoet will also supply the engineering, personnel and equipment to perform ballasting operations at St. Lucie. The Mammoet Superintendent, or designee, is responsible for supervision of their respective crews for compliance to the requirements in this plan and adherence to ALARA and industrial safety requirements.

3.4 Haul and Cargo Surveyors, Inc.(Haul and Cargo)

Haul and Cargo will provide a Surveyor to perform marine surveys of the barge and tugs. This includes performance of pre-voyage (Pre-Tow) survey of the barge and tugs several weeks in advance of the first shipment to determine equipment adequacy and condition. Results of this survey will be provided to Lockwood Brothers for corrective action. Prior to the first shipment leaving St. Lucie, the Attending Surveyor will inspect the barge tie-down arrangement for the SG, SPMT, and other sea-fasteners as may be required by the Attending Surveyor. The

Attending Surveyor will also verify the tug boats and barge meet the requirements of the Pre-Tow and review the Trip-In-Tow Recommendations with the tugboat Captains. Inspection of the second shipment is not required provided the same equipment in the same condition is used.

4.0 GENERAL REQUIREMENTS

- 4.1 The CNS Project Manager, CNS Project Engineer, or their designees shall indicate completion of the requirements in sections 5.2, 5.3, 6.2, 6.3, 7.2, and 7.3 by initialing and dating in the spaces provided.
- 4.2 CNS's Quality Assurance Program, having been approved by FPL, will be implemented to assure items and activities meet or exceed established requirements. QA/QC requirements are contained in reference 2.10.
- 4.3 Once offered for transportation, each SG will remain secured to the bed of the SPMT. No lifting by crane, hydraulic jacking mechanisms or other device is planned until the SG is off loaded in the disposal trench at the Barnwell site.
- 4.4 A CNS provided Health Physics Technician will accompany the shipment continually during the water transit. Health Physics coverage will also be provided during land transportation between SRS and the Barnwell site.
- 4.5 Industrial safety requirements shall be followed by all CNS employees and CNS subcontractors per reference 2.3. Safety shoes and safety hats shall be worn at all times during loading, unloading and during land transportation. Eye protection shall be worn at anytime work is being done that could in any way cause an eye injury.
- 4.6 Due to the complexity of operations described in this plan, it may be necessary to perform steps within a section concurrently or out of sequence. Should this become necessary, the CNS Project Manager shall seek concurrence from the FPL Site Coordinator (for work performed at St. Lucie) and the appropriate Superintendent(s).

5.0 LAND TRANSPORTATION AT ST. LUCIE

- 5.1 Special Instructions/Precautions
 - 5.1.1 SPMT speed will be limited to 5 mph.
 - 5.1.2 The shipment shall proceed along the haul route depicted in reference 2.11

5.1.3 Escorts and traffic control will be provided along the haul route to isolate the shipment from commercial vehicle traffic and personnel not directly involved in the shipment and to allow the shipment to proceed without delay or interference.

5.2 Prerequisites

Prior to the shipment leaving the laydown area, the following prerequisites shall be completed.

5.2.1 The SG has been prepared for off site transportation per references 2.1 and 2.12, including the installation of the personnel barrier.

_____ / _____

5.2.2 The barge is prepared to receive the SG per reference 2.1.

_____ / _____

5.2.3 Tugs are available at the St. Lucie barge slip.

_____ / _____

5.2.4 The haul route has been prepared in accordance with the requirements of reference 2.13 and walk-down conducted.

_____ / _____

5.2.5 Favorable weather conditions are forecasted for transport of the SG to the barge slip and subsequent loading onto the barge.

_____ / _____

5.2.6 Adequate daylight exists to complete the transport, barge loading and installation of barge tie-downs (or provision for portable lighting are available).

_____ / _____

5.2.7 FPL's exemption request from US DOT has been approved and exemption certificate issued.

_____ / _____

5.2.8 FPL has received South Carolina Department of Health and Environmental Control (DHEC) approval for the transportation and disposal of the SGs.

_____ / _____

5.2.9 FPL Security and Health Physics are available to accompany the steam generator to the barge slip.

_____ / _____

5.2.10 The CNS Health Physics technician, equipped with dosimetry and radiation monitoring equipment, is available to accompany the steam generator to the barge slip.

_____ / _____

5.2.11 Arrangements have been made for the marine survey of the tugs and loaded barge at St. Lucie.

_____ / _____

5.2.12 FPL shipping documentation, surveys, inspections and notifications have been completed and distributed per reference 2.14.

_____ / _____

5.2.13 CNS has completed radiation worker training for CNS, Lockwood and Mammoet personnel who require monitoring under its program during barge loading and tie-down installation.

_____ / _____

5.2.14 The following courtesy notifications have been completed by CNS Licensing.

_____ / _____

5.2.14.1 To the States of South Carolina and Georgia, at least 10 working days prior to the scheduled departure date of the first shipment from St. Lucie. Notification of the second shipment is completed at least 3 working days prior to the scheduled departure date.

_____ / _____

5.2.14.2 To the States along the Intracoastal Waterway route, at least 10 working days prior to the scheduled departure date of the first shipment from St. Lucie. Notification of the second shipment is completed at least 3 working days prior to the scheduled departure date.

_____ / _____

5.3 Transportation

5.3.1 The CNS Project Manager, or designee, shall conduct a pre-job briefing with personnel involved in the steam generator transportation, loading and tie-down installation.

_____ / _____



NOTE: DESIGNATED CNS, LOCKWOOD AND MAMMOET PERSONNEL SHALL SURRENDER FPL ISSUED DOSIMETRY AND OBTAIN CNS DOSIMETRY PRIOR TO THE SPMT LEAVING THE LAYDOWN AREA.

5.3.2 Verify that all parties are prepared to support the SG move, and then drive the SPMT from the laydown area along the haul route to the temporary loading ramps at the barge slip. _____ /

5.3.3 Load the SPMT onto barge per reference 2.1. _____ /

5.3.4 Install barge tie-down hardware per reference 2.12. _____ /

6.0 WATER TRANSPORTATION

6.1 Special Instructions/Precautions

6.1.1 Two tug boats will be used during the voyage; a primary tug and an assist tug. Each tug shall be manned as required per reference 2.15 to support 24 hour vessel operation.

NOTE: TRANSPORTATION SHALL PROCEED ON THE SAVANNAH RIVER ONLY DURING DAYLIGHT HOURS.

6.1.2 A primary and secondary means of communication shall be available between tugs and their base stations.

6.1.3 During the voyage, the Captain of the primary or assist tug shall communicate the shipment's position to the Lockwood Communications Center a minimum of once every 12 hours.

6.1.4 An emergency hawser will be provided on the tug and standard U.S. Coast Guard procedures for deployment utilized during the barge transport.

6.1.5 Speed will be limited to 10 knots and depth not exceeding 120 feet.

6.1.6 Radar and navigational aides are operational on both the primary and assist tugs.

6.1.7 With the exception of brief layovers to take on fuel and provisions, provide for crew relief, or as may be required during

emergency situations of section 8.0, transportation of the steam generator shall be direct and uninterrupted, following the route specified in this section.

- 6.1.8 Prior to departure from any point along the route, the tug Captain is to assure that an acceptable two day favorable weather forecast exist for the intended route. The favorable weather window will be for winds of less than 25 knots and seas less than 5 feet. Should unpredicted conditions prevail, the shipment shall seek shelter per section 8.0.
- 6.1.9 The tug Captains shall comply with the reference 2.9 as prepared by the Attending Surveyor. Should conflicts arise between the requirements of this plan and those prescribed in reference 2.9, those in the reference 2.9 shall take precedence.
- 6.1.10 In the event an accident or other circumstance results in the partial or total sinking of the barge, salvage operations will be employed. CNS will immediately contact a Salvage Surveyor and Salvage Master to undertake required salvage operations. The first priority of salvage operations will be to mitigate any damage to and initiate recovery of the steam generator.
- 6.1.11 Refer to section 8.0 in the event of an emergency.

6.2 Prerequisites

Prior to the barge leaving the St. Lucie barge slip, the following prerequisites shall be completed.

- 6.2.1 Permit between DOE-SRS and CNS authorizing use of SRS facilities and highways is in place. _____/____
- 6.2.2 Overweight and oversize permit applications have been submitted to South Carolina Permit authorities. _____/____
- 6.2.3 Permit application submitted to CSX Rail Road requesting rail crossing at SRS. _____/____
- 6.2.4 The barge and tugs meet the Pre-Tow Recommendations of reference 2.9 as determined by the Attending Surveyor. _____/____

6.2.5 The CNS Health Physics Technician has performed and documented a radiation and contamination survey of the barge. _____ /

6.2.6 A Dangerous Cargo Manifest, prepared by CNS, has been signed by the tug Captains. _____ /

6.2.7 The following documents have been provided to each tug Captain and are onboard each tug. _____ /

- Shipping paperwork package prepared by FPL,
- Dangerous Cargo Manifest,
- CNS radiological survey,
- Reference 2.9, and
- Copy of this plan.

6.2.8 Each tug has sufficient fuel to complete the voyage. _____ /

6.2.9 Shallow draft tug boat(s) and crew, as prescribed in the reference 2.9 are available to receive the shipment in Savannah, Ga. _____ /

6.2.10 CNS Health Physics technician, equipped with dosimetry and radiation monitoring equipment, is aboard the primary or assist tug and has completed indoctrination of the tug crew. _____ /

6.2.11 CNS preparation of the SRS boat ramp is complete. _____ /

6.2.12 Primary and backup means of communication between tug and base station are satisfactorily tested. _____ /

6.3 Transportation

6.3.1 The primary tug Captain shall verify an acceptable weather forecast exists. _____ /

6.3.2 Make up the primary tug to the barge, the assist tug remaining in standby in the channel. _____ /

6.3.3 Under the direction of the tug Captain, unsecure barge mooring lines and back the barge out of the slip.

_____ / _____

6.3.4 Once sufficiently clear of the barge slip, one tug shall be made up to the stern end of the barge with the aide of the assist tug.

_____ / _____

6.3.5 Tug Captain shall notify the nearest Captain of the Port and Lockwood Communications Center of the shipment's departure.

_____ / _____

6.3.6 The shipment will proceed along the route depicted in Appendix A.

_____ / _____

Mud Creek to Atlantic Intracoastal Waterway. Intracoastal north to Savannah, Ga. Upriver on the Savannah River to the SRS boat ramp located approximately at mile 158. At the discretion of the tug Captain, the shipment may proceed off shore between Ft. Pierce Inlet and Savannah, Ga. provided favorable weather forecast exists.

6.3.7 At Savannah, Ga., the tugs that originated the voyage will be replaced, as necessary, with shallow draft tug(s) prescribed in reference 2.9 for transit on the Savannah River.

_____ / _____

6.3.8 Notify SRS a minimum of 4 hours in advance of the barge's scheduled arrival at the SRS boat ramp.

_____ / _____

6.3.9 Upon arrival at the SRS boat ramp, moor the barge to the dock area adjacent to the boat ramp.

_____ / _____

6.3.10 Conduct an arrival radiation and contamination survey of the shipment and establish radiological postings at the gangway.

_____ / _____

6.3.11 Position the barge in boat ramp, moor and make barge ready for off load per reference 2.1.

_____ / _____

7.0 LAND TRANSPORTATION AT SRS AND BARNWELL

7.1 Special Instructions/Precautions

- 7.1.1 Escorts and traffic control will be provided along the haul route to isolate the shipment from commercial vehicle traffic and personnel not directly involved in the shipment and to allow the shipment to proceed without delay or interference.
- 7.1.2 At SRS, shipment escort will be provided by CNS and Wackenhut Security. On State of South Carolina roads, escort will be provided by CNS Security and local law enforcement agencies. CNS will provide personnel, equipment and materials for traffic control. Traffic control personnel will be under the direction of CNS Security.
- 7.1.3 Speed shall be limited to 5 mph or less.
- 7.1.4 Bridges, culverts or underground utilities along the route identified by SRS or SC Highway authorities as being structurally inadequate will be spanned using transition beams and/or steel plates.
- 7.1.5 The SPMT may be parked overnight in one of the designated safe births along the route. During periods when the SPMT is parked in the safebirth;
- Portable lighting will be established to illuminate the safe birth area,
 - Radiological postings established around the steam generator, and
 - A watch shall be posted at the safe birth who is equipped with mobile communications.
- 7.1.6 Refer to references 2.8 and 2.16, in the event of an emergency.

