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Licensee: Florida Power & Light Co.

Facility: St. Lucie Nuclear Plant, Units 1 & 2

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Miami, FL 33102

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Enclosure 2

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EXECUTIVE SUMMARY

St. Lucie Nuclear Plant, Units 1 & 2
NRC Inspection Report 50-335/96-16, 50-389/96-16

A Chronological Sequence of Events was established by the inspection team. That listing is contained in Enclosure 2, Attachment A to this report.

Overall, the licensee's response to the potential and actual tampering events between May and August 1996 was satisfactory. Some response deficiencies were identified and are discussed in the details of the report. In addition, two violations of regulatory requirements were identified for (1) failure to make a report to NRC under 10 CFR 73 concerning damaged locks and (2) failure to follow procedure concerning control of keys to critical controls. An unresolved item (URI) was identified concerning differences between the Updated Final Safety Analysis Report (UFSAR) description of the Hot Shutdown Panel (HSDP) for Unit 1 and the instrumentation actually installed. An inspector follow item (IFI) was identified for follow up on final implementation of interim actions to detect new tampering in a more timely manner.

In May and June 1996, the licensee identified two pressure relief valves which, when tested, were found to have pressure setpoints 55 percent and 9 percent above their design values. These valves were also found to have broken wire seals. The licensee's documented technical evaluation identified, as possible root causes, tampering or unauthorized work by plant personnel. Licensee management subsequently determined the valve anomalies were not due to tampering.

Through discussions with the licensee and documentation review, the inspectors concluded that the licensee's policy on the use of wire seals was inconsistent. There were no clear instructions to apply wire seals and, as a result, a number of valves did not have seals attached.

Based on independent review of the documented facts, observations of the installed valve configurations, and the effort required to access the valve spring tension mechanisms, the inspectors concluded that tampering, although it could not be conclusively ruled out, was not likely to have occurred in either of these specific cases. A person knowledgeable enough about relief valve operation to tamper with the valves could use an easier method to prevent proper operation of the valve. The more likely cause for the misadjusted valve was poor maintenance practices.

The inspectors verified through documentation review that the two valves were either replaced or repaired.

The inspectors verified through documentation review, that the V2325 setpoint was adjusted, properly tested and the valve reinstalled in the system.

The inspectors concluded that site management appropriately pursued identification of the cause for relief valve V3483 having a high setpoint. In addition, because of the broken wire valve seal, appropriate walkdowns were conducted to determine the extent of possible valve tampering. Once the extent was established, management appropriately evaluated and dispositioned the deficiencies.

Since tampering with valves V2325 and V3483 could not be conclusively ruled out, management's decision to alert Security of the tampering possibility was appropriate. However, due to a communications lapse, site Security was not notified. The inspectors also concluded that failure to follow through on alerting Site Security precluded actions to enhance security force awareness to other possible tampering events.

The inspectors determined that the event would not have been required to be reported to the NRC. However, the Security Manager should have been informed of the event because Security Procedure, Reporting of Safeguards Events, SP-0006125, Paragraph 5.2 states that "the plant security supervisor is responsible for making report ability determination under 10 CFR Part 73.71."

On July 26, 1996, eleven examples of actual padlock and door lock tampering were identified. Nine padlocks and two door locks were found to have been intentionally damaged by having foreign material injected into the lock cores. These locks controlled personnel access to various pieces of plant equipment.

The damaged locks were repaired and verified operational.

Although the licensee's response to the damaged locks was completed in a timely manner, the extent of condition evaluation did not identify keylock switches as other locking devices that needed to be checked for damage.

Management's response to the July event was not thorough in that keylock switches were not checked for damage until August.

Identification of tampering of components within the vital area of the plant demonstrated that additional tampering could likely occur. Therefore, the licensee should have considered additional measures to detect new tampering of equipment at the site in addition to alerting the Security force.

The Corporate investigative staff adequately reviewed the event.

The licensee failed to follow their procedure and report the confirmed tampering with the security equipment (locks) to NRC within one hour. This is a violation of regulatory requirements.

On August 14, 1996, three additional examples of actual lock tampering were identified. The lock mechanisms of the two keylock switches on the Unit 2 HSDP and the keylock switch on the Unit 1 HSDP were found to be intentionally damaged by having foreign material injected into the lock cores. These were the only keylock switches on the panels.

The inoperable Unit 1 power operated relief valve (PORV) control switch and the Unit 2 "A" and "B" channel safety injection actuation system (SIAS) bypass switches were replaced and operability was adequately verified.

Following extensive reviews done by the licensee and independent verifications by NRC, the inspectors concluded there was no evidence of additional tampering.

The inspectors identified that keys to operations equipment were not properly maintained in accordance with procedural requirements. This represents a violation for failure to follow procedural requirements.

Site management satisfactorily evaluated, consistent with the known examples of tampering, the operational capability of the plant safety systems to perform their intended safety functions.

Site management satisfactorily evaluated plant areas for foreign material and abnormalities.

Site management did not use all available plant documentation of equipment deficiencies (e.g., plant work orders) in its search for additional examples of tampering.

Site management should have been more proactive in establishing interim actions to detect new tampering in a more timely manner by using plant staff observers as well as Security force members. The interim actions subsequently identified by plant management, if properly implemented, should provide reasonable assurance that new tampering were be promptly detected.

The security force implemented good preventative measures to detect or prevent new tampering with plant equipment.

The licensee took appropriate and extensive actions to determine the individual(s) involved in the lock tampering event(s).

With one exception, the design and installation of the HSDPs for St. Lucie Units 1 and 2 were in accordance with the licensing basis of the plants. The FSAR description of the controls and instruments installed on the HSDP for St. Lucie Unit 1 did not match the installed equipment in that the FSAR description did not indicate the installed nuclear instruments. The failure of the FSAR to correctly describe the installed equipment is identified as an URI.

Control of access to the HSDP rooms of St. Lucie Unit 1 and 2 was in accordance with the approved PSP for the site.

The licensee was in compliance with the site PSP regarding access controls, patrols, alarm station operations, fitness for duty and access authorization.

During this site inspection, the inspectors independently reviewed a large number of plant records of Condition Reports (CRs) and Nuclear Plant Work Orders (NPWOs) in an attempt to identify any previously unidentified tampering events. No new tampering events were identified by the team.

Enclosure 2, Attachment B contains information provided to St. Lucie site management by NRC to assist in the site's response to the events. The attachment contains NRC Information Notice 83-27 concerning deliberate acts directed against plant equipment and internal NRC guidance for plant system checkout following suspected sabotage.

Enclosure 2, Attachment C contains illustrative photographs of the valves, padlocks and keylock switches that were the subject of this inspection.

Report Details

Summary of Potential and Actual Plant Tampering Events

In May and June 1996, the licensee identified two pressure relief valves which, when tested, were found to have pressure setpoints 55 percent and 9 percent above their design values. The licensee's technical evaluation identified, as possible root causes, tampering or unauthorized work by plant personnel.

On July 26, 1996, eleven examples of actual padlock and door lock tampering were identified. Nine padlocks and two door locks were found to be intentionally damaged by having foreign material injected into the lock cores. These locks controlled personnel access to various pieces of plant equipment.

On August 14, 1996, three examples of additional lock tampering were identified. The lock mechanisms on the two key lock switches on the Unit 2 HSDP and the key lock switch on the Unit 1 HSDP were found to be intentionally damaged by having foreign material injected into the lock cores. These were the only key lock switches on the panels.

O2 Operational Status of Facilities and Equipment **S1 Conduct of Security and Safeguards Activities**

O2.1 May-June 1996 Relief Valve Potential Tampering Events

On May 13, 1996, relief valve V3483 was removed from the plant for a planned check of its pressure relief setpoint. This valve had been installed on the 1A Low Pressure Safety Injection (LPSI) pump return line. On May 15, 1996, the planned check of the valve setpoint was initiated. Testing determined the pressure setting to be approximately 55 percent above its design set point. This valve was found with its wire seal broken and wrapped around the valve cap. A broken wire seal could be an indicator that the valve internals experienced some tampering. As recorded in the licensee's CR documentation, the root cause of this failure was stated by the licensee to be "apparently due to tampering or misadjustment of the valve's set screw controlling spring tension by unauthorized individual(s)." Figures 1 - 3 show the installed configuration for valve V3483.

Discovery that valve V3483 had an out of tolerance setpoint coupled with a broken wire seal resulted in the licensee visually inspecting 150 additional safety relief valves to determine if other valves had broken wire seals. No Unit 2 valves had broken or missing seals. However, ten Unit 1 valves were identified to have broken or missing wire seals. About June 17, 1996, pressure relief valve V2325, which was one of the ten identified with a broken or missing seal, was pressure tested and found to be within its pressure setpoint acceptance criteria but about 9 percent above its intended setpoint. Valve V2325 had been installed on the 1B Charging Pump discharge line. The licensee evaluated the setpoint difference and identified, as a potential cause, "unauthorized setpoint adjustment by personnel outside the scope of work controls." Figures 4 and 5 show the installed configuration for valve V2325. None of the remaining nine Unit 1 relief valves with broken or missing seals were assessed by the licensee as being out of calibration.

O2.1.1 Evaluation and Correction of Damaged Components

a. Inspection Scope

Review licensee's evaluation of the damaged components to determine if the as-found conditions represented potential tampering and determine if the damaged components were replaced or the damage corrected.

b. Observations and Findings

The inspectors reviewed CR 96-0890, which documented that the as-found lift setpoint of the 1A LPSI pump discharge relief valve V3483, was approximately 55 percent above its set pressure. This report stated that, after the valve was removed from the system it was placed in the drumming room to be tested. Prior to testing, an initial inspection identified that the adjustment cap screw seals were broken and the nozzle forging was not properly seated in the valve body and was loose. In the past it had been a common maintenance practice to install wire seals as a method to quickly and easily identify if tampering had occurred. However, the lack of a seal did not provide conclusive evidence that tampering had occurred. Seal wires could be broken during installation, maintenance of pipe insulation or other maintenance activities occurring in the same area. Subsequent testing was performed with the valve in this condition and the aforementioned results were obtained.

Through discussion with the licensee and documentation reviews, the inspector determined that, once the valve was installed, tampering adjustments to the V3483 setpoint required the removal of four 2.5" X 0.5" cap bolts tightened to a torque value of 45 Ft-lbs. in order to gain access to the adjusting nut. The cap bolts were not reported as having been found loose when the valve was removed from the system. The inspector observed the valve installed in the system and noted that it was located approximately twenty-five feet above the floor, making it accessible only with the use of a long ladder, scaffolding or crawling along the associated pipe. Figures 1 - 3 show the location of the valve. Although the report concluded that the root cause of the failure was apparently due to tampering or misadjustment of the valve's set screw controlling the spring tension, site management assessed the events to most likely be due to poor work practices. Documentation review indicated the valve was subsequently replaced with a pretested spare.

The inspectors verified that a Plant Manager's Action Item, PM96-06-483, was initiated to revise site procedures M-0810, Bench Testing of Safety Relief Valves, and M-0705, Main Steam Safety Valve Maintenance and Set Pressure Testing to include the installation of seals on relief valves following maintenance.

c. Conclusions

Through discussions with the licensee and documentation review, the inspectors concluded that the licensee's policy on the use of lead seals was inconsistent. There were no clear licensee instructions to apply the seals and as a result a number of

installed valves did not have seals attached. The licensee planned to address this issue through a revision of site procedures which will formalize and require the use of the seals.