7.2 Prerequisites

Prior to the shipment leaving the SRS boat landing area, the following prerequisites shall be completed.

- 7.2.1 The SPMT has been off loaded in accordance with reference 2.1:
- /

7.2.2 Confirm with the Barnwell Site Manager that the site will be prepared to receive the shipment on the anticipated arrival date. /

7.2.3 Verify that traffic control personnel, equipment and supplies are ready to support the movement of the SPMT and designated safe births are available. /

7.2.4 Verify that SRS utility personnel and equipment are available to remove/relocate overhead electrical lines, signals, etc.. /

7.2.5 Verify that CSX personnel are available at the rail crossing on SRS Road 3 to authorize shipment across the tracks. /

7.2.6 Notifications have been made to local (Barnwell) law enforcement agencies and utility companies of the shipments schedule departure time from SRS. /

7.2.7 The physical condition of road and bridge surfaces along the route have been visually documented by CNS, as necessary. /

7.2.8 The haul route has been surveyed for potential interference from structures such as highway postings, poles etc. and resources are available to remove and re-install them as the shipment proceeds. /

7.2.9 Lockwood Brothers personnel, equipment, and materials are staged to span bridges, culverts and underground utilities, as required, along the route. /

7.3 Transportation

7.3.1 The shipment will proceed along the following route (Williston Route), which is depicted in Appendix A.:

River Road (A-4) to Road 3, Road 3 through Barricades 7 to Road 5, South on Road 5 to Road 6, East on Road 6 to Road G, Road G to Road 8, Road 8 to the Barricade 3 (Williston Barricade). From the Williston Barricade, the shipment will

proceed east along US 278 to county road S-6-21. If the shipment is to be received at the East boundary gate of the Barnwell site, take S-6-21 to S-6-586, S-6-586 to S-6-585, S-6-585 to the East boundary gate. If the shipment is to be received at the main gate of the Barnwell site, the shipment may continue down S-6-21 to SC 64, SC 64 to S-6-53 (Osborne Rd), Osborne Road to the main gate.

- 7.3.2 The shipment may also proceed along the following alternate route (Snelling Route):

River Road (A-4) to Road 3, Road 3 through Barricade 7 to Road 5, South on Road 5 to Road 6, East on Road 6 to Road F, South on Road F to Road B, East on Road B to Barricade 4 (Snelling Barricade). From the Snelling Barricade, the shipment will proceed East on SC 64. If the shipment is to be received at the East boundary gate of the Barnwell site, proceed on SC 64 to S-6-53 (Osborne Road), Osborne Road to S-6-585, S-6-585 to the East Boundary gate. If the shipment is received at the main gate of the Barnwell site, proceed on SC 64 to the gravel road owned by CNS which connects the main gates of the CNCF and Barnwell site.

- 7.3.3 Upon arrival at the Barnwell site, the shipment will be inspected and received per reference 2.17.

8.0 EMERGENCY RESPONSE PLAN

This section is developed to provide instructions for comprehensive notifications, reporting, management, and emergency actions in response to an emergency occurring during the voyage. This section shall be utilized as a guideline.

NOTE: REFER TO REFERENCE 2.8 FOR HIGHWAY EMERGENCIES.

8.1 Responsibility

- 8.1.1 **Emergency Coordinator:** The primary Tug Captain shall be designated the coordinator in the event of an emergency during barge transit. Overall development and implementation of the emergency plan shall be the responsibility of the Emergency Coordinator. All classifications, notifications, assignments, and follow-up actions shall be delineated by the Emergency Coordinator.

- 8.1.2 Radiation Advisor: The CNS HP Technician shall coordinate and provide recommendations on any radiological events.
- 8.1.3 Maintenance Supervisor: The Lockwood Superintendent shall coordinate, recommend, and implement mitigating actions to ensure the safe operation of the barge support equipment.
- 8.1.4 Communicator: The Lockwood Communication Center operator is responsible for completing the Emergency Notification Incident Form in Appendix B, taking further actions, and completing notifications per Appendix C.

8.2 Emergency Classifications

NOTE: MORE THAN ONE CLASSIFICATION MAY EXIST AS A RESULT OF THE ACCIDENT. THE GOAL OF THE CLASSIFICATION IS TO BRIEFLY CATEGORIZE AND IDENTIFY POTENTIAL RESPONSES OF ANY EVENT.

- 8.2.1 Weather: All weather that threatens the ability of the Captain and crew to safely transport the barge and/or the tug(s).
- 8.2.2 Communications: All events whereby all communications are lost between both tug(s) and the shore.
- 8.2.3 Tie-Down Equipment: Any malfunctions of the in-place tie-down equipment that jeopardizes its ability to secure the transporter and/or SG.
- 8.2.4 Tugboat: All equipment failures that jeopardize the ability of the in-place tug(s) to control the barge.
- 8.2.5 Radiation Protection: Any significant increase in contact contamination or dose rate at the package boundary.
- 8.2.6 Grounding/Collision: Physical contact made with another obstacle.

8.3 Emergency Actions

NOTE: ALL ACTIONS SHALL BE MADE WITH THE FOLLOWING PRIORITIES:

- PUBLIC SAFETY
- PERSONNEL SAFETY

- **TRANSPORT PROTECTION**

8.3.1 Once an emergency is identified, any immediate actions that may preclude further problems shall be delegated by the Emergency Coordinator.

NOTE: THE REMAINING ACTIONS ARE BASED UPON THE CLASSIFICATION OF INCIDENT.

8.3.2 Once the immediate actions are delegated, the notifications identified in Appendix C shall be made by the Emergency Coordinator. The Emergency Coordinator may delegate this responsibility to the Lockwood Communication Center. The Communicator shall complete an Emergency Notification Incident Form, Appendix B, and any actions as directed by the Emergency Coordinator.

8.3.3 **Weather**

8.3.3.1 Seek the closest safe harbor and secure barge.

8.3.3.2 Once secured, the Radiation Advisor shall restrict access surrounding the barge based upon the radiological conditions around the barge.

8.3.3.3 Once the weather has passed and the near term weather conditions are satisfactory, reinstate transport.

8.3.4 **Communications**

8.3.4.1 Seek the closest safe harbor and secure barge.

8.3.4.2 Once secured, the Radiation Advisor shall restrict access surrounding the barge based upon the radiological conditions around the barge.

8.3.4.3 Obtain/repair communication equipment.

8.3.4.4 Once communications are restored, reinstate transport.

8.3.5 **Tie-Down Equipment**

8.3.5.1 Communicate with appropriate CNS personnel to assess the significance of the problem.

8.3.5.2 In the event the tie-down equipment damage jeopardizes the security of the barge, seek the closest safe harbor. Also attempt to install temporary rigging.

8.3.5.3 Once secured, the Radiation Advisor shall restrict access surrounding the barge based upon the radiological conditions around the barge.

8.3.5.4 Root cause of the failure shall be determined by CNS personnel and addressed prior to reinitiating transport.

8.3.5.5 Once rigging has been fixed and/or modified, reinitiate transport.

8.3.6 Tugboat

8.3.6.1 Replace broken tug with escort tug and await necessary support. If possible, perform necessary repairs.

8.3.6.2 If the escort tug is broken, await replacement.

8.3.6.3 Once repaired and/or replaced and the escort tug safely towed, reinitiate transport.

8.3.7 Radiation Protection

NOTE: DURING TRANSIT SURVEYS WILL NOT BE TAKEN. HOWEVER, IF THERE IS CAUSE FOR RADIOLOGICAL CONCERN, A SURVEY SHOULD BE PERFORMED.

8.3.7.1 Identify the source of contamination by performing radiological surveys.

8.3.7.2 If the containment structure is breached, attempt to isolate it. Restrict access as required to maintain appropriate radiological controls.

8.3.7.3 Based upon discussions with CNS and St. Lucie personnel, either seek shelter or repair the structure to complete transport.

8.3.7.4 The Radiation Advisor shall ensure the necessary radiological controls are maintained.

8.3.8 Grounding, Collision, Etc.

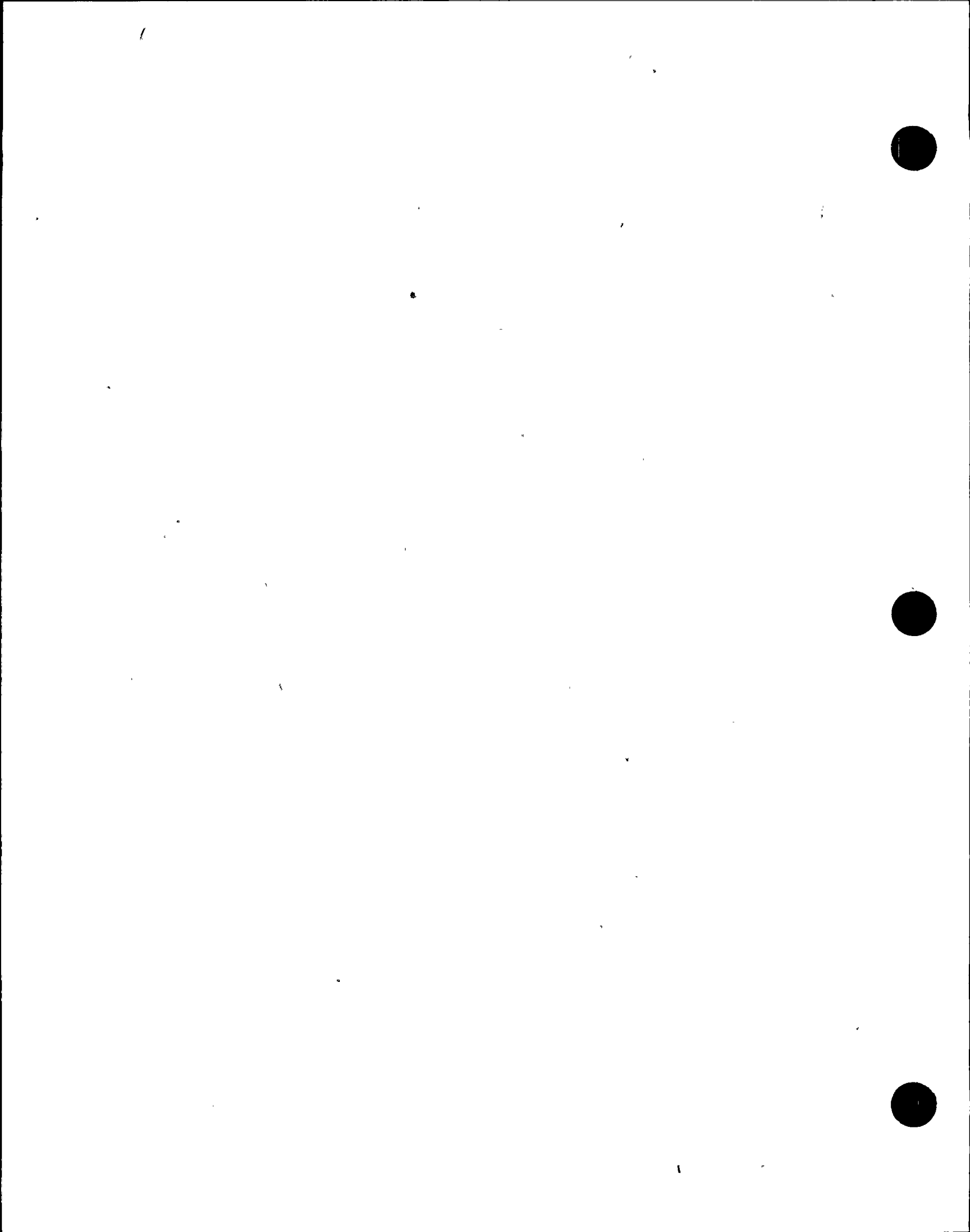
8.3.8.1 Request the necessary support equipment and personnel based upon discussions with CNS and St. Lucie.

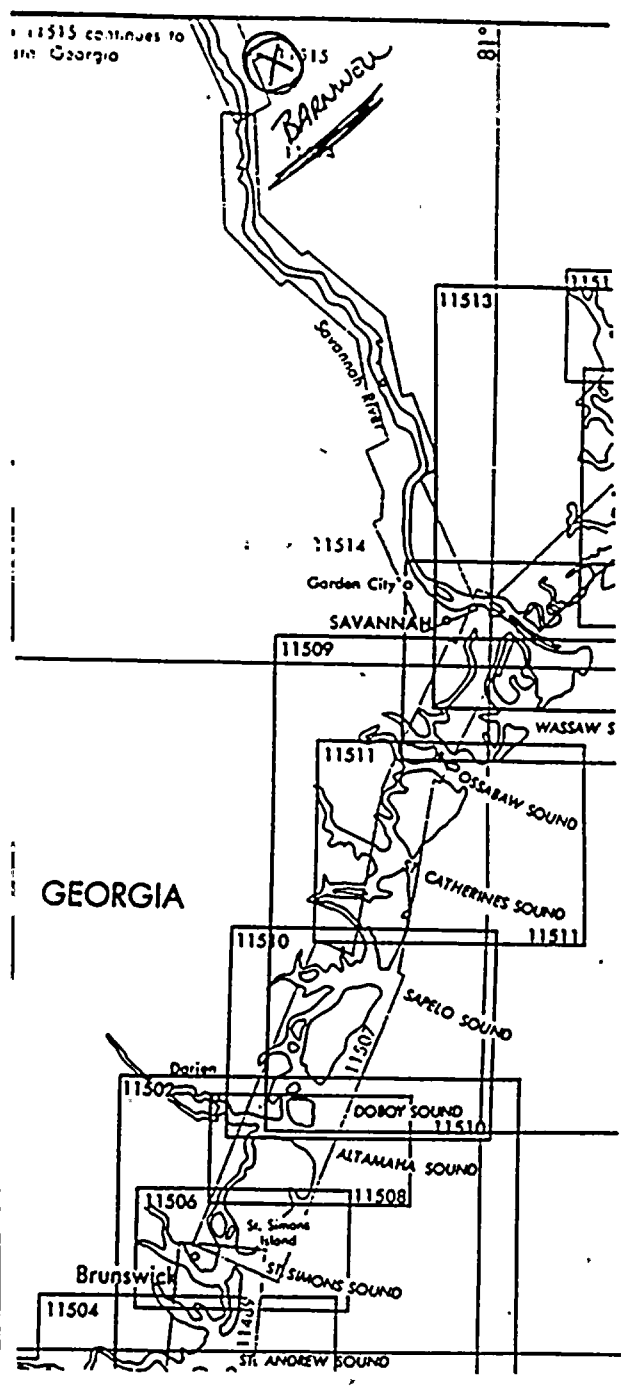
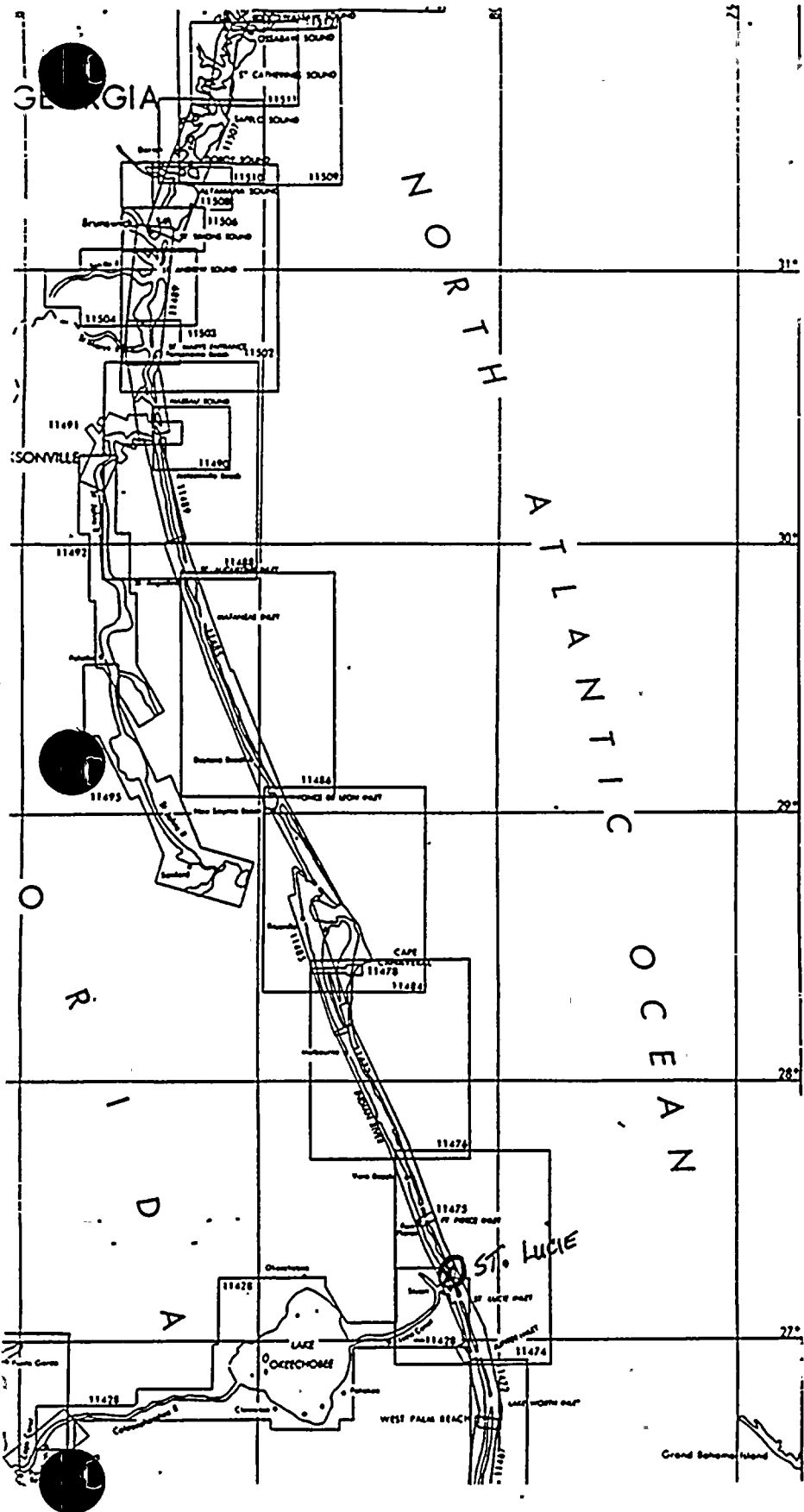
8.3.8.2 In the event a catastrophic emergency were to occur, CNS would establish an on-shore Emergency Operations Facility. This Facility shall coordinate the salvage, repair, etc. The responsibility of such actions would be established under reference 2.8.

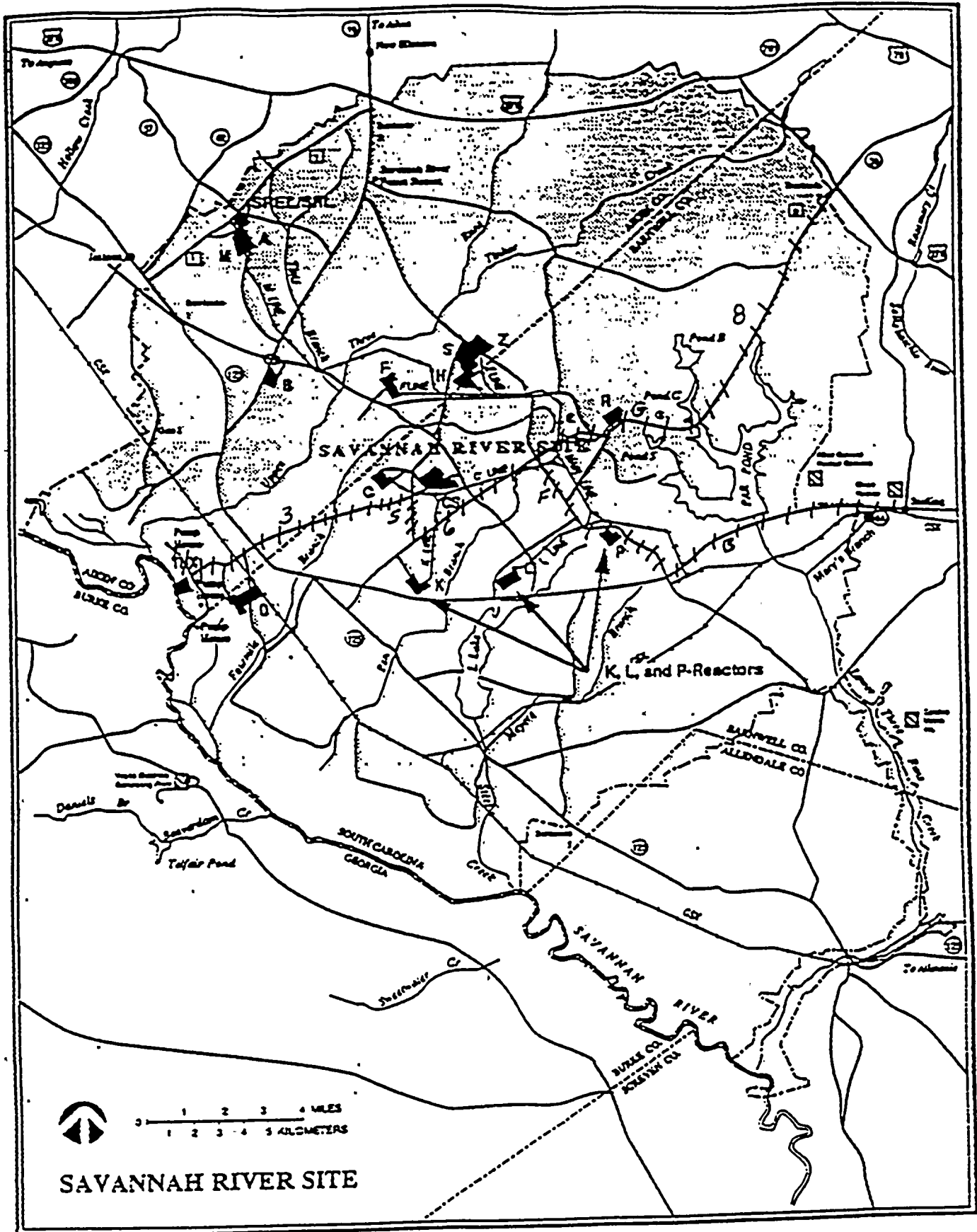
9.0 RECORDS

Quality Assurance records generated as result of this plan shall be maintained in accordance with reference 2.18.