Based on independent review of documentation, observations of the installed valve configurations, and the effort required to access the valve spring tension mechanisms, the inspectors concluded that tampering, although it could not be conclusively ruled out, was not likely to have occurred in this specific case. The more likely cause for this misadjusted valve was poor maintenance practices.

The inspectors verified through documentation review that the two valves were either replaced or repaired.

O2.1.2 Evaluation of Plant Systems for Additional Tampering

a. Inspection Scope

Verify plant safety systems have been sufficiently evaluated for potential tampering to assure they can perform their intended functions.

b. Observations and Findings

In response to the high as-found pressure setpoint of the V3483 and the broken wire seal on the valve, the licensee performed an inspection of wire seals on an additional 150 safety related valves. This effort was documented in CR 96-1247. After a review of both units, a total of 10 Unit 1 valves were identified with damaged or missing seals. Three of these valves had the seal intact but damaged. Five of the valves had proper lift setting visually verified by the position of the adjustment bolt. One of the valves had proper lift setting verified by bench test. One of the valves, 1B charging pump discharge relief valve, V2325, was tested and found to have its lift setting approximately 9 percent high. The licensee initiated CR 96-1469 to identify the root cause of the high setpoint on this valve. The valve was subsequently disassembled in accordance with Work Order 96015293 and no abnormalities were identified. Following adjustment of the setpoint, the valve was reinstalled in the system. The conclusion for the high setpoint was stated in the CR to be "unauthorized setpoint adjustment by personnel outside of the scope of work controls." This was based on the fact that no hardware problems were found, cap and lever seals were missing, and the previous setpoint adjustment was witnessed by Quality Control (QC). The inspector reviewed the work order and the CR, and inspected the valve installed in the system. Numerous discussions were held with Maintenance personnel on the process of adjusting the setpoint. Conversations with knowledgeable licensee personnel indicated that, on occasion in the past, the V2325 valve had been observed to "weep" or slightly leak past its seat.

c. Conclusions

Based on independent review of the documentation and the fact that the valve spring tension was not adjusted to its highest setting, the inspectors concluded that tampering, although it could not be conclusively ruled out, was not likely to have occurred in this specific case either. The more likely cause for the misadjusted valve was due to unauthorized maintenance performed to stop the valve from weeping.

The inspectors concluded the licensee adequately evaluated other similar valves to assure they could perform their intended function.

The inspectors verified through documentation review, that the V2325 setpoint was adjusted, properly tested and the valve reinstalled in the system.

O2.1.3 Site Management's Response to the May 1996 Event

a. Inspection Scope

The inspectors reviewed the actions taken by site management in responding to the identification that relief valve V3483 on the Unit 1 LPSI pump discharge line might have experienced tampering to determine if management's response was appropriate for the known circumstances.

b. Observations and Findings

The inspectors reviewed CR No. 96-0890. The CR shows, on May 15, 1996, V3483 failed to lift within 10 percent of its design setpoint and additional testing was required to determine the actual setpoint. The as-found setpoint was 55 percent above its design setpoint.

Management's review of the CR on May 17, 1996, shows that Engineering was assigned to evaluate the potential that the 1A LPSI piping had been overpressurized and System and Component Engineering was assigned to perform a root cause evaluation of the valve's condition. The CR also contains the engineering evaluation of the possible overpressure condition and the root cause evaluation showing that these assignments were completed on about May 22, 1996.

CR 96-0890 documents that V3483 was found with its wire seal broken and wrapped around the valve cap. The CR identified that the first record of the seal condition was when the valve was in the drumming room where testing was done on the valve.

CR 96-0890 documents that additional actions were recommended including determining "(1) ... the course of action that led to the misadjusted valve condition and (2) ... that the plant perform a sampling of lead seals on safety related relief valves in both units to assure that this condition is isolated to this one case."



CR 96-0890 documents that Operations Procedures OP-1-0010125A and OP-2-0010125A were used to perform a walkdown of all safety relief valves. The inspectors reviewed Data Sheets #23B from Operations Procedures OP-1-0010125A, Revision 5 and OP-2-0010125A, Revision 4, and noted that a total of 150 safety/relief valves were listed in those data sheets.

CR 96-0890 documents that ten Unit 1 and no Unit 2 valves were found with deficient conditions. Ten Unit 1 valves had missing or broken seals.

Documentation reviews show that CR 96-1247 was written at management's request to document the deficiencies on the 10 Unit 1 valves from the walkdown of the 150 safety and relief valves and to disposition the deficiencies. This CR also documents an analysis which concludes the site policy on installation of seals has been inconsistent. The analysis documents that a plant contractor's current practice was to install seals following rebuilding or testing but that installation of seals was not addressed in some vendor instructions used by the plant for valve maintenance.

CR 96-1469 documents the plant evaluation performed on valve V2325 once the valve was determined to be about 9% greater than its design setting on June 14, 1996. The analysis concluded that setpoint drift was an unlikely cause for the increased setpoint and that a potential and most likely cause was "unauthorized setpoint adjustment by personnel outside the scope of work controls." The CR analysis also states that the plant's discipline policy and management's expectation for verbatim procedure compliance were recently articulated and should eliminate future concerns about unauthorized work.

Discussions with several site managers identified that management determined the as-found conditions of valves V3483 and V2325 were not likely a result of personnel tampering with the valves. This conclusion was contrary to the documentation in the above CRs which stated the as found high relief valve setpoints on valves V3483 and V2325 were considered to be tampering or work control problems. The inspectors could not confirm the bases of those management decisions through any objective evidence. However, discussions with the NRC Senior Resident Inspector confirmed that he had been informed in the June 96 timeframe that site management had concluded that the root cause of the high as-found relief valve setpoints was not likely tampering.

Discussions with site management, which were also confirmed by the NRC Senior Resident Inspector, disclosed that site Security was to be informed of the potential tampering events with valves V3483 and V2325. During this inspection, the inspectors were informed by site management that site Security had not been informed as directed. As a result, no heightened security awareness had been implemented. Discussions with site Security management and review of documentation confirmed there were no actions taken to increase the awareness of the site Security force.



The inspectors observed the installed configurations of valves V3483 and V2325 during this inspection, reviewed drawings of the valves, and discussed valve calibration, installation and operations with knowledgeable licensee personnel. The inspectors observed that, if there was an intent to disable the valves, there were easier and quicker ways for a knowledgeable person to tamper with the valves without removal of the valve caps.

c. Conclusions

The inspectors concluded that site management appropriately pursued identification of the cause for relief valve V3483 having a high setpoint. In addition, because of the broken wire valve seal, appropriate walkdowns were conducted to determine the extent of condition of possible valve tampering. Once the extent of condition was established, management appropriately evaluated and dispositioned the deficiencies.

The inspectors concluded that tampering with relief valves V3483 and V2325 could not be conclusively ruled out based on the existing evaluation documentation. However, based on the team's direct observations, the inspectors also concluded that site management reached a reasonable decision that, tampering with valves V3483 and V2325 to intentionally damage them, was unlikely.

Since tampering with the valves could not be conclusively ruled out management's decision to alert Security of the tampering possibility was appropriate. The inspectors also concluded that failure to follow through on alerting site Security precluded actions to enhance security force awareness to other possible tampering events.

O2.2 Summary of the July 1996 Lock Tampering Event

On July 26, 1996, at about 8:30 a.m., an entry door to the Unit 2 Control Element Drive Mechanism Control System (CEDMCS) room could not be opened due to some foreign material in the lock. Subsequent evaluation identified additional examples of padlocks and door locks damaged by the insertion of foreign material into the lock cores.

A total of nine padlocks and two door locks were found to be damaged by foreign material in the lock cores. The damaged locks were for the following areas and equipment:

- Unit 2 CEDMCS room access door - 1 padlock,
- Unit 2 floor hatch in switchgear room - 2 padlocks,
- Roll-up door in the Unit 1 A Train Emergency Diesel Generator (EDG) room - 1 padlock,
- Roll-up door in the Unit 1 B Train EDG room - 1 padlock,
- Security door module box inside the Unit 1 A Train EDG room - 2 padlocks,
- Security doors to Power Panel #254 - 1 padlock,

- Security doors to Power Panel #255 - 1 padlock,
- Unit 2 CEDMCS room - 1 door lock, and
- Unit 2 Safety Assessment System computer room - 1 door lock.

For example purposes, Figures 6-9 in Attachment 3 show, respectively, the Unit 2 floor hatch and locks, lock on the doors to Power Panel #254, a roll-up door in one of the EDG rooms and a close-up view of the lock on the chain for the roll-up door.

Except for access to Power Panels #254 and #255, tampering with the remaining locks had a harassment impact on the plant and had no impact on safe plant operations. Power Panels #254 and #255 must be accessed in a timely manner to remove power to the Atmospheric Dump Valves (ADVs) so that, in the event a plant fire, the ADVs do not spuriously actuate.

O2.2.1 Evaluation and Correction of Damaged Components

a. Inspection Scope

Review licensee's evaluation of the damaged components and correction of the damage to the locks.

b. Observations and Findings

The inspector reviewed CR 96-1856, which documented that a padlock located on the CEDMCS room door could not be opened. This room is located within the Unit 2 Cable Spreading Room. The CR stated that follow-up investigation identified a total of nine padlocks and two door locks which had been disabled by having a glue-like substance injected into the lock cores. In addition, the inspector verified through direct observation and documentation review that the affected locks had been repaired. Subsequent checks by Security guards verified the repaired locks operated properly.

c. Conclusions

The damaged locks were repaired and verified operational.

O2.2.2 Evaluation of Plant Systems for Additional Tampering

a. Inspection Scope

Verify plant safety systems had been sufficiently evaluated for potential tampering to assure they can perform their intended functions.

b. Observations and Findings

The inspectors verified through documentation review that upon discovery of the damaged locks, the licensee conducted inspections of other locks throughout the plant. Security personnel opened and inspected security locks to verify that they were operational. Plant Operations personnel verified that operations locks for valves were operational. The licensee used Administrative Procedure 1/2-0010123, Administrative Control Of Valves, Lock and Switches, Revisions 101 and 73 respectively, to verify those locks installed on valves.

Corporate Security was contacted and performed an independent investigation of the event. The investigation was in progress prior to the August 14, 1996 event. Approximately one week after the July 26, 1996 event, the investigator informed the site that it was unlikely that they would find the perpetrator. Based on the event, Site Security was briefed to heighten their awareness to detect other tampering activities.

c. Conclusions

The inspectors concluded the licensee conducted an extensive evaluation to determine of other Security and Operations padlocks would perform their functions.

Although the licensee's response to the damaged locks was completed in a timely manner, the evaluation did not include the keylock switches on the HSDPs.

O2.2.3 Site Management's Response to July 26, 1996 Tampering Event

a. Inspection Scope

Review site management's response to the tampering event discovered on July 26, 1996, involving foreign material in security padlocks and room door locks, to determine if appropriate actions were taken.

b. Observations and Findings

CR 96-1856 documents that site security and Operations checked all pad locks and door locks cored specifically for security and Operations purposes. Those checks included pad locks on locked valves. Additionally, site Security heightened the security awareness of the Security force concerning possible additional tampering. Officer visibility was increased in the affected areas.