APPENDIX A
ROUTE MAPS
(3 PAGES)

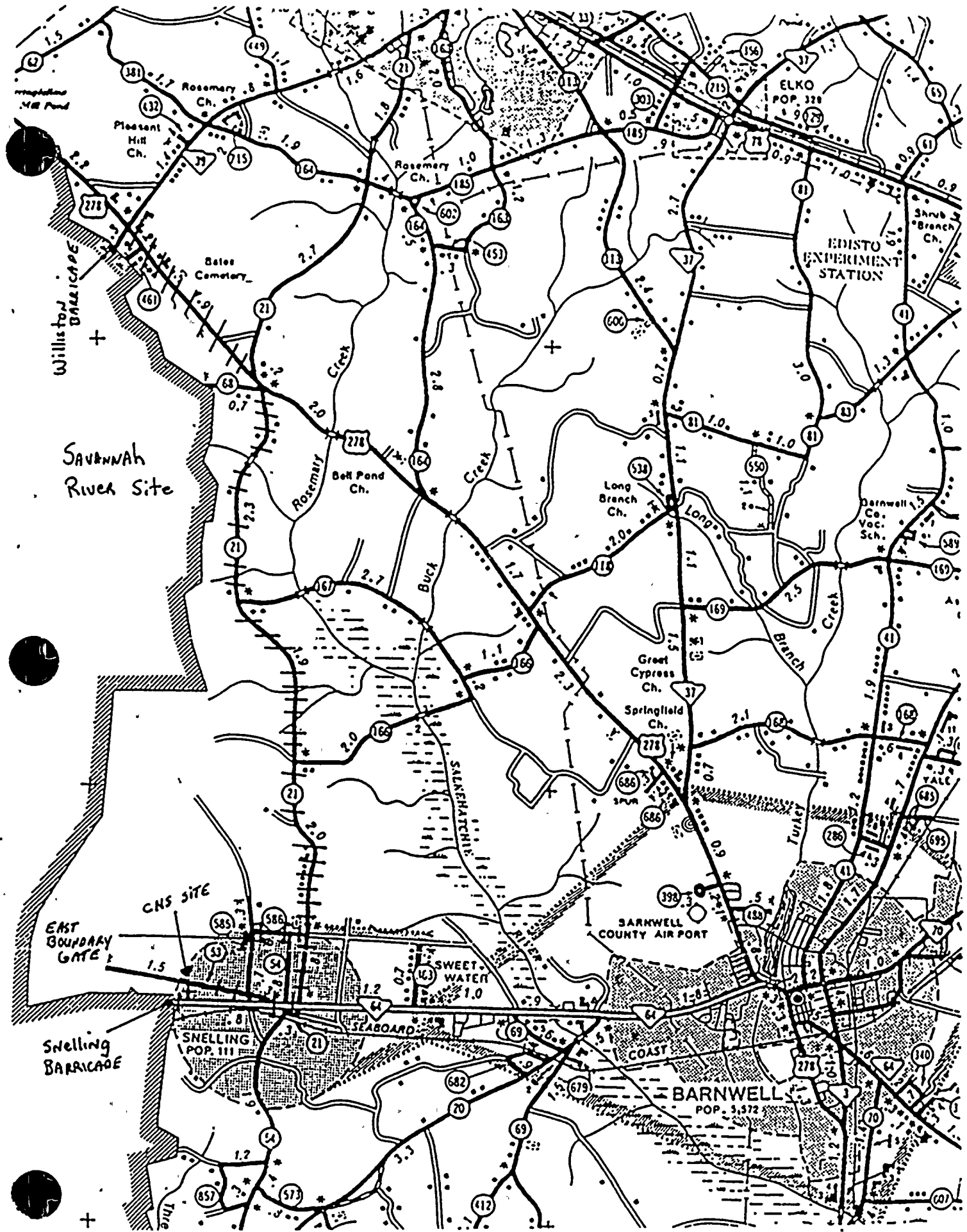






SAVANNAH RIVER SITE





APPENDIX B
EMERGENCY NOTIFICATION INCIDENT FORM
(1 PAGE)

EMERGENCY NOTIFICATION INCIDENT FORM

Location: Latitude: _____
Longitude: _____

Problem: Classification: _____

Description: _____

Actions Taken: _____

Notifications: _____

Corrective Actions
To Be Taken: _____

Radiological
Assessment: _____

Communicator: _____ Date/Time: _____

APPENDIX C
EMERGENCY NOTIFICATION LIST
(1 PAGE)



EMERGENCY NOTIFICATION LIST

1. Lockwood Communication Center (757) 722-1946
2. Lockwood Duty Phone (757)-879-0693
3. Coast Guard (Radio)
4. CNSI Security: (803)-259-6069
5. Florida Power and Light (561)-467-7305

Attachment 3

Steam Generator Drawings

C-110-B-4662-001 Sheets 1 to 4; "St. Lucie Unit 1 Steam Generator Containment Details,"
Chem-Nuclear Systems, Inc.

C-110-B-4662-002 Sheet 1; "St. Lucie Unit 1 Steam Generator Shear Key Details," Chem-
Nuclear Systems, Inc.

W/O CE 233-601, Rev 4; "Steam Generator - General Arrangement and Assembly Elevation,"
Combustion Engineering, Inc.

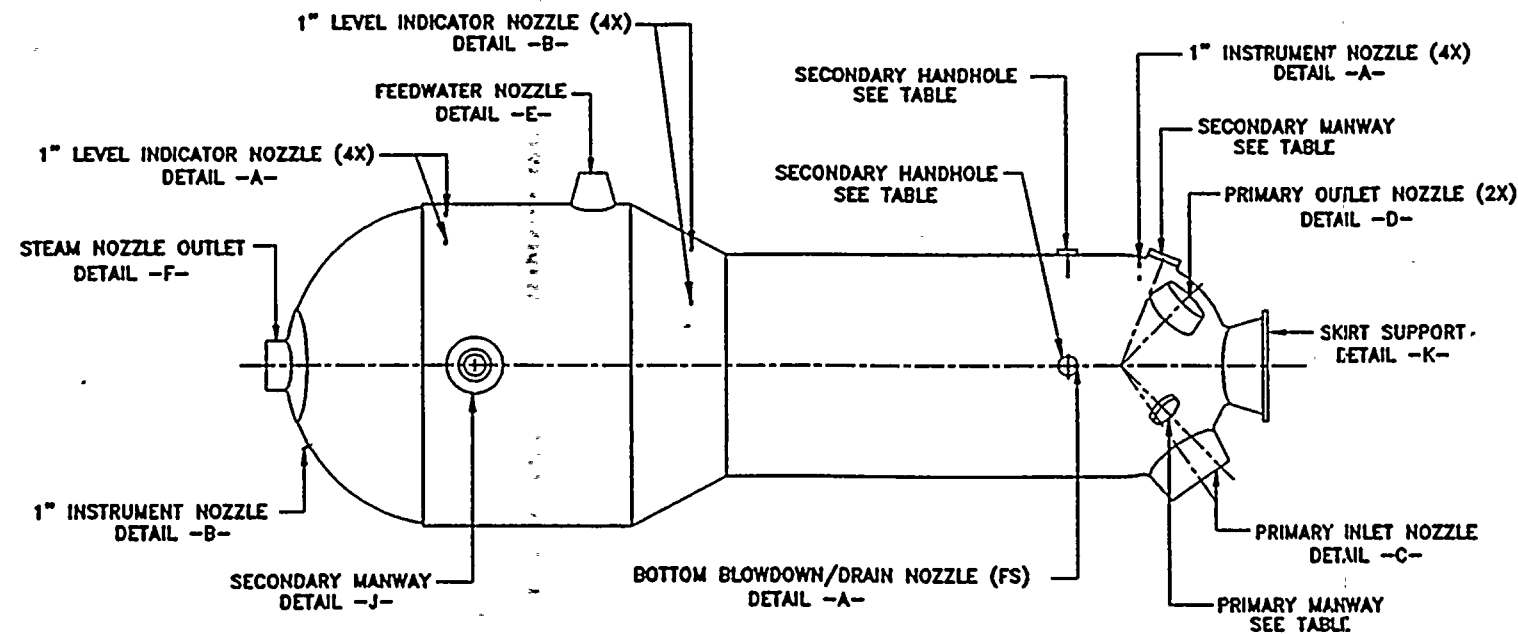
W/O CE 233-165, Rev 1; "Steam Generator - Tube Details," Combustion Engineering, Inc.

W/O CE 233-166 Rev 1; "Steam Generator - Tube Details," Combustion Engineering, Inc.



ANSTEC APERTURE CARD

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STEAM GENERATOR OUTLINE

NOTES:

- 1: COVER/SHIELD PLATE THICKNESS TO BE CONFIRMED AFTER SHIELDING ANALYSIS
- 2: ITEM 6 MAY BE FABRICATED FROM ROUND BAR

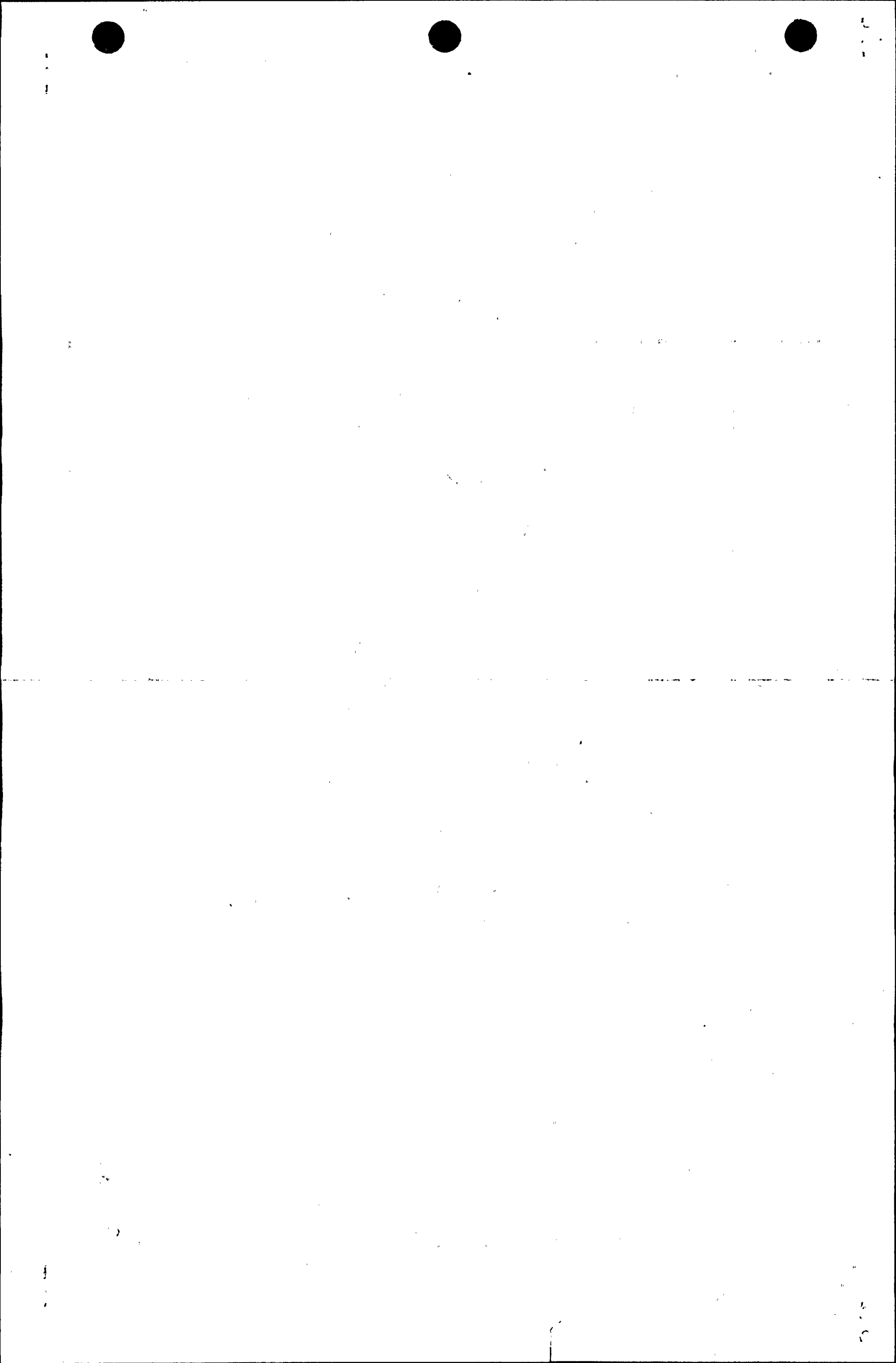
PROTRUSION NOZZLE CLOSURE DETAILS				
	DESCRIPTION	QUAN.	SEE DETAIL	DESCRIPTION
1	PRIMARY INLET NOZZLE	1	-C-	SHT. 4 OF 4
2	PRIMARY OUTLET NOZZLE	2	-C-	SHT. 4 OF 4
3	PRIMARY MANWAY	2		BOLTED EXISTING PRIMARY MANWAY COVER
4	SECONDARY HANDHOLE	2		BOLTED EXISTING HANDHOLE COVER
5	BLOWDOWN/DRAIN NOZZLE	1	-A- OR -B-	SHT. 3 OF 4 SEE SG OUTLINE
6	FEEDWATER NOZZLE	1	-E-	SHT. 2 OF 4
7	SECONDARY MANWAY	2	-J-	SHT. 2 OF 4 BOLTED EXISTING SECONDARY MANWAY COVER
8	STEAM OUTLET NOZZLE	1	-F-	SHT. 2 OF 4
9	LEVEL INDICATOR NOZZLE	4	-A- OR -B-	SHT. 3 OF 4 SEE SG OUTLINE
10	INSTRUMENT NOZZLE	6	-A- OR -B-	SHT. 3 OF 4 SEE SG OUTLINE
11	SKIRT SUPPORT	1	-K-	SHT. 2 OF 4

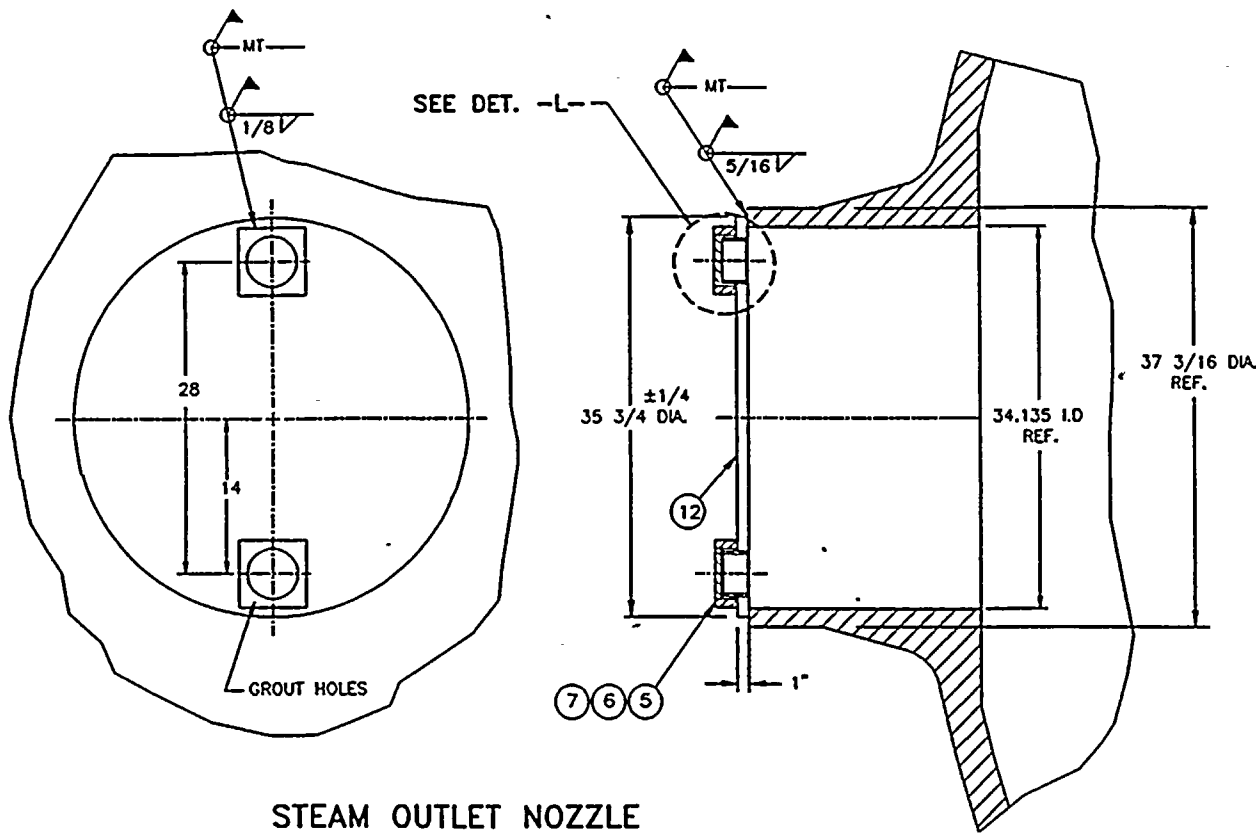
17	3	FLAT BAR, 1-1/2" X 1/2" X (ROLLED)	ASTM A36
16	1	PLATE, 1/4" THK.	ASTM A36
15	9	PLATE, 1/4" THK.	ASTM A36
14	8	PLATE, 1/2" THK.	ASTM A36
13	5	TAPERED PLUG	ASTM A36
12	1	PLATE, 1" THK.	ASTM A36
11	9	PIPE, SCH.80	ASTM A53F
10	2	PLATE, 2" THK.	ASTM A36
9	2	PLATE, 2" THK.	ASTM A36
8	1	PLATE, 1" THK.	ASTM A36
7	2	PLATE, 1/2" THK. X 5" DIA.	ASTM A36
6	2	PLATE, 2" THK. X 6" X 6"	ASTM A36
5	8	3" NPT. HALF COUPLING - #3000 LB.	ASTM A181
4	8	3" NPT. HEX HD. PLUG - #3000 LB.	ASTM A181
3	6	ROUND BAR, 5" DIA. X 4" LG.	ASTM A569
2	1	PLATE, 2" THK.	ASTM A36
1	1	PLATE, 2" THK.	ASTM A36
ITEM	QTY	DESCRIPTION	SPEC. AND / OR PART NO

BILL OF MATERIALS

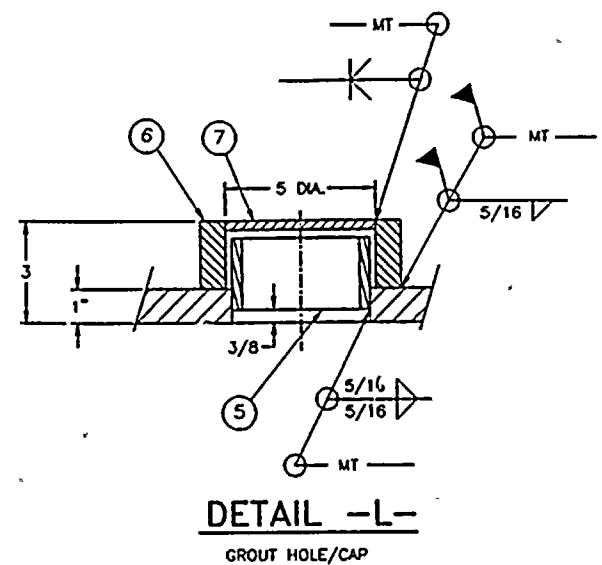
<input type="checkbox"/> PROPRIETARY <input checked="" type="checkbox"/> NON-PROPRIETARY	DO NOT SCALE PRINT DIMENSIONS ARE IN INCHES UNLESS NOTED PROJECT No. 57906 FILE NO. 0580100	CHEM-NUCLEAR SYSTEMS ST. LUCIE UNIT 1 STEAM GENERATOR CONTAINMENT DETAILS
FSCM No. 54643 <small>THIS DRAWING IS THE PROPERTY OF CHEM-NUCLEAR SYSTEMS. IT IS LOANED UPON THE CONDITION THAT IT IS NOT TO BE REPRODUCED, COPIED OR LOANED TO OTHERS WITHOUT WRITTEN PERMISSION OF CHEM-NUCLEAR SYSTEMS.</small>	REVIEWERS OF ORIGINAL (REV. 0) DRAWN BY R. BREHEN 4/15/97 CHECKED [Signature] 4/22/97 ENGINEER [Signature] 4/23/97	SIZE B DRAWING NUMBER C-110-B-46621-001 REV 0