Management requested in Corporate Security assistance. Corporate Security interviewed various plant managers to gain an understanding of the circumstances and took possession of several damaged pad locks for further analysis.

The subsequent discovery of damaged keylock switches indicated the checks done in response to this event were not expanded sufficiently.

This event was incorrectly assessed by management as not being reportable to NRC under 10 CFR 73.

c. Conclusions

Management's response to this event was not thorough in that keylock switches were not checked for damage until August and the event should have been formally reported to NRC.

O2.2.4 Implementation of Interim Actions to Detect New Tampering

a. Inspection Scope

Determine if adequate interim actions to detect new tampering had been implemented.

b. Observations and Findings

After identifying tampering on the CEDMCS door locks, the licensee implemented an inspection of other door locks, padlocks and locked valves at the site. A total of nine padlocks and two door locks were found to have been tampered. No safety concerns were identified by the licensee.

Site Security officers were briefed to heighten their awareness to detect other tampering activities.

c. Conclusions

Identification of tampering of components within the vital area of the plant demonstrated that additional tampering could occur. Therefore, the licensee should have considered additional measures to detect new tampering of equipment at the site in addition to alerting the Security force.

S1.2.5 Security Investigation of the Event

a. Inspection Scope

Determine if the security and investigative staffs adequately reviewed the event.

b. Observations and Findings

The Corporate investigator responded to the site on July 27, 1996, to review the July 26, 1996 tampering event. The investigator reviewed the lock locations that were tampered with in the Electrical Equipment Room (EER). Site Security provided a lock that had been tampered with for analysis and computer access logs for the time period that the suspected tampering occurred.

c. Conclusion

The Corporate investigative staff adequately reviewed the event.

S1.2.7 Evaluation of Compliance with the Physical Security Plan

a. Inspection Scope

Determine if the licensee was in compliance with their PSP and Procedures.

10 CFR 73.71, Reporting of Safeguards Events, Appendix G, (3) Reportable Safeguards Events, requires the licensee to report to the NRC within one hour of discovery, followed by a written report within 30 days, events which cause interruption of normal operations through tampering with controls including the security system.

b. Observations and Findings

The licensee's Security Procedure, SP-0006125, Reporting of Safeguards Events, Revision 9, dated April 20, 1995, Paragraph 8.2 (I) defines one of those events as being a "confirmed tampering of suspicious origin with safety or security equipment."

On July 29, 1996, the licensee failed to follow their procedure and report the confirmed tampering with the security equipment (locks) within one hour to the NRC. This is a violation (VIO) of regulatory requirements (VIO 50-335/96-16-01, 50-389/96-16-01, Failure to report an event to NRC within one hour).

c. Conclusion

The licensee failed to comply with requirements for reporting the event to the NRC.

O2.3 Summary of August 1996 Event Concerning Damage to Hot Shutdown Panel Keylock Switches

On August 14, 1996, during a monthly surveillance of the Unit 2 HSDP at about 10:00 a.m., a plant operator discovered two key switches could not be operated because foreign material precluded the insertion of the keys into their locks. These were the only key switches on the Unit 2 HSDP. Each St. Lucie unit has an HSDP that was designed to be used to shutdown the unit from outside the unit main control room. The two damaged key lock switches operated channels A and B, respectively, of the SIAS to block unwanted actuation of the Safety Injection (SI) system during unit cool down.

Upon identification of the damaged Unit 2 key lock switches, a check of the HSDP for Unit 1 was conducted. The Unit 1 HSDP contained only one key switch on the panel. Similar to Unit 2, that key lock switch could not be operated because of foreign material in the lock mechanism. The damaged key lock switch operated the pressurizer PORV which provides a backup means to control primary system pressure if auxiliary pressurizer spray becomes unavailable while bringing the unit to a controlled shutdown condition.

O2.3.1 Evaluation and Correction of Damaged Components

a. Inspection Scope

Review licensee's evaluation of the damaged components and correction of the damage.

b. Observations and Findings

CR 96-1994 documented that PORV 1404 keylock control switch, CS 117, located on the Unit 1 Hot Shutdown Control Panel (HSDCP) and SIAS Bypass Switches channels "A" and "B," CS 246-3 and CS 248-3 respectively, were found to be inoperable due to foreign material in the lock core which prevented key insertion. An inspector observed the damaged switches while still installed on the HSDCP and noted that a foreign substance was not visible.

The inspectors reviewed Work Order 96020830 which documented the replacement of the inoperable Unit 1 PORV switch. Prior to installation the new switch was tested for continuity. During installation, the two wires attached to the old switch were lifted and relanded on the same terminal connections and independently verified to be correct. Following installation of the switch, an inspector verified the wires were landed on the appropriate terminals. An inspector reviewed Work Order 96020826 which documented the replacement of the inoperable Unit 2 "A" and "B" channel SIAS bypass switches. Following installation of the new switches, portions of I & C Procedure 2-1400052, Engineered Safeguards Actuation System - Channel Functional Test, Revision 23, were performed as a post maintenance test to verify operability. This test operated each switch and verified the appropriate response was obtained. An inspector witnessed the performance of this test and verified it was satisfactorily completed.

c. Conclusions

The inoperable Unit 1 PORV control switch and the Unit 2 "A" and "B" channel SIAS bypass switches were replaced and operability was adequately verified.

O2.3.2 Evaluation of Plant Systems for Additional Tampering

a. Inspection Scope

Verify plant safety systems had been sufficiently evaluated for potential tampering to assure they can perform their intended functions. NRC provided internal correspondence to the licensee regarding an appropriate approach to be used to evaluate the tampering event. This information is contained in Attachment B to this inspection report.

b. Observations and Findings

On August 14, 1996, the licensee checked all accessible keylock switches and locked valves located in both unit control rooms and in the field by inserting the appropriate key and verifying no foreign substance had been injected which would prevent operation. Those locks excluded from this check because of limited accessibility were locks located in the reactor containment building, the annulus, and high radiation areas. The inspector reviewed the completed documentation of Administrative Procedure 1/2-0010123, Administrative Control Of Valves, Locks, And Switches, Revisions 101 and 73 respectively, and verified required actions had been appropriately completed with no abnormalities identified.

On August 15, 1996, the licensee conducted visual inspections of selected areas in both unit control rooms including inside cabinets, panels, and boards associated with safety-related functions, looking for unexpected foreign material, undocumented jumpers/lifted leads, or any obvious faults. No abnormalities were found. The inspectors verified this had been completed through documentation review and interviews of personnel. No abnormalities were noted. However, the inspectors determined that there were areas within both units' control rooms that had not been inspected. These areas were those outside of the area monitored by the licensed operators, such as, the kitchens, Technical Support Center, offices, and ventilation rooms. The inspectors verified that these areas were inspected on August 21. No abnormalities found.

In addition, on August 15, 1996, the licensee performed visual inspections of both units in the areas of: Reactor Buildings, Turbine Buildings, intake areas, Condensate Storage Tanks, Fuel Handling Buildings, Component Cooling Water (CCW) areas, Ultimate Heat Sink area, Diesel Generator buildings, Intake and Discharge Canal Headwalls, Blowdown building, and Auxiliary Feedwater Buildings, and Steam Trestles, looking for abnormalities or foreign materials. Both units' Containments were verified to have been locked or have had entry only under the two man rule since July 26, 1996. Through documentation reviews and interviews of personnel performing the inspections the inspectors concluded that no abnormalities had been identified during these inspections. In addition, the inspectors independently conducted visual inspections/walkdowns of the following areas for both units: Main Control rooms, ECCS Pump rooms, Reactor Auxiliary Buildings including the pipe tunnels and penetration rooms, Auxiliary Feedwater Buildings, Cable Spreading rooms, Turbine buildings, EDG Buildings, and the outside yard. No abnormalities were identified.

The licensee performed visual inspections of piping and valves on both units to identify obvious signs of tampering such as cut chains or locks, loosened hardware or fittings, blockage in air boxes, missing bolting, and missing supports for the following systems: Ventilation, Service and Instrument Air, HPSI, LPSI, Containment Spray, Blowdown, Condenser Circulating Water, EDGs including Fuel Oil, Condensate and Feedwater, Heater Drains, Auxiliary Feedwater, Fire Suppression, Main Steam, Extraction Steam, Auxiliary Steam, Turbine and Support systems, Lube Oil, Waste Management, Water Treatment Plant, Chemical and Volume Control, Service Water,

Post Accident Sampling, Sewage Treatment, Primary Water, Hypochlorite, Gas House, Intake Cooling Water (ICW), and various support systems. Through documentation reviews and interviews of personnel performing the inspections, the inspectors concluded that no abnormalities had been identified during these inspections. In addition, the inspectors independently performed visual inspections of piping and valves on both units to identify any abnormalities associated with the following systems: HPSI, LPSI, Containment Spray, Charging Pumps, Auxiliary Feedwater, CCW, Safety Related Switchgear, and EDGs systems. No abnormalities were identified.

The licensee performed visual checks to confirm electrical power system integrity looking for such things as equipment which may have been tampered with as evidenced by switch mechanisms altered, cooling fan blockage, panel access altered, connection bolting loosened, breaker racking mechanisms altered, unauthorized grounds, foreign objects present, or any condition which could compromise the integrity of the power system. Subsystems inspected were: EDGs, 6.9KV and 4.2KV switchgear, Switchyard, Main transformers, Auxiliary transformers, Start-up transformers, Load Center transformers, 480V load centers and Motor Control Centers, Batteries and Chargers, DC load centers, Inverters, Motor-Generator Sets, and Voltage Regulators. Through documentation and interviews of personnel performing the inspections the inspectors concluded that no abnormalities had been identified during these inspections. In addition, the inspectors performed independent visual checks of the safety-related switchgear and motor control centers to verify that power was available to both the breakers and charging spring motors. External inspections were also conducted of the valve motors associated with each of the safety systems that the inspectors inspected.

The licensee performed inspections of both units' HSDCP looking for obvious signs of tampering such as loose wiring or switches, uncontrolled substances applied to wiring connections or switches, and proper response of instrumentation. The inspectors reviewed the Operating Procedure (OP) for both units which documented proper operation of instrumentation and alignment of switches, 1 and 2-0030151, "Remote Shutdown Monitoring Instrumentation Periodic Channel Check And Selector Switch Position Verification," Revisions 30 and 20 respectively. In addition, the inspectors independently inspected both units' HSDCP to identify the presence of foreign material or signs of obvious tampering. No abnormalities were identified.

The licensee completed detailed safety system examinations on both units. Technical Specification requirements were used as the overall acceptance criteria. Examinations included performing major system flowpath verifications, operational runs of related equipment (e.g., starting pumps), visual inspections, and selected instrumentation trend reviews of the following:

- Pumps Started: HPSI, LPSI, Containment Spray, CCW, ICW, Auxiliary Feedwater, Fire Suppression, Fuel Pool Cooling.
- EDGs were started and Reactor Protection System trip circuit breakers were visually inspected.

- Major flow path verifications (major valve position and electrical lineups) were done for: Auxiliary Feedwater, CCW, ICW, HPSI, LPSI, Containment Spray, Chemical and Volume Control, Fire Suppression systems.

In addition, the licensee verified the Normal/Isolate switches to be in the Normal position, proper Thermal Overload Bypass switch positions, and proper operation of Emergency Lighting.