9706270129-01-

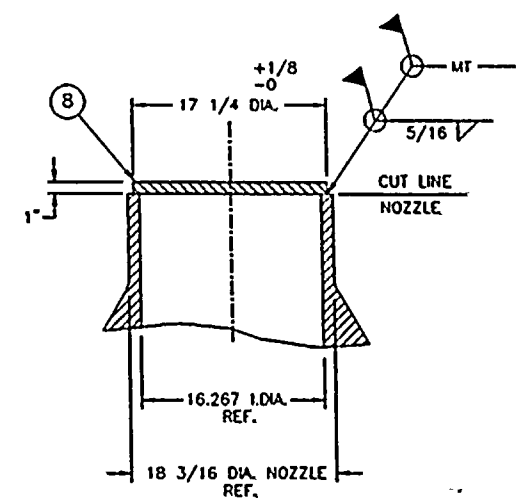




**STEAM OUTLET NOZZLE
DETAIL -F-**

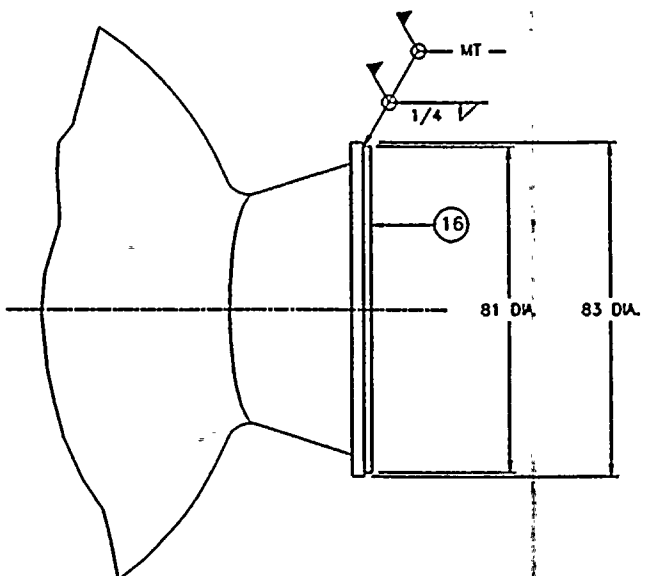


**DETAIL -L-
GROUT HOLE/CAP**

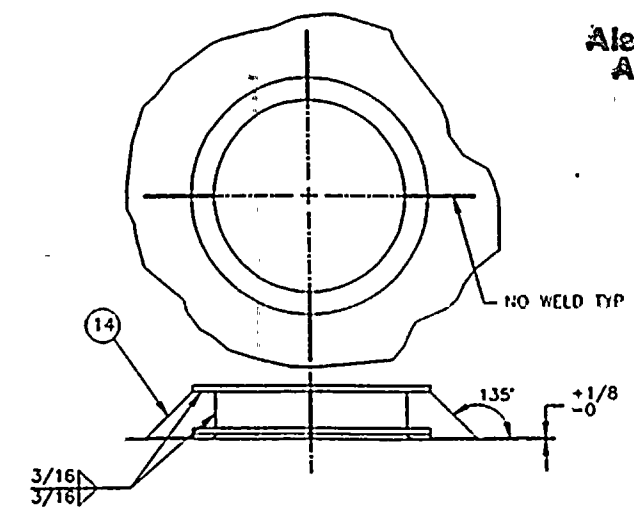


**FEED WATER NOZZLE
DETAIL -E- ANSTEC
APERTURE
CARD**

Also Available on Aperture Card



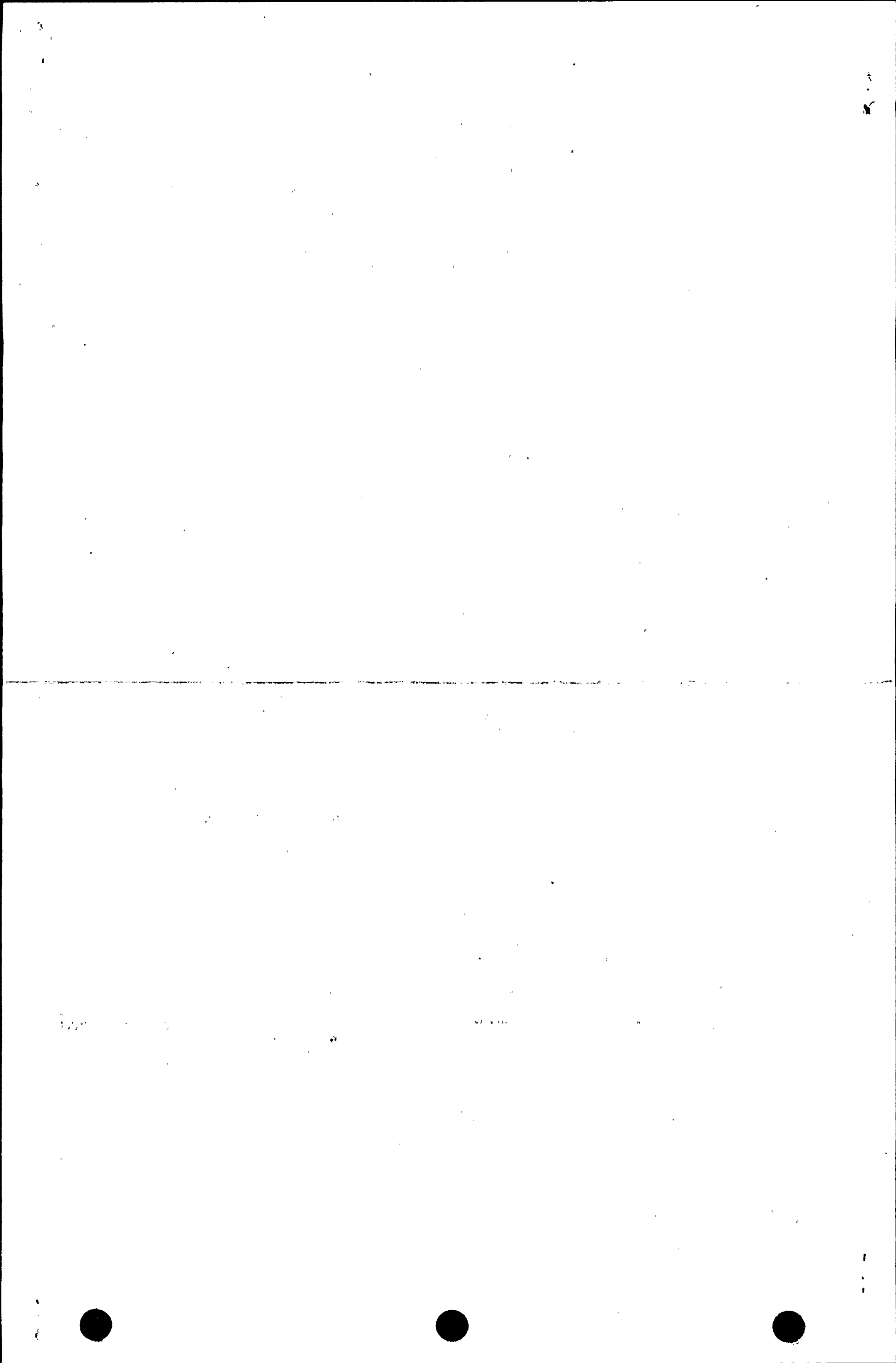
**SKIRT SUPPORT
DETAIL -K-**



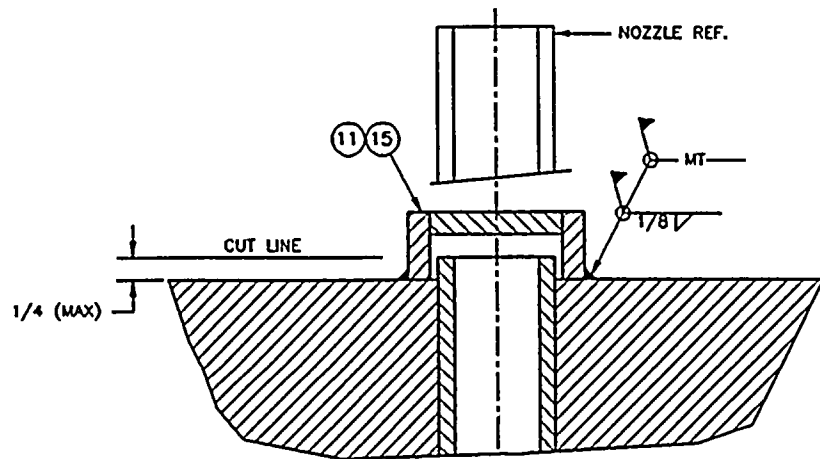
**SECONDARY MANWAY
DETAIL -J-
2 PLACES**

PROPRIETARY	DO NOT SCALE PRINT	CHEM-NUCLEAR SYSTEMS	
NON-PROPRIETARY	DIMENSIONS ARE IN INCHES UNLESS NOTED	ST. LUCIE UNIT 1	
FSCM No. 54643	PROJECT No. 57904 FILE ID 08880200	STEAM GENERATOR	
THIS DRAWING IS THE PROPERTY OF CHEM-NUCLEAR SYSTEMS. IT IS LOANED UPON THE CONDITION THAT IT IS NOT TO BE REPRODUCED, COPIED OR LOANED TO OTHERS WITHOUT WRITTEN PERMISSION OF CHEM-NUCLEAR SYSTEMS AND IS TO BE RETURNED UPON REQUEST.	REVIEWERS OF ORIGINAL (REV. 0)	CONTAINMENT DETAILS	
	DRAWN BY R. BREHEN 4/15/97	SIZE B	DRAWING NUMBER C-110-B-46621-001
	CHECKED BY <i>[Signature]</i> 4/23/97	SCALE 1/4" = 1"	REV 0
	ENGINEER <i>[Signature]</i> 4/23/97	SHEET 2 OF 4	

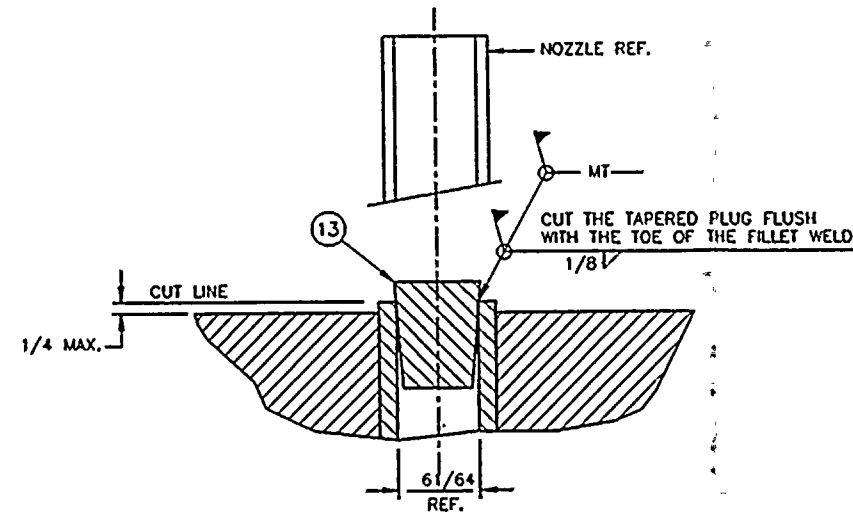
9706270124-02



8 | 7 | 6 | 5 | 4 | 3 | 2 | 1



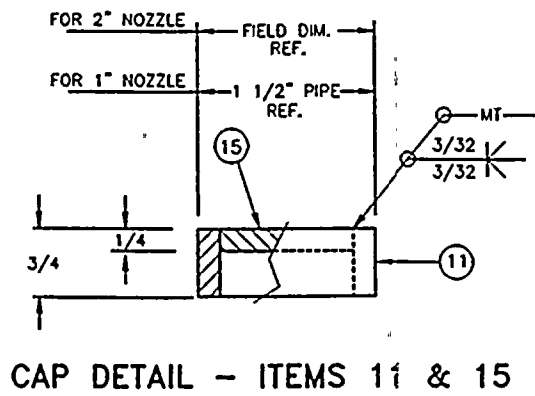
1" OR 2" NOZZLE DETAIL W/CAP ENCLOSURE
 FOR BLOWDOWN, INSTRUMENT OR LEVEL INDICATING NOZZLES
DETAIL -A-



1" NOZZLE DETAIL W/FITTED PLUG
 FOR INSTRUMENT OR LEVEL INDICATING NOZZLES
DETAIL -B-

ANSI
 APERTURE
 CARD

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 Aperture Card

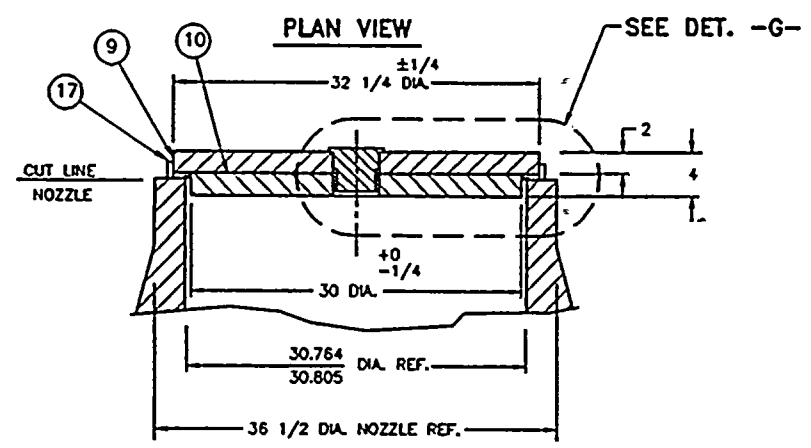
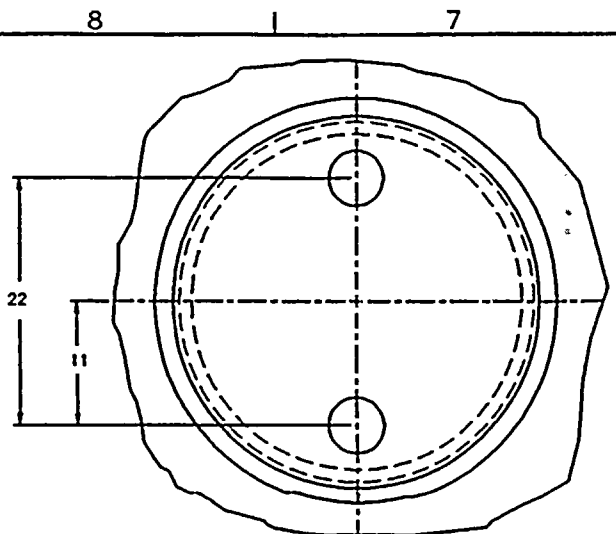


CAP DETAIL - ITEMS 11 & 15

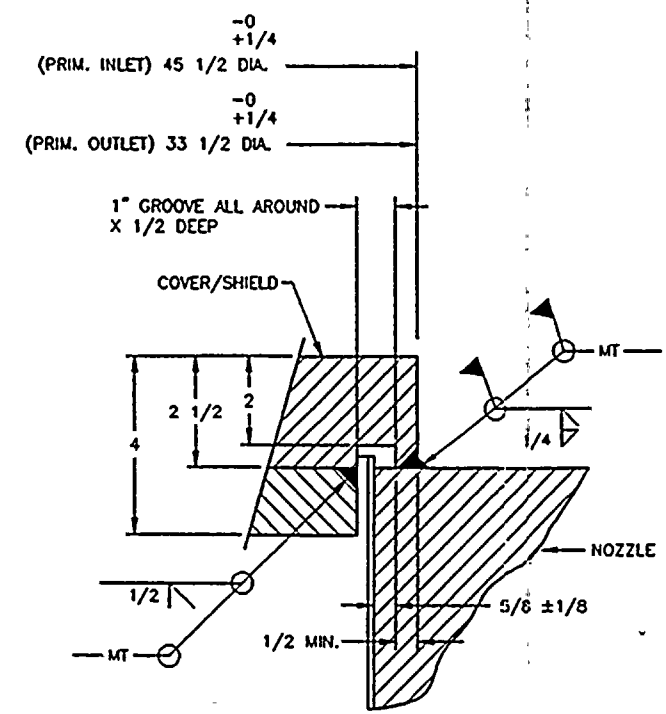
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FSCM No. 54643	PROJECT No 57906 FILE NO C8880300	STEAM GENERATOR	
THIS DRAWING IS THE PROPERTY OF CHEM-NUCLEAR SYSTEMS IT IS LOANED UPON THE CONDITION THAT IT IS NOT TO BE REPRODUCED, COPIED OR LOANED TO OTHERS WITHOUT WRITTEN PERMISSION OF CHEM-NUCLEAR SYSTEMS AND IS TO BE RETURNED UPON REQUEST	REVIEWERS OF ORIGINAL (REV. 0)	CONTAINMENT DETAILS	
	DRAWN BY R. BREHEN 4/15/97	SIZE B	REV 0
	CHECKED BY <i>[Signature]</i> 4/23/97	ENGINEER <i>[Signature]</i> 4/23/97	DRAWING NUMBER C-110-B-46621-001

9706270124-03

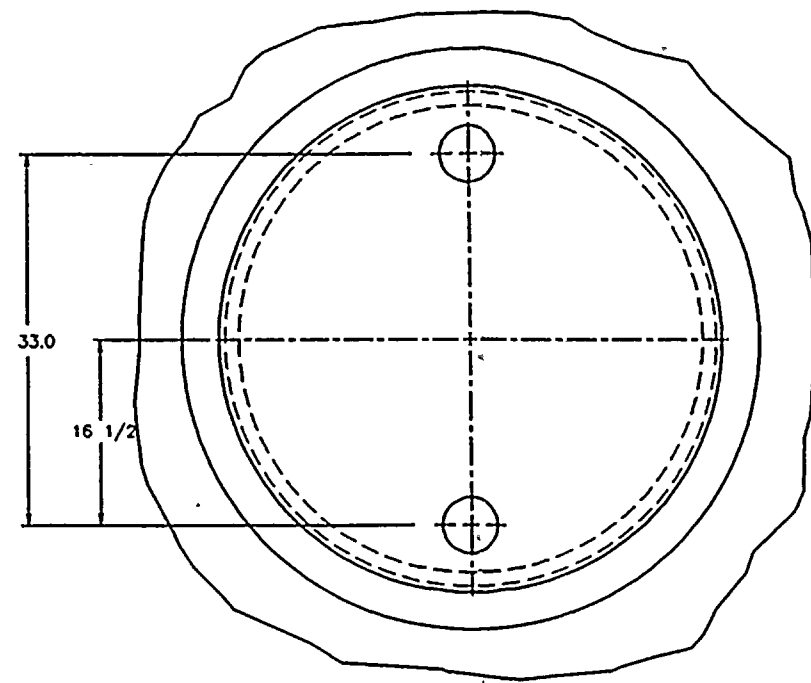




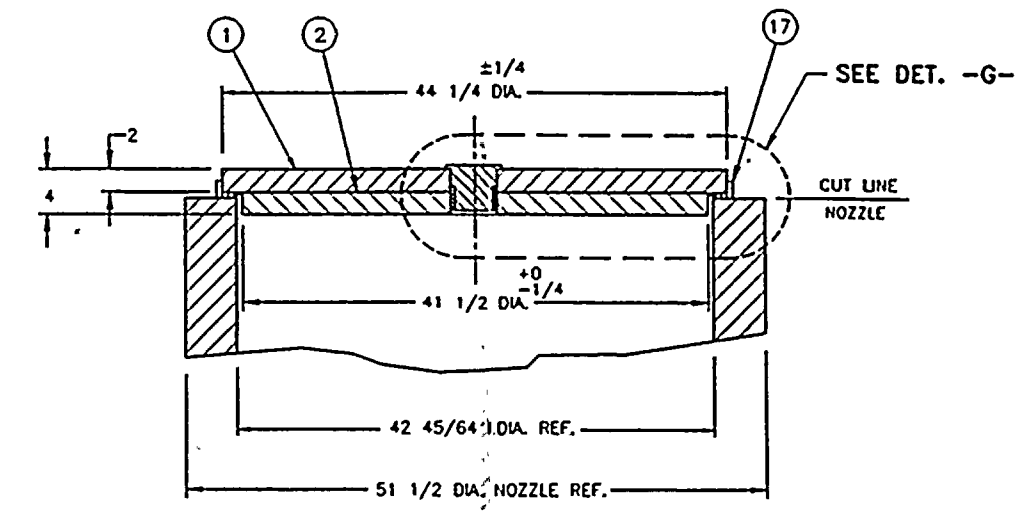
PRIMARY OUTLET NOZZLE (2 REQ'D)
DETAIL -D-