The inspectors witnessed/verified valve lineups for both units on the following systems: HPSI, LPSI, Containment Spray, and CCW. In addition, the inspectors reviewed completed documentation for both units which indicated that operational pump runs were performed by the licensee for HPSI, LPSI, EDGs, and Containment Spray systems. No abnormalities were identified.

An inspector reviewed the licensee's Off-Normal procedure for both units which control the plant from the HSDCP, "Control Room Inaccessibility," 1/2-0030135, Revisions 24 and 23 respectively. In addition, the inspectors performed a field verification of the procedure and components operated with the assistance of a licensed operator. During this walkdown, the inspectors found keys used for the control of Normal/Isolate switches associated with Unit 2 PORVs V1474 and V1475 located in unlocked cubicles which house the switches. These cubicles are located in the 2A and 2B electrical penetration rooms of the Reactor Auxiliary Building and are maintained closed by a hasp-type mechanism. The operator assisting the inspectors informed the Control Room staff. The keys were secured and Operations initiated CR 96-2087 to document the problem and develop corrective actions. Administrative Procedure No. 2-0010123, "Administrative Control Of Valves, Locks And Switches," Revision 73, step 8.2.1 requires that cubicles containing critical controls in remote locations shall be locked and the keys maintained under Administrative Control. This was not done in this case and represents a violation of procedural requirements. (VIO 50-335/96-16-02, 50-389/96-16-02, Failure To Adequately Control Operations Keys).

From August 15-23, 1996, the inspectors observed the licensee's additional security force actions to detect or prevent new tampering during both day and night operations. Additionally, the inspectors reviewed the procedures for the added security functions and observed the verbal shift briefings.

The inspectors also noted that at approximately 5:00 p.m., on August 14, 1996, that the licensee assigned other plant personnel to duties as observers/patrol officers in specific areas within the plant. These personnel were placed in the area as a deterrent to prevent additional tampering with equipment. The inspectors determined that prior to the personnel being assigned to the observer duties they were verbally instructed to observe personnel entering the area and that if any personnel appeared suspicious to notify security. The personnel that were assigned to perform as observers did not consider their training for this type function to be adequate. On August 16, 1996, the licensee provided the patrols and observers with a written flyer as instructions. The flyer contained the following instructions: Question the activities that are going on in their area of surveillance/responsibility; ensure observations of

these activities is frequent and random; ensure that the people working in these areas feel that they are under surveillance; this will ensure that the observers presence would prevent tampering with equipment; and, should the patrol officers/observers encounter any personnel or activities that do not appear proper, contact the security Operations Officer. At approximately 5:30 p.m., August 15, 1996, the licensee terminated the observer function.

The inspectors independently reviewed the CRs initiated since April 1996, to identify additional tampering events. This inspection included a documentation review of approximately 1500 CRs. No additional tampering events were identified. In addition, the inspectors reviewed the Work Orders initiated during the period of July 20 - August 19, 1996, to determine if the cause of the identified problem was tamper related. This evaluation included a review of documentation, interviews with maintenance workers responsible for completing selected Work Orders, and field observations of several affected components. This review did not identify any additional tamper related problems.

c. Conclusions

The inspectors concluded there was no evidence of additional tampering and that the licensee had adequately evaluated plant safety systems to assure they were able perform their intended function.

O2.3.3 Site Management's Response to the August 14 Tamper Event

a. Inspection Scope

The inspectors' objective was to assess whether site management adequately responded to the tampering of key lock switches discovered on August 14, 1996.

b. Observations and Findings

In response to the detection of the damaged key lock switches, site management reported the damaged switches to the NRC in accordance with 10 CFR 73 within about one hour of the discovery of the damage.

A Security Alert was declared by site management. Declaration of Security Alert resulted in the site meeting an Emergency Action Level established in the site Emergency Plan for the declaration of a Notification of Unusual Event (NOUE). A NOUE was declared and reported to state and local authorities and to the NRC.

Site management also notified their other nuclear plant at Turkey Point.

Management directed plant personnel conduct visual inspections of important plant structures to look for any abnormal conditions or foreign material. Some general areas were intentionally excluded from these examinations based on established assess control and/or radiation exposure considerations.

Management directed that visual checks be conducted, for both units, of selected portions of the unit Control Rooms and of piping and valves, pumps, motors and instrumentation associated with important plant systems including plant safety systems. Additionally, electrical power systems were visually checked for abnormal conditions. In response to subsequent discussions with the inspectors, licensee personnel completed additional visual checks of areas adjacent to the control rooms on August 21, 1996.

Management directed additional checks be done to assure important systems were operational by operating important pumps and checking locked valves and valve positions in flow paths of major systems.

On August 14, 1996, site management held a sitewide "stand-down" to alert site personnel to the apparent tampering, the seriousness of such acts and to solicit information about the lock damage found on August 14, 1996.

Management also issued a night order to plant operators to be on the alert for additional examples of tampering.

Management implemented a review of CRs issued since May 22, 1996, for additional examples of tampering. Additional examples identified included the May 1996 relief valves and the July 26 lock damage described earlier in this report. The inspectors also independently reviewed approximately 1500 CRs dating back to early April 1996 and no additional examples of tampering were identified.

Management did not evaluate recent work orders generated by plant personnel, which were not part of the CR system, for additional examples of tampering. At the request of the inspectors, a listing containing a description of NPWO, initiated between July 20 and August 19, 1996, was generated for each unit. Review of that information by plant personnel did not identify any additional examples of tampering. The inspectors' independent review of that documentation and direct inspection of selected damaged components, also did not reveal any examples of tampering.

The inspectors also reviewed Radiological Event Reports and Radiological Deficiency Reports generated since January 1, 1996 through August 1996 for examples of unauthorized workers found working in high radiation areas. These were areas exempted by site management from visual plant walkdowns. No abnormalities were identified.

Management requested that Corporate Security investigate the August 14 additional examples of tampering.

Site Security posts and patrols were expanded to heighten Security officer visibility and checks of ongoing work in the plant.

Site management periodically briefed NRC management regarding the actions they were taking and were planning to take.

Utility management offered a \$10,000 reward for information leading to the arrest and conviction of anyone responsible for the damage to "back-up safety switches". Television monitors through out the plant carried that message.

Except for the Security actions and Operations night order identified above, management did not implement additional interim actions aimed at detecting new cases of tampering in a timely manner. Following discussions with the inspectors, management developed a plan to periodically assess plant areas and systems using knowledgeable plant staff. These checks were in addition to those routine and special checks being done by the Security Officers.

c. Conclusions

Site management satisfactorily evaluated, consistent with the known examples of tampering, the operational capability of the plant safety systems to perform their intended safety functions.

Site management satisfactorily evaluated plant areas for foreign material and abnormalities.

Site management could have used additional plant documentation of equipment deficiencies in its search for additional examples of tampering.

Site management could have been more proactive in establishing interim actions to detect new tampering by using plant staff as well as Security.

O2.3.4 Implementation of Interim Actions to Detect New Tampering

a. Inspection Scope

Determine if adequate interim actions to detect new tampering had been implemented.

b. Observations and Findings

Between August 15-23, 1996, the inspectors observed the licensee's additional security force actions to detect or prevent new tampering during both day and night operations. Additionally, the inspectors reviewed the procedures for the added security functions and observed several shift briefings.

Initial discussions between plant personnel and the inspectors indicated that interim measures to increase the probability of detecting new tampering, other than in the area of security patrols, had not been considered. Following those discussions, the licensee concluded that additional measures were prudent. The following actions were implemented or being planned at the conclusion of the inspection:

- Ongoing Plant Inspections - An existing program, the Plant Material Condition Inspection Program, was expanded to specifically include looking for evidence of tampering as part of the required inspections. This program consists of 38

inspectors assigned to inspect on a frequent basis (approximately daily) specific areas of the plant for material condition. The results of the inspections are required to be documented weekly.

- Plant CRs and NPWO will be reviewed on a daily basis for defects or conditions which could have resulted from tampering.
- System Engineers were instructed to specifically include inspections for evidence of tampering as part of their routine system walkdowns and inspections. Managers performing required off hour tours were to be instructed to include similar inspections as part of their duties.
- Operational checks of specific equipment were to be performed as appropriate to assure proper operation. The appropriate frequency for these checks will be established by senior plant management using assessments of the results of the ongoing investigation, inspections, and plant operational status.
- The licensee indicated that the duration of the above actions would be based on the results of plant inspections and the security investigation. Any decision on changes in scope and changes in duration of the actions would be made by senior plant management after discussions with NRC.

c. Conclusions

The security force implemented good preventative measures to detect or prevent new tampering with plant equipment.

The inspectors concluded that the actions specified in Section 02.3.4, if properly implemented, would provide reasonable assurance that new tampering, if it should occur, would be promptly detected. Implementation of the interim actions is identified as an IFI (IFI 50-335/96-16-03, 50-389/96-16-03, Implementation of Interim Plant Actions to Detect New Tampering).

S1.3.5 Security Investigation of Event

a. Inspection Scope

Review the investigative efforts of the licensee.

b. Observations and Findings

The licensee assembled a very well trained and experienced investigative team to review the tampering events. The investigators included a highly skilled consultant as part of the effort to determine who the individual was that had been involved in the lock tampering event.



c. Conclusion

The licensee took appropriate and extensive efforts to determine the individual(s) involved in the lock tampering event(s).

O2.3.6 Plant Licensing Basisa. Inspection Scope

Determine the licensing basis for the HSDPs for St. Lucie Units 1 and 2.

Inspect the installed HSDPs against the description in the FSAR and UFSAR. Identify any deviations between the installed equipment and the description in the FSAR.

b. Observations and Findings

The FSAR for St. Lucie Unit 1 was submitted on February 28, 1973. Section 7.4.1.8 described the controls and instrumentation to bring and maintain the plant at hot standby from outside the Control Room. The design at that time did not include a separate remote shutdown panel, but rather had operators control the plant from local stations in the plant. The licensee amended the description of the Unit 1 remote shutdown capability in Amendment 51 to the FSAR submitted on October 10, 1975. This description includes a HSDP located at Elevation 43 ft. of the Reactor Auxiliary Building. The FSAR description (Amendment 51) has remained essentially unchanged, with the exception of the addition of the key lock switch for the PORV and a switch for the PORV Block valve. Amendment 4 to the UFSAR in July 1986 documented this change. The plant license references the FSAR through Amendment 57, and thus the description of the HSDP in Amendment 51 is part of the original Unit 1 licensing basis.

The inspector performed a walk-down of the Unit 1 HSDP to determine if the installed controls and indications conformed to the description in the FSAR. The following deficiencies were noted:

- The FSAR (and UFSAR) listed one control switch for the pressurizer auxiliary spray valve. There were two switches installed on the panel.
- There were two Nuclear Instrument wide range indicators and two source range Nuclear Instrument indicators installed on the panel. Neither the FSAR nor the UFSAR, included these indicators on the list of instruments installed on the HSDP.

It was also noted that the description of some of the controls and instruments in the UFSAR could be revised to more clearly describe the instrument installed on the HSDP.

The FSAR for St. Lucie Unit 2 was submitted to the NRC on March 24, 1980. Section 7.4.1.5 of the FSAR described the controls and instrumentation to place the plant in hot shutdown and, if necessary, cold shutdown, from outside the control room. The design included a HSDP, and Table 7.4-2 listed the controls and indications provided on the HSDP. The location of the HSDP was specified as a room in the southwest corner of the reactor auxiliary building at Elevation 43 ft. The NRC acceptance of this design was documented in an SER dated October 9, 1981. Subsequently, the licensee provided additional information related to alternative shutdown capability as required by 10 CFR 50, Appendix R. The NRC, in Supplemental SER 3 dated April 6, 1983, found that the alternative shutdown capability at St. Lucie Unit 2 was in compliance with the guidelines of Section III.L of Appendix R and was, therefore, acceptable. Subsequent updates of the Unit 2 UFSAR under 10 CFR 50.59 provided greater detail in the description of the process for shutdown of the plant from outside the control room, but did not result in any significant change in the design of the HSDP.

An inspection of the Unit 2 HSDP revealed no deviations from the description in the FSAR.

Access control to the HSDPs for Units 1 and 2 was reviewed. The HSDP room for each unit was located in the respective Reactor Auxiliary Building on the 43 ft. elevation in the EER for that unit. This EER was a vital area and required key card access. The doors to the HSDP rooms were not locked. Since the rooms were located within a vital area, this level of access control was determined to meet the St. Lucie Security Plan.

c. Conclusions

The design and installation of the HSDP for St. Lucie Units 1 and 2 were in accordance with the licensing basis of the plants with the following exception. The FSAR description of the controls and instruments installed on the HSDP for St. Lucie Unit 1 did not match the equipment actually installed on the panel. The FSAR did not describe the installed nuclear instruments. The failure of the FSAR to correctly describe the installed equipment is identified as an URI pending additional licensee and NRC review (URI 50-335/96-16-04, FSAR Description of Installed Instrumentation on Unit 1 HSDP).

Control of access to the HSDP rooms of St. Lucie Units 1 and 2 was in accordance with the approved PSP for the site.

S1.3.7 Evaluation of Compliance with Physical Security Plan

a. Inspection Scope

Determine if the licensee complied with the PSP.

b. Observations and Findings

To preclude individuals from being authorized access to the facility who may engage in tampering with equipment activities, the licensee established a screening program in accordance with 10 CFR 73.56 requirements. The PSP requires that, "All individuals selected for employment with FPL who require access to a FPL nuclear plant are screened in accordance with the provisions of the Nuclear Division Access Authorization program and are subject to the company's Fitness For Duty Program." All elements of Regulatory Guide 5.66, "Access Authorization Program for Nuclear Power Plants," were implemented to satisfy the requirements of 10 CFR 73.56." The PSP also required, that "contractor employees requesting unescorted access are subject to the provisions described above and are included in the Company's Fitness for Duty Program."

The PSP further required that, "all Vital Areas shall be locked and protected with an activated intrusion alarm system. Access to Vital Areas is controlled by card readers or a member of the security force (MSF). When access is controlled by MSF, Access Authorization shall be verified against a list containing the individual's name, badge number and access code. Once authorization is verified, MSF shall record the individual's badge number, time in, and time out. Positive Access Control shall be afforded at all Vital Area entry portals via card reader except for Containment which shall be manned by a member of the Security Force when opened. Only those individuals with identified need for access and having appropriate authorization, shall be granted unescorted Vital Area access. Authorization for access to Vital Area(s) shall be approved by the Plant General Manager or his designee. Vital Area access lists shall be approved by the Plant General Manager at least every thirty-one (31) days."

c. Conclusion

The licensee was in compliance with the site PSP regarding access controls, patrols, alarm station operations, fitness for duty and access authorization.

INSPECTION PROCEDURES USED

IP 62703: Maintenance Observation
IP 71707: Plant Operations
IP 81601: Safeguards Contingency Plan Implementation Review
IP 92901: Followup - Plant Operations

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

50-335,389/96-16-01	VIO	Failure to report an event to NRC within one hour, Paragraph S1.2.7.b
50-335,389/96-16-02	VIO	Failure To Adequately Control Operations Keys, Paragraph O2.3.2.b
50-335,389/96-16/03	IFI	Implementation of Interim Plant Actions to Detect New Tampering, Paragraph O2.3.4.c
50-335/96-16-04	URI	FSAR Description of Installed Instrumentation on Unit 1. HSDP, Paragraph O2.3.6.c



X1 Exit Meeting Summary

The inspectors presented the inspection results to members of licensee management at the conclusion of the inspection on August 23, 1996. The licensee acknowledged the findings presented.

The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

PARTIAL LIST OF PERSONS CONTACTED

Licensee

Bladow, W., Site Quality Manager
Brady, J., Corporate Communications
Burton, C., Site Services Manager
Noznesky, D., Corporate Security
Pell, C. A., Shift Technical Advisor Supervisor
Scarola, J., St. Lucie Plant General Manager
Stall, J. A., Site Vice President
Weinkam, E., Licensing Manager
White, W. G., Site Security Supervisor

Other licensee employees contacted included operations, engineering, licensing, maintenance, and corporate personnel.



LIST OF ACRONYMS USED

ADV	Atmospheric Dump Valve
CCW	Component Cooling Water
CEDMCS	Control Element Drive Mechanism Control System
CFR	Code of Federal Regulations
CR	Condition Report
EDG	Emergency Diesel Generator
EER	Electrical Equipment Room
FPL	The Florida Power & Light Company
gpm	Gallon(s) Per Minute (flow rate)
HPSI	High Pressure Safety Injection (system)
HSDCP	Hot Shutdown Control Panel
HSDP	Hot Shutdown Panel
ICW	Intake Cooling Water
IFI	[NRC] Inspector Follow Item
LPSI	Low Pressure Safety Injection (system)
NOUE	Notification of Unusual Event
NPWO	Nuclear Plant Work Order
NRC	Nuclear Regulatory Commission
OP	Operating Procedure
PM	Plant Manager
PORV	Power Operated Relief Valve
PSP	Physical Security Plan
QC	Quality Control
SI	Safety Injection
SIAS	Safety Injection Actuation System
UFSAR	Updated Final Safety Analysis Report
URI	[NRC] Unresolved Item
V	volt
VIO	violation



Chronological Sequence of Events

- MAY 15, 1996** Licensee periodic testing identified that the 1A LPSI pump discharge relief valve V3483 lift setpoint was high (greater than 10 percent above design). CR 96-0890 developed to evaluate the condition. CR 96-0890 also documented the broken lead seal on the valve.
- MAY 17, 1996** Licensee identified valve V3483 lift set point about 55 percent above design value.
- MAY 22, 1996** Licensee Engineering evaluation and root cause analysis for SDC valve V3483 high lift setpoint determined "apparently due to tampering or misadjustment of the valve's set screw controlling the spring tension." Recommendation made in CR 96-890 to examine a sample of lead seals on other safety related relief valves in both units.
- JUNE 4, 1996** Licensee response to the broken lead seal found on valve V3483 on May 15, 1996, was an inspection of the seals of 150 additional relief valves on Units 1 and 2. This inspection was completed and documented on CR 96-1247. Ten Unit 1 valves were identified with broken seals as well as some other visual deficiencies. No Unit 2 relief valves were found with seal deficiencies. CR also documented that only valve V2325, one of the ten Unit 1 valves found with deficient seals, was found to have a high pressure setpoint. The setpoint was 9 percent above the design value and within the 10 percent allowance band used to determine a need for an overpressure evaluation. Valve V2325 was the relief valve on the 1B Charging Pump discharge line.
- JUNE 17, 1996** Licensee initiated CR 96-1469 to determine root cause for high setpoint on valve V2325.
- JUNE 27, 1996** CR 96-1247 was closed out with the following results. Of the 150 valves tested:
- 10 Unit 1 valves were identified with a damaged or missing seal wire (three had the seal wire damaged but intact, five had proper lift setting verified by bolt position, one had proper lift setting verified by bench test, and one had lift setting approximately 9 percent high--the 1B Charging Pump discharge relief valve, V2325).
- JUNE 1996** Licensee management determined the relief valve deficiencies were not likely to be due to tampering. The NRC Senior Resident Inspector informed of the licensee's conclusion by the Site V.P. Site Security manager was not informed about the potential tampering as directed by Site V. P.
- JULY 19, 1996** Licensee closed out CR 96-1469 which documented the root cause for the high setpoint on the Charging Pump relief valve, V2325, as "unauthorized setpoint adjustment by personnel outside of the scope of work controls."

JULY 26, 1996

At about 8:30 a.m., Operations could not open a padlock on the CEDMCS room which is located within the Unit 2 Cable Spreading area. The padlock was damaged by apparent foreign material inside the lock core.

JULY 26, 1996

Subsequent investigation identified a total of nine padlocks and 2 door locks which had been disabled by having a foreign material injected into the cores of the locks. Locks found damaged were:

- 1 padlock on the Unit 2 CEDMCS room,
- 2 padlocks on a Unit 2 floor hatch in the switchgear room,
- 1 padlock on the roll-up door in the Unit 1A Train EDG room,
- 1 padlock on the roll-up door in the Unit 1B Train EDG room,
- 2 padlocks on the Security door module box inside the Unit 1A Train EDG room,
- 1 padlock on the doors to Power Panel #254 on -0.5' level,
- 1 padlock on the doors to Power Panel #255 on -0.5' level,
- 1 door lock to the Unit 2 CEDMCS room,
- 1 door lock to the Unit 2 Safety Assessment System (Computer room).

JULY 26, 1996

Licensee replaced cores of the nine padlocks and two door locks which had been identified as being damaged by tampering.

JULY 26, 1996

Operations completed a check of all locked valves in Units 1 and 2 for foreign material in the locks. Areas excluded from this evaluation, for each unit, were the reactor containment building, annulus and high radiation areas. No additional locks were identified containing foreign material.

JULY 26, 1996

No formal report to the NRC Headquarters Operations center made by licensee concerning this event.

AUGUST 14, 1996

At 11:15 a.m., while conducting a monthly functional surveillance, I&C Maintenance workers discovered two keylock switches had been disabled by having a foreign material injected in the lock cores. The two switches were located on the Unit 2 HSDCP and operated the "A" and "B" channel of the SIAS Bypass function. Because tampering was suspected, the Unit 1 HSCP was inspected and an additional keylock switch was identified to have been similarly tampered with. This switch operated PORV V1404. CR 96-1994 was initiated to document the event.

At 12:12 p.m. the licensee reported the event to the NRC Operations Center via the Emergency Notification System in accordance with 10 CFR 73.71.

At 1:30 p.m., Security established additional posts in the affected areas and near other safety related equipment.

At 1:34 p.m., Security Alert was declared. Vehicle and visitor access were restricted. Safeguards contingency plan requirements were implemented in addition to the Security posts established in the affected areas.

At 1:46 p.m., the site declared a NOUE due to declaration of the Security Alert.

At 1:55 p.m., Turkey Point notified of the event at St. Lucie. (Afternoon) NRC Resident Inspector visually inspected damaged keylock switches. Foreign substance was not visible in the key locks.

At 2:35 p.m., Security initiated check of all vital door locks to determine if any additional tampering had taken place. Operations was checking all other switches and related safety equipment.

The licensee completed evaluation of all keylock switches and locked valves located in both unit Control Rooms and in the field by assuring keys could be inserted into the lock core to verify that no foreign substance had been injected which would prevent operation. No abnormalities were identified.