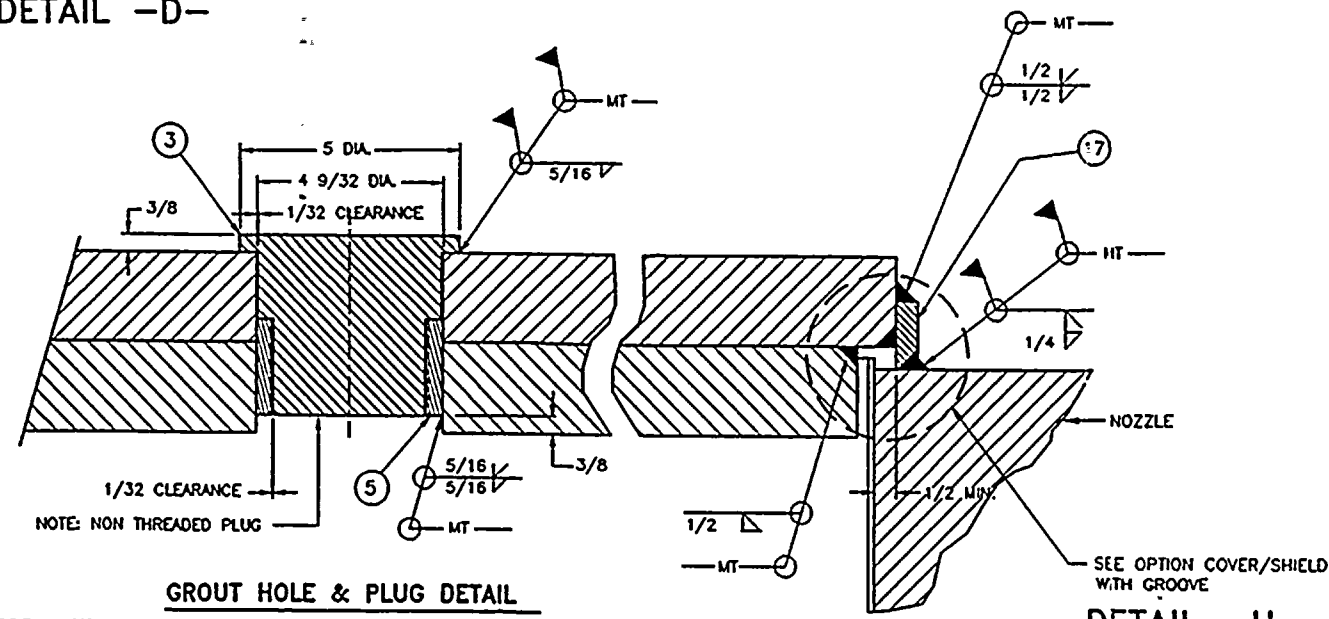
OPTION COVER/SHIELD
WITH GROOVE RING
DETAIL -H-



ANSTEC APERTURE CARD
Also Available on Aperture Card



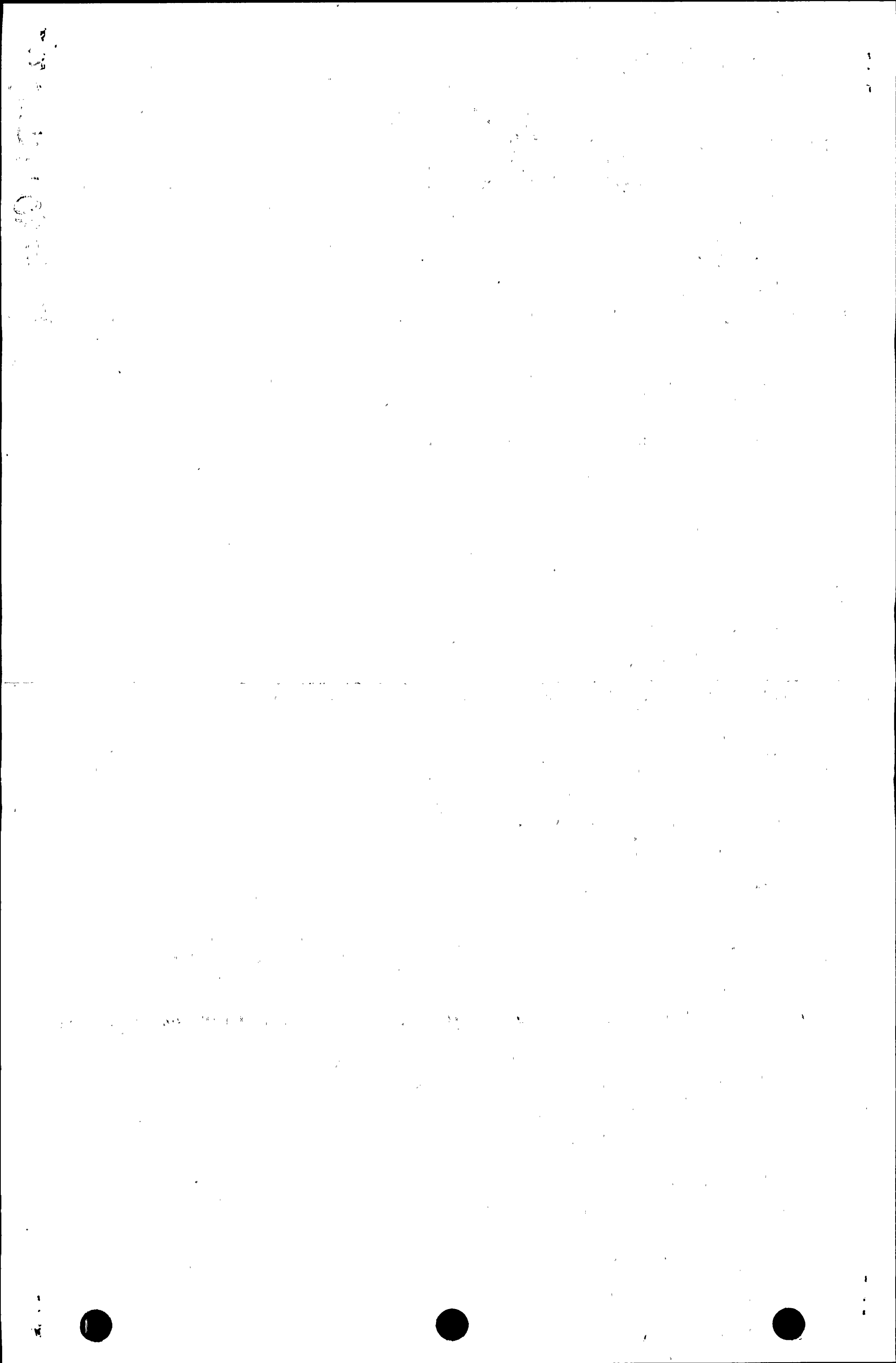
PRIMARY INLET NOZZLE
DETAIL -C-

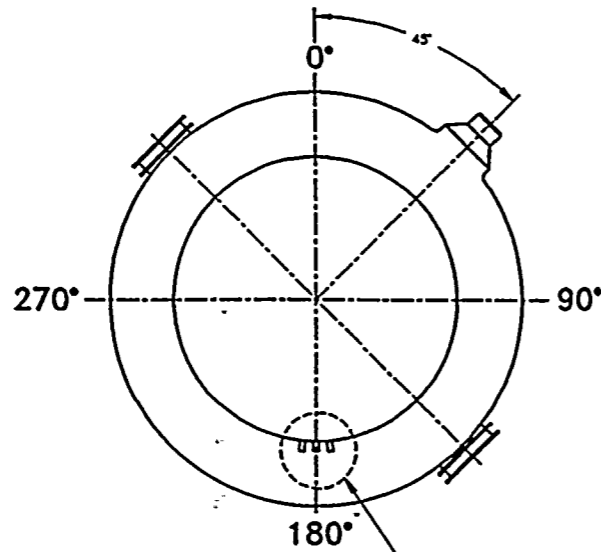


GROUT HOLE & PLUG DETAIL
FOR STEAM OUTLET, PRIMARY INLET & OUTLET NOZZLES
DETAIL -G-

PROPRIETARY	DO NOT SCALE PRINT	CHEM-NUCLEAR SYSTEMS	
<input checked="" type="checkbox"/> NON-PROPRIETARY	DIMENSIONS ARE IN INCHES UNLESS NOTED	ST. LUCIE UNIT 1	
FSCM No. 54643	PROJECT No. 57906 FILE NO. 08880400	STEAM GENERATOR	
THIS DRAWING IS THE PROPERTY OF CHEM-NUCLEAR SYSTEMS. IT IS LOANED UPON THE CONDITION THAT IT IS NOT TO BE REPRODUCED, COPIED OR LOANED TO OTHERS WITHOUT WRITTEN PERMISSION OF CHEM-NUCLEAR SYSTEMS AND IS TO BE RETURNED UPON REQUEST.	REVIEWERS OF ORIGINAL (REV. 0)	CONTAINMENT DETAILS	
	DRAWN BY R. BREHEN 4/15/97	SIZE B	DRAWING NUMBER C-110-B-46621-001
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	ENGR [Signature] 4/25/97		

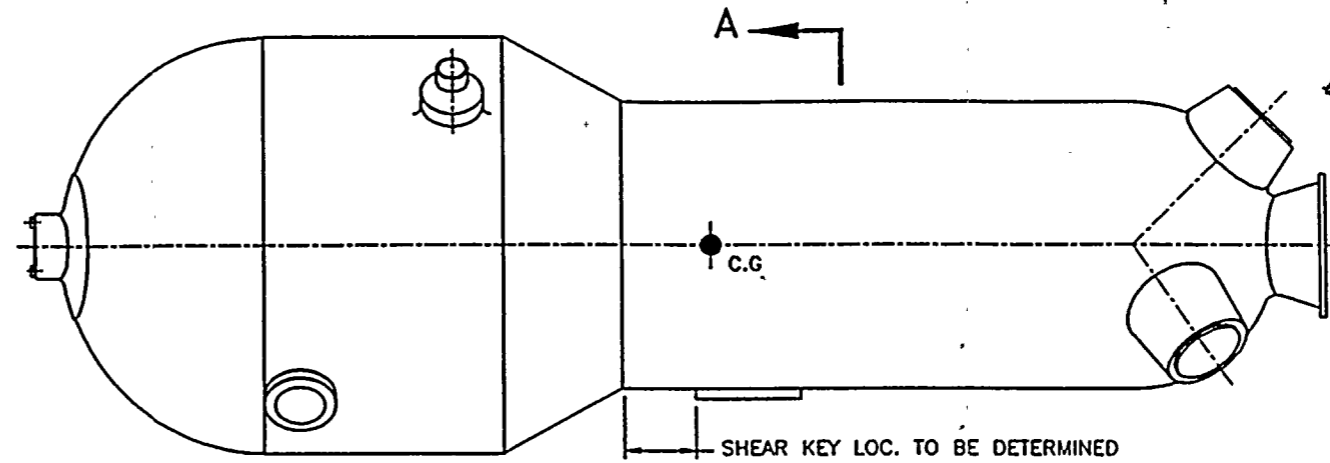
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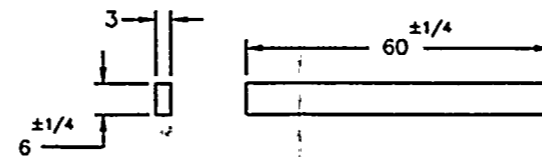


SEE SHEAR KEY WELMENT DETAIL

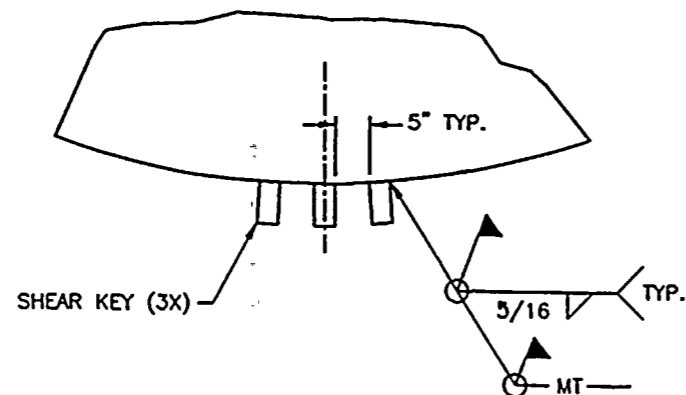
VIEW A-A



ELEVATION VIEW



SHEAR KEY DETAIL



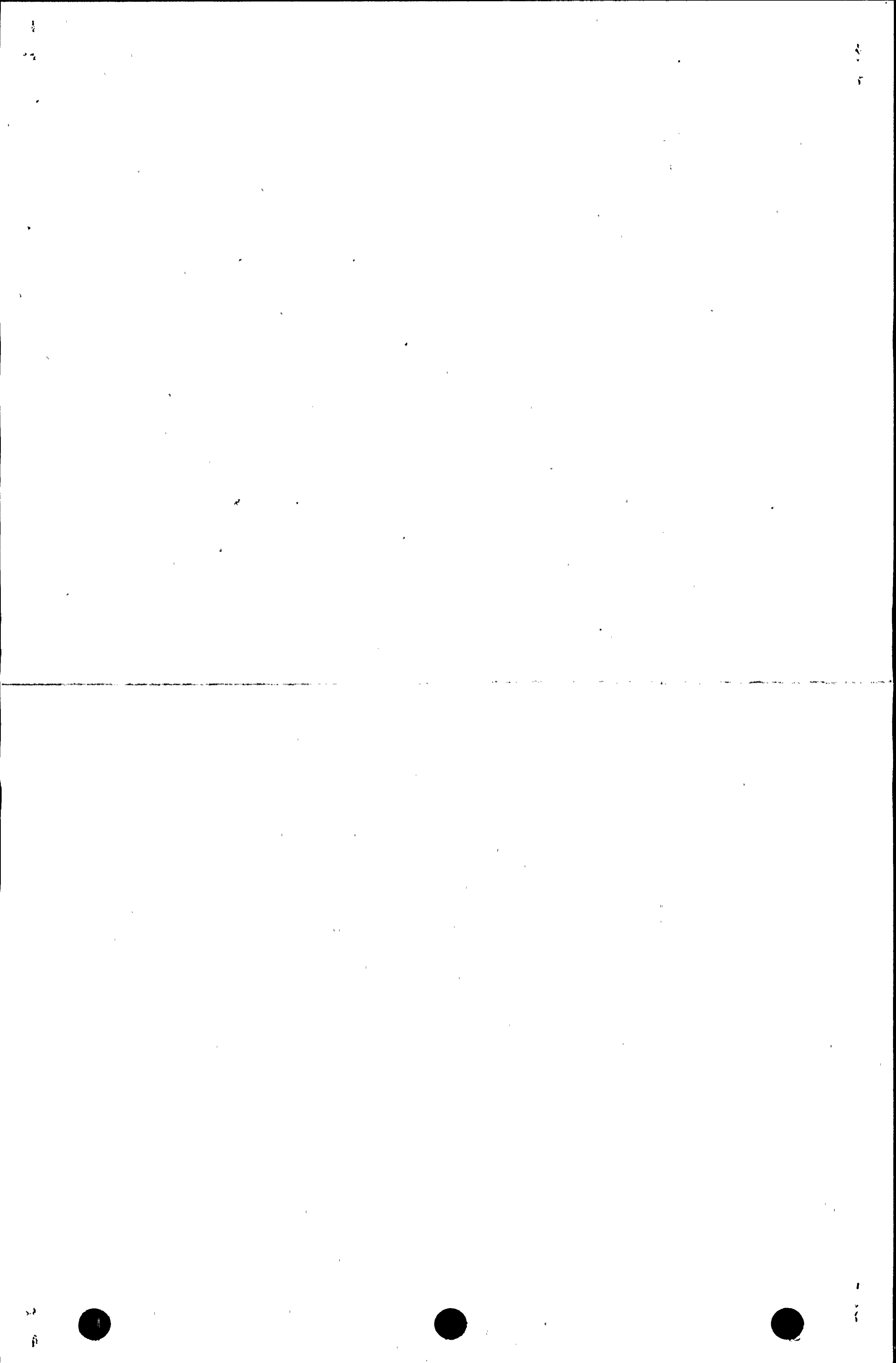
WELDMENT DETAIL

ANSI
APERTURE
CARD

Also Available on
Aperture Card

1	3	FLAT BAR, 3" X 6" X 60" LG.	ASTM A36
ITEM	QTY	DESCRIPTION	SPEC. AND / OR PART No.
BILL OF MATERIALS			
<input type="checkbox"/> PROPRIETARY		DO NOT SCALE PRINT	
<input checked="" type="checkbox"/> NON-PROPRIETARY		DIMENSIONS ARE IN INCHES UNLESS NOTED	
FSCM No. 54643		PROJECT No. 57906	FILE ID. 08890100
THIS DRAWING IS THE PROPERTY OF CHEM-NUCLEAR SYSTEMS. IT IS LOANED UPON THE CONDITION THAT IT IS NOT TO BE REPRODUCED, COPIED OR LOANED TO OTHERS WITHOUT WRITTEN PERMISSION OF CHEM-NUCLEAR SYSTEMS AND IS TO BE RETURNED UPON REQUEST.		REVIEWERS OF ORIGINAL (REV. 0)	
DRAWN BY R. BREHEN		4/24/97	
CHECKED BY <i>[Signature]</i>		4/24/97	
ENGINEER <i>[Signature]</i>		4/24/97	
SIZE B	DRAWING NUMBER C-110-B-46621-002	REV. 0	
SCALE 1/50	WT. N/A	SHEET 1 OF 1	

9706270124-05



Attachment 4

Structural Evaluation of the St. Lucie Package

Note: Attachment 4, "Structural Evaluation of the St. Lucie Package" is the non-proprietary, summary version of the structural evaluation. A complete, proprietary version of the detailed evaluation is available.