At 3:00 p.m., the licensee conducted a "standdown" of all site personnel to inform them of the event and encourage anyone with information to report it to either FPL or the NRC.

At 3:12 p.m., all visitors were offsite.

AUGUST 14, 1996

At 3:15 p.m., plant Maintenance replaced Unit 2 keylock switches for the "A" and "B" SIAS Bypass in accordance with Work Order 96020826 and performed post-maintenance testing in accordance with I & C Procedure 2-1400052, "Engineered Safeguards Actuation System - Channel Functional Test."

AUGUST 14, 1996

Licensee replaced PORV V1404 keylock switch located on the Unit 1 HSDP. This is the switch which had been damaged due to tampering. The work was performed in accordance with Work Order 96020830. The post-maintenance test consisted of a bench test of the switch and an independent visual verification of the electrical lead landings.

(Afternoon) NRC Resident Inspector witnessed portions of post-maintenance testing of the Unit 2 "A" and "B" SIAS Bypass switches located on the HSCP.

At 3:30 p.m., licensee established two man rule for security post in auxiliary feedwater/steam trestle, -0.5' Area, and the cable spreading room in each unit auxiliary building

At 3:39 p.m., FBI agent arrived onsite.

At 3:45 p.m., I&C was working on changing out Unit 1 HSDP Room damaged PORV keylock switch.

At 4:11 p.m., checks of all security vital area doors and locks completed; no discrepancies noted.

At 5:00 p.m., the licensee assigned other plant non-security personnel to patrol in specific areas within the plant. These personnel were placed in the area as a deterrent to prevent additional tampering with equipment. When the personnel were assigned to the areas they were verbally instructed that they were to observe personnel entering the area and that if the personnel appeared suspicious to notify security. These personnel indicated to the NRC during a walkdown that they were not trained for this type function and that they had not been provided written instructions. On August 15, 1996, the licensee provided the non-security personnel patrols with a written flyer as instructions. After the flyer was issued the patrols informed the NRC that the instructions were not adequate.

At 5:18 p.m., Security Alert Terminated. Turkey Point advised.

At 5:20 p.m., Television media arrived at plant. (See media coverage.)

At 5:30 p.m., NOUE terminated.

At 7:30 p.m., Security removed last of the 11 damaged lock sets.

AUGUST 15, 1996

Licensee commenced visual inspection of selected areas in both unit Control Rooms including inside cabinets, panels, and boards associated with safety-related functions, looking for unexpected foreign material, undocumented jumpers/lifted leads, or any obvious fault. No abnormalities found.

AUGUST 15, 1996

Licensee commenced visual inspection of both units looking for abnormalities or foreign materials. Areas inspected were Reactor buildings, Turbine buildings, Intake areas, Condensate Storage Tanks, Fuel Handling buildings, CCW areas, Ultimate Heat Sink area, Diesel Generator buildings, Intake and Discharge Canal Headwalls, Blowdown building, and Auxiliary Feedwater buildings and Steam Trestles.

Licensee verified that both reactor containment buildings have been locked or have had entry only under the two man rule since July 26, 1996.

Licensee commenced visual inspections of piping and valves on both units to identify obvious signs of tampering such as cut chains or locks, loosened hardware or fittings, blockage in air boxes, missing bolting, and missing supports. The following systems were inspected: Auxiliary Feedwater, HPSI, LPSI, Containment Spray, Blowdown, Condenser Circulating Water, Ventilation, Service and Instrument Air, EDGs including

Fuel Oil, Condensate and Feedwater, Heater Drains, Fire Suppression, Main Steam, Extraction Steam, Auxiliary Steam, Turbine and Support systems, Lube Oil, Waste Management, Water Treatment Plant, Chemical and Volume Control, Service Water, Post Accident Sampling, Sewage Treatment, Primary Water, Hypochlorite, Gas House, ICW, and various support systems.

Licensee commenced visual inspections of electrical power systems integrity looking for such things as equipment which may have been tampered with as evidenced by switch mechanisms altered, cooling fan blockage, panel access altered, connection bolting loosened, breaker racking mechanisms altered, unauthorized grounds, foreign objects present, or any condition which could compromise the integrity of the power system. Subsystems inspected were: EDGs, 6.9KV and 4.2KV switchgear, Switchyard, Main transformers, Auxiliary transformers, Start-up transformers, Load Center transformers, 480V load centers and Motor Control Centers, Batteries and Chargers, DC load centers, Inverters, Motor-Generator Sets, and Voltage Regulators.

NRC Resident Inspector conducted visual inspection/walkdown of the following systems/areas for both units: Main Control rooms, ECCS Pump rooms, Reactor Auxiliary buildings including the pipe tunnels and penetration rooms, Auxiliary Feedwater buildings, Cable Spreading rooms, Turbine buildings, EDG buildings, and the Outside yard. No abnormalities were identified.

NRC Resident Inspector reviewed completed Locked Valve lock check procedure, 1/2-0010123, Administrative Control of Valves, Locks, and Switches, which was used to verify locks on locked valves were not tampered with.

At 1:00 p.m., two NRC Region II Physical Security Inspectors arrive onsite.

At 3:00 p.m., NRC Security inspectors toured affected areas with FPL Corporate Investigators.

At 5:23 p.m., Site Security changed to different method of checking plant areas via foot patrol.

At 5:30 p.m., the licensee terminated the patrolling functions of non-security plant personnel.

At 9:30 p.m., NRC Security Inspector on site to observe Site Security patrols.

At 10:12 p.m., NRC Security Inspector and a Site Security Lieutenant observed some Security patrol deficiencies. These deficiencies were subsequently discussed with Security Shift Supervisor and patrol methods were changed.

AUGUST 16, 1996

Licensee completed piping and valve visual inspections. No abnormalities were identified.

The NRC Resident Inspector independently performed visual inspections of piping and valves on both units to identify any abnormalities associated with the following systems: HPSI, LPSI, Containment Spray, Charging Pumps, Auxiliary Feedwater, CCW, Safety Related Switchgear, and EDGs systems. No abnormalities were identified.

Licensee completed inspection of both unit HSDPs for additional damage. No abnormalities were identified.

NRC Resident Inspectors performed independent visual checks of the safety-related switchgear and motor control centers to verify that power was available to both the breakers and charging spring motors. External inspections were also conducted of the valve motors associated with each of the safety systems that the inspectors inspected.

NRC Resident Inspector monitored licensee activities and performed general plant inspections paying particular attention to security patrols maintaining their presence throughout the plant.

About 2:30 a.m., Site Security increased the number of patrols in each Unit to expand patrol coverage.

At 1:00 p.m., licensee management conducted a conference call with various NRC Region II and NRC Headquarters-Nuclear Reactor Regulation managers and staff.

Licensee operational walk-down of plant equipment in progress.

Site Security continues to refine patrol duties.

FBI now in monitoring role.

Licensee was informed that a Region II special team will arrive on August 19, 1996.

About 3:00 p.m., NRC Security Inspector walked down areas of concern with Site Security personnel.

At 3:30 p.m., NRC Security Inspector briefed by Corporate investigators on status of investigation.

About 9:30 p.m., NRC Security Inspector observed there were numerous Site Security patrols touring the affected areas.



AUGUST 17, 1996

Licensee commenced detailed safety system examinations on both units. Technical Specification requirements were used as the overall acceptance criteria. Examinations included performing major system flowpath verifications, operational runs of related equipment (e.g. Starting Pumps), visual inspections, and selected instrumentation trend reviews.

- Pumps started were: HPSI, LPSI, Containment Spray, CCW, ICW, Auxiliary Feedwater, Fire Suppression, Fuel Pool Cooling.
- EDGs were started and Reactor Protection System Trip Circuit Breakers visually examined.
- Major flow path verifications (major valve position and electrical lineups) were done for: Auxiliary Feedwater, CCW, ICW, HPSI, LPSI, Containment Spray, Chemical and Volume Control, Fire Suppression systems.

Licensee verified remote Normal/Isolate switches through out the plant to be in the Normal position.

Licensee verified Thermal Overload Bypass switches through out the plant to be in the proper configuration.

Licensee verified proper operation of Emergency Lighting.

NRC Resident Inspector witnessed valve position verifications for both units on the following systems: HPSI, Low Pressure Injection, Containment Spray, and CCW. No abnormalities were identified.

NRC Resident Inspector reviewed completed documentation for both units for operational pump runs performed by the licensee for HPSI, LPSI, and Containment Spray systems. No abnormalities were identified.

NRC Security Inspector observed patrol routes. NRC Inspector determined that the Security officers had not been briefed on the specific equipment that was damaged. Security manager directed all Security officers be briefed on what areas were vulnerable to tampering.

AUGUST 18, 1996

Licensee continued detailed safety system operational verifications. No abnormalities were identified.

NRC Resident Inspector continued monitoring of licensee activities. Reviewed valve lineups, logs, and performed general plant and control room walkdowns.

AUGUST 19, 1996

Licensee completed detailed safety system operability verifications.

NRC Resident Inspector performs walkdown of identified actions using Control Room Inaccessibility Procedure 1- and 2-0030135. Key control problem identified by Resident Inspector.

NRC Team Leader for Special Inspection Team arrives on site and conducts entrance meeting with licensee management.

About 3:50 p.m., Site Security force reduced special patrolling activities. Patrol activities continue at an above normal level.

AUGUST 21, 1996

In response to discussions with the NRC Special Inspection Team, the licensee completed additional visual inspections of areas in the vicinity of the unit Control Rooms looking for any suspicious or unauthorized foreign objects. Areas inspected were the Technical Support Center, offices, kitchen, and ventilation rooms. No abnormalities were identified.

INFORMATION PROVIDED TO LICENSEE BY NRC ON AUGUST 15, 1996

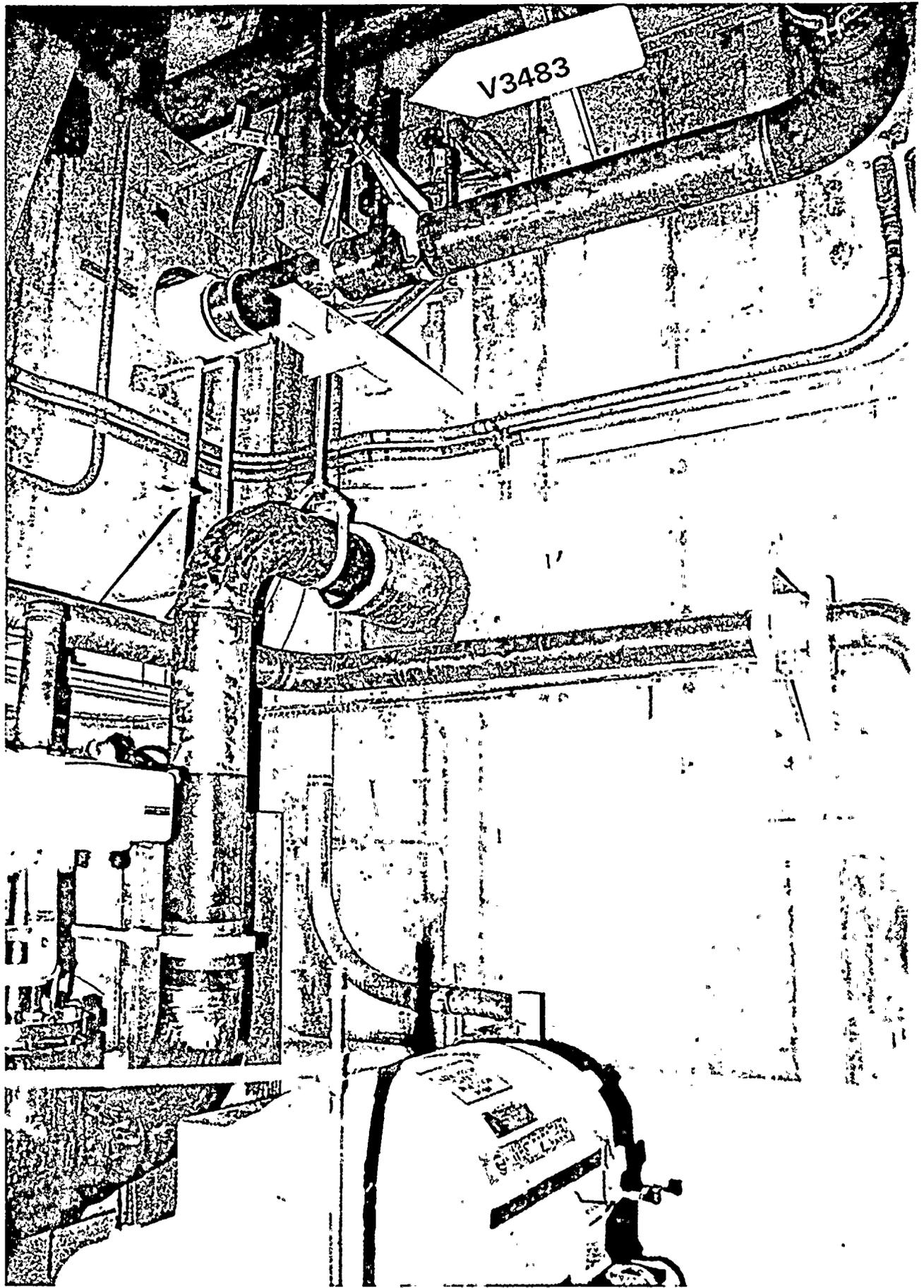
- (1) NRC Information Notice 83-27
- (2) NRC Internal memo dated 12/12/85
- (3) NRC Internal memo dated 7/14/82

PHOTOGRAPHS SHOWING VALVE LOCATIONS

AND

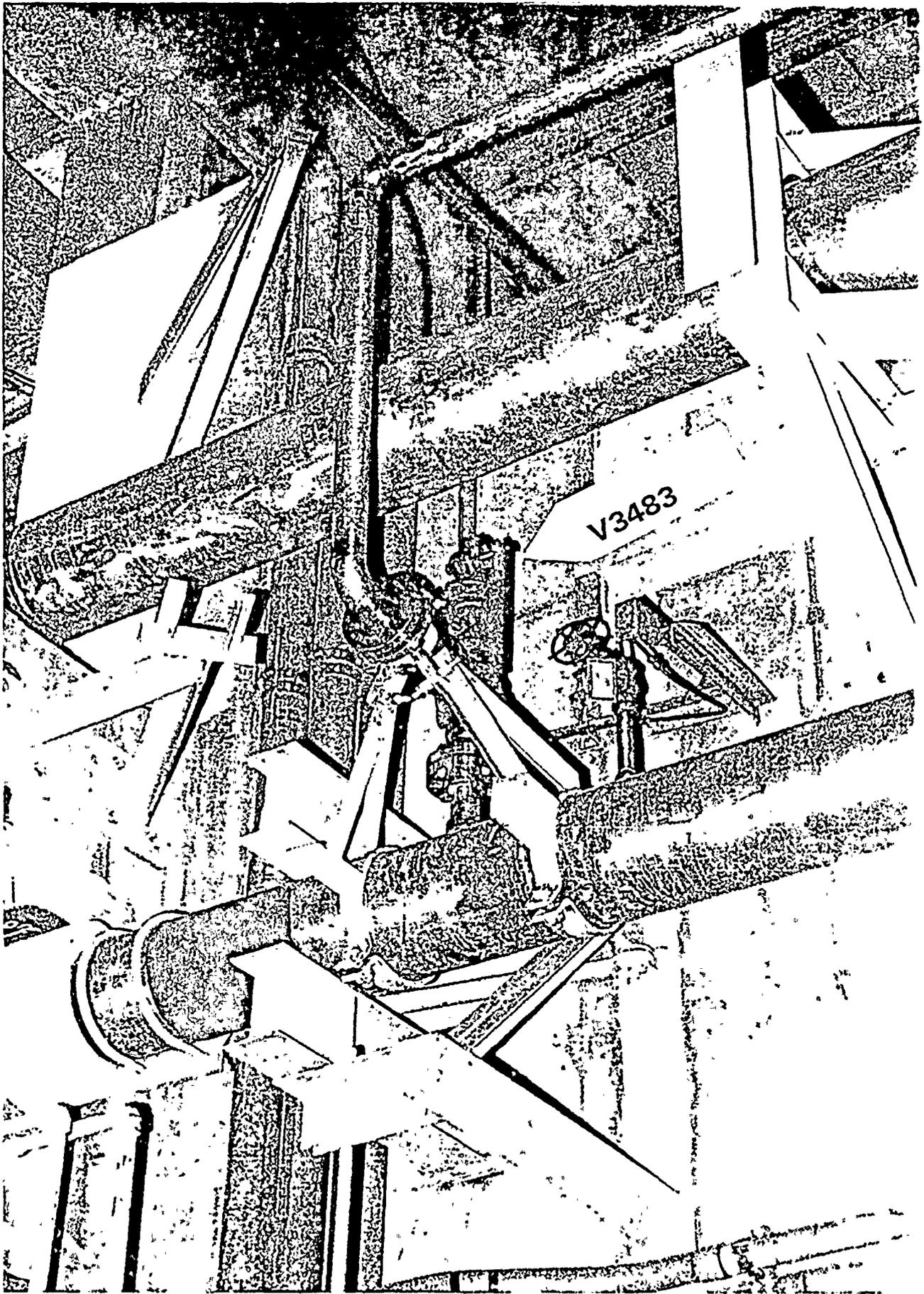
EXAMPLES OF DAMAGED LOCKS AND KEY SWITCHES

- Figures 1 - 3 Location of 1A Low Pressure Safety Injection Valve V3483
- Figures 4 - 5 Location of 1B Charging Pump Valve V2325
- Figure 6 Floor Hatch and Padlocks
- Figure 7 Doors Enclosing Power Panel #254
- Figures 8 - 9 Lock on Roll-up Door in Diesel Generator Building
- Figure 10 Unit 2 Hot Shutdown Panel (HSDP)
- Figures 11 - 12 Key Lock Switches on Unit 2 Hot Shutdown Panel
- Figure 13 Unit 1 Hot Shutdown Panel
- Figure 14 Key Lock Switch on Unit 1 Hot Shutdown Panel



ST. LUCIE NUCLEAR PLANT
AUGUST, 1996

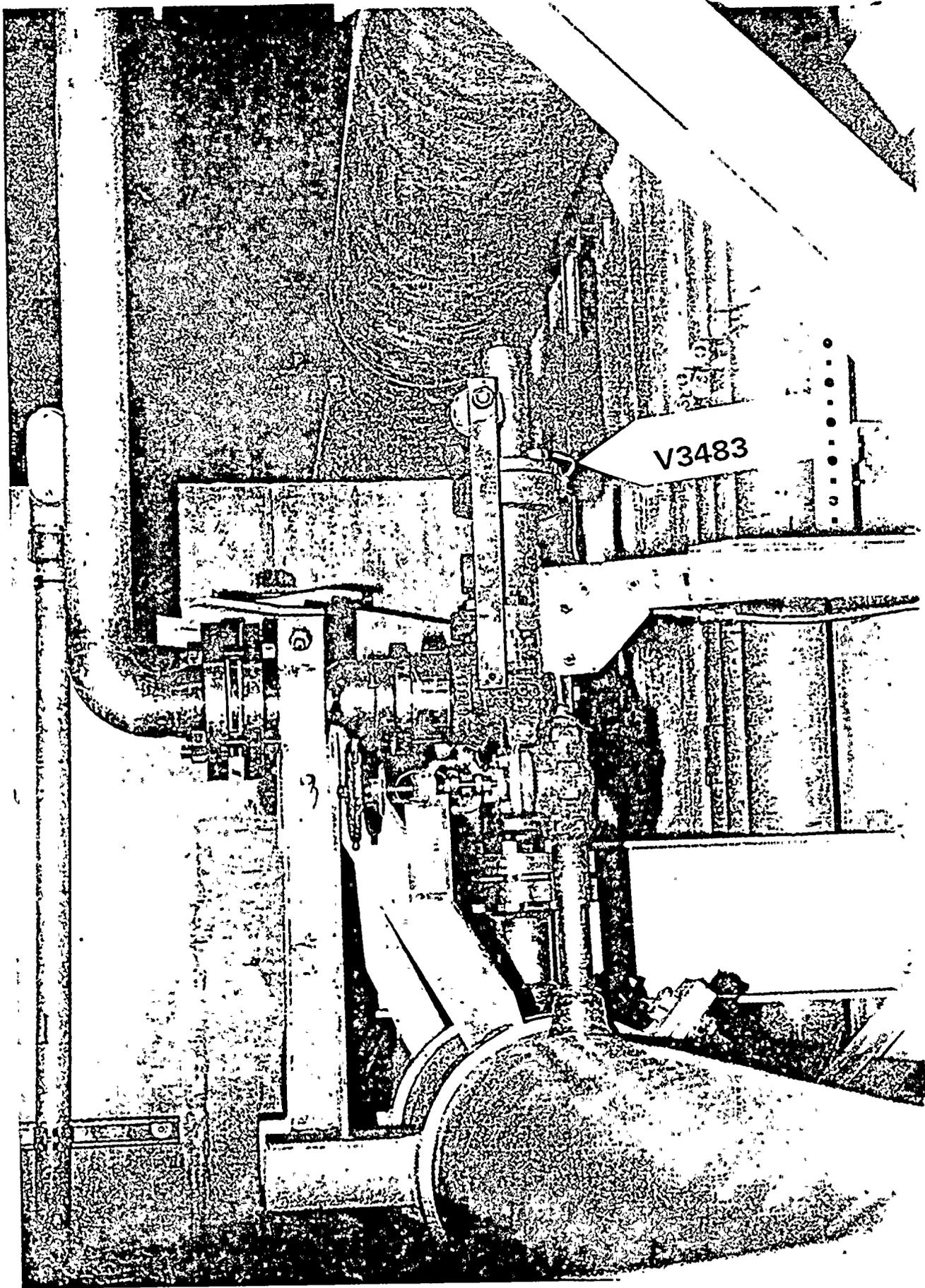
FIGURE 1



ST. LUCIE NUCLEAR PLANT
AUGUST, 1996

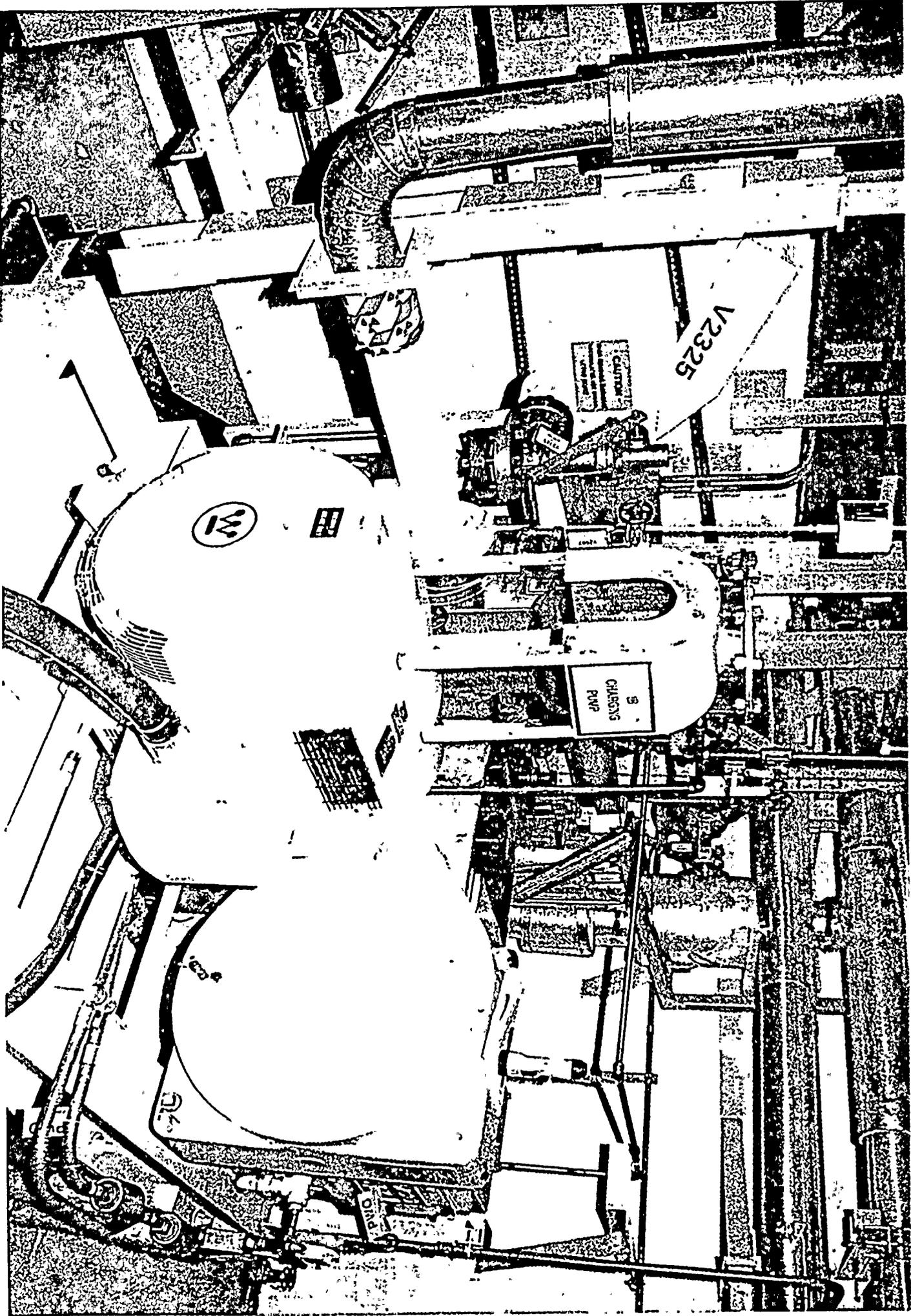
FIGURE 2





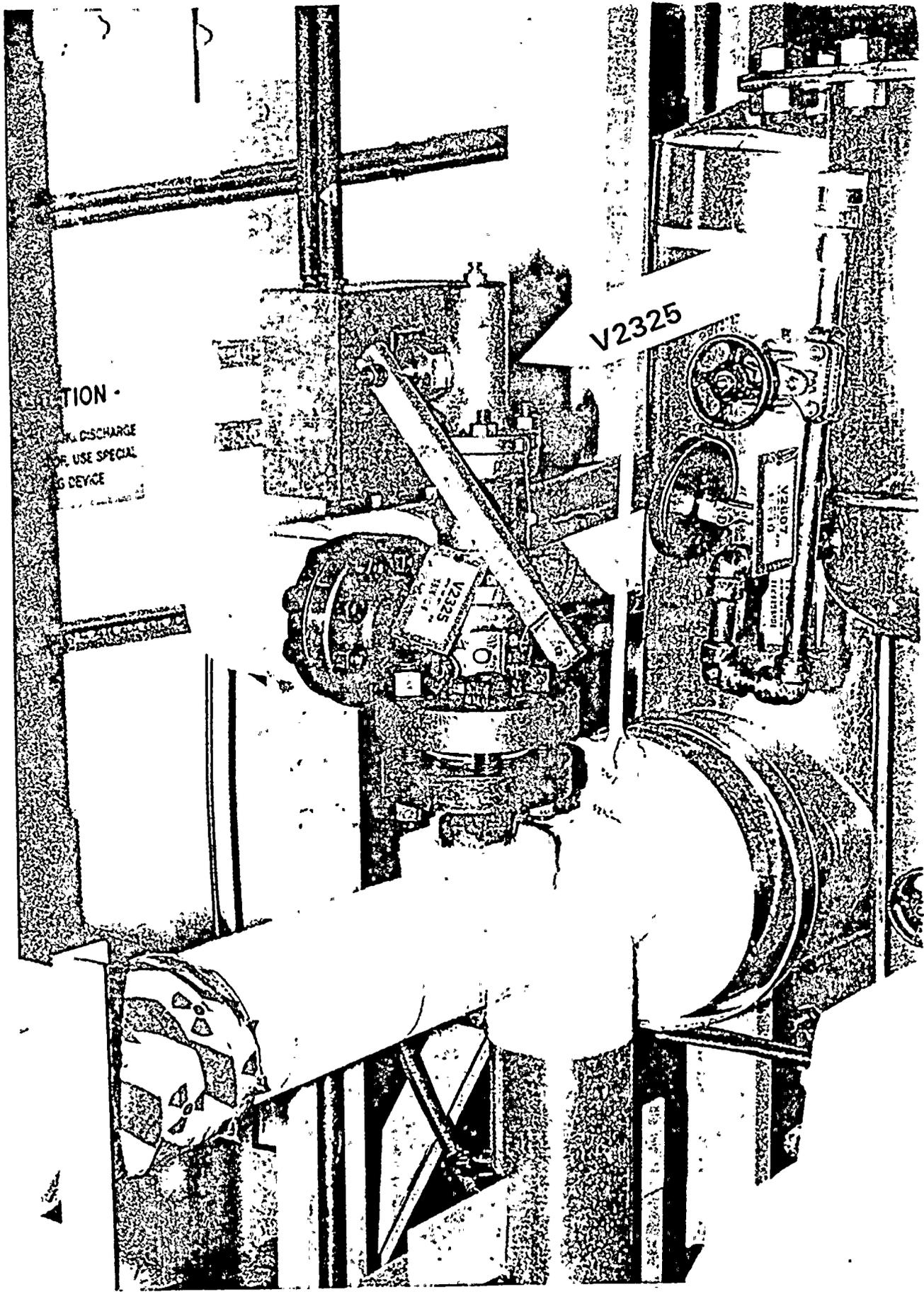
ST. LUCIE NUCLEAR PLANT
AUGUST, 1996

FIGURE 3



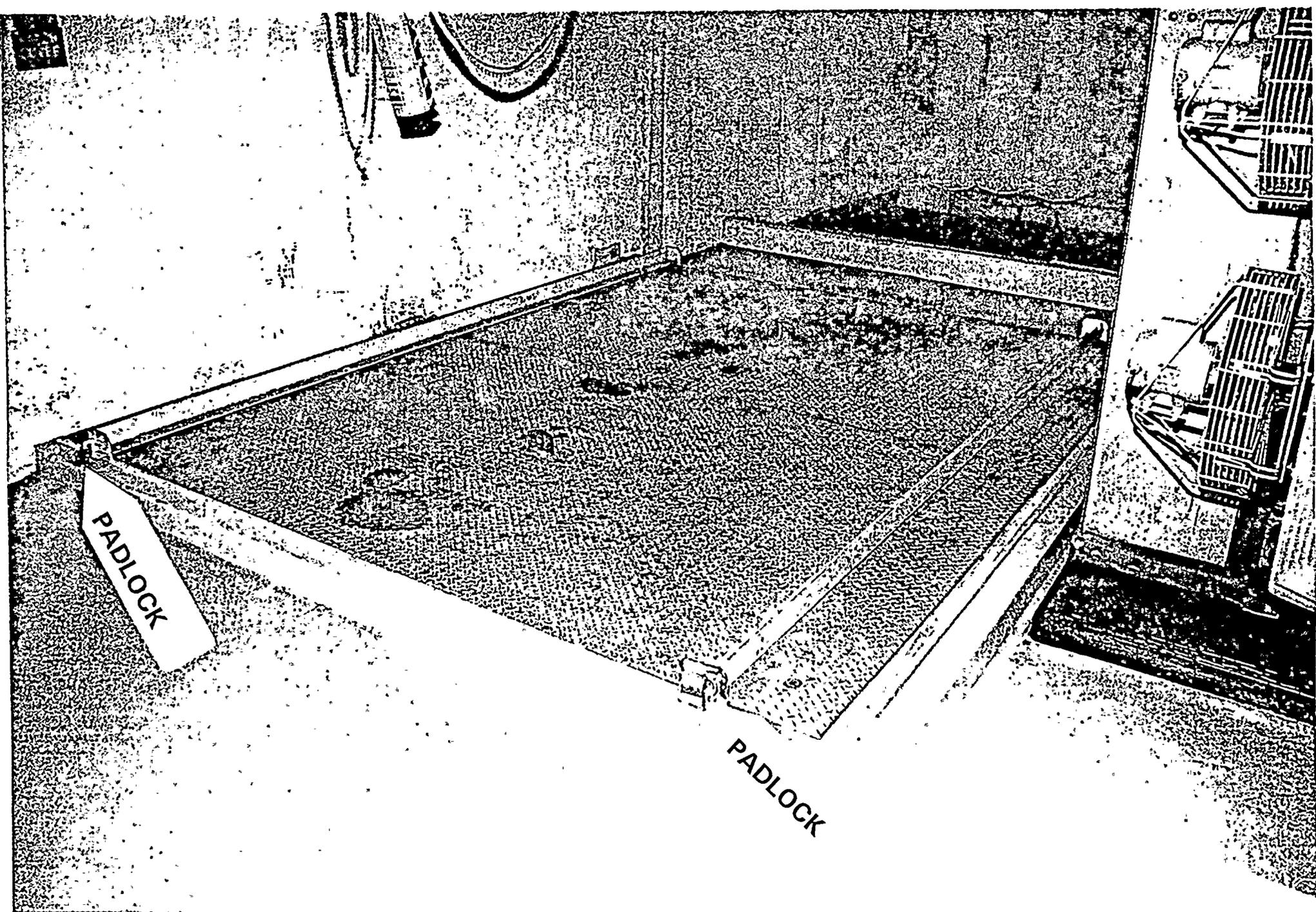
ST. LUCIE NUCLEAR PLANT
AUGUST, 1996

FIGURE 4



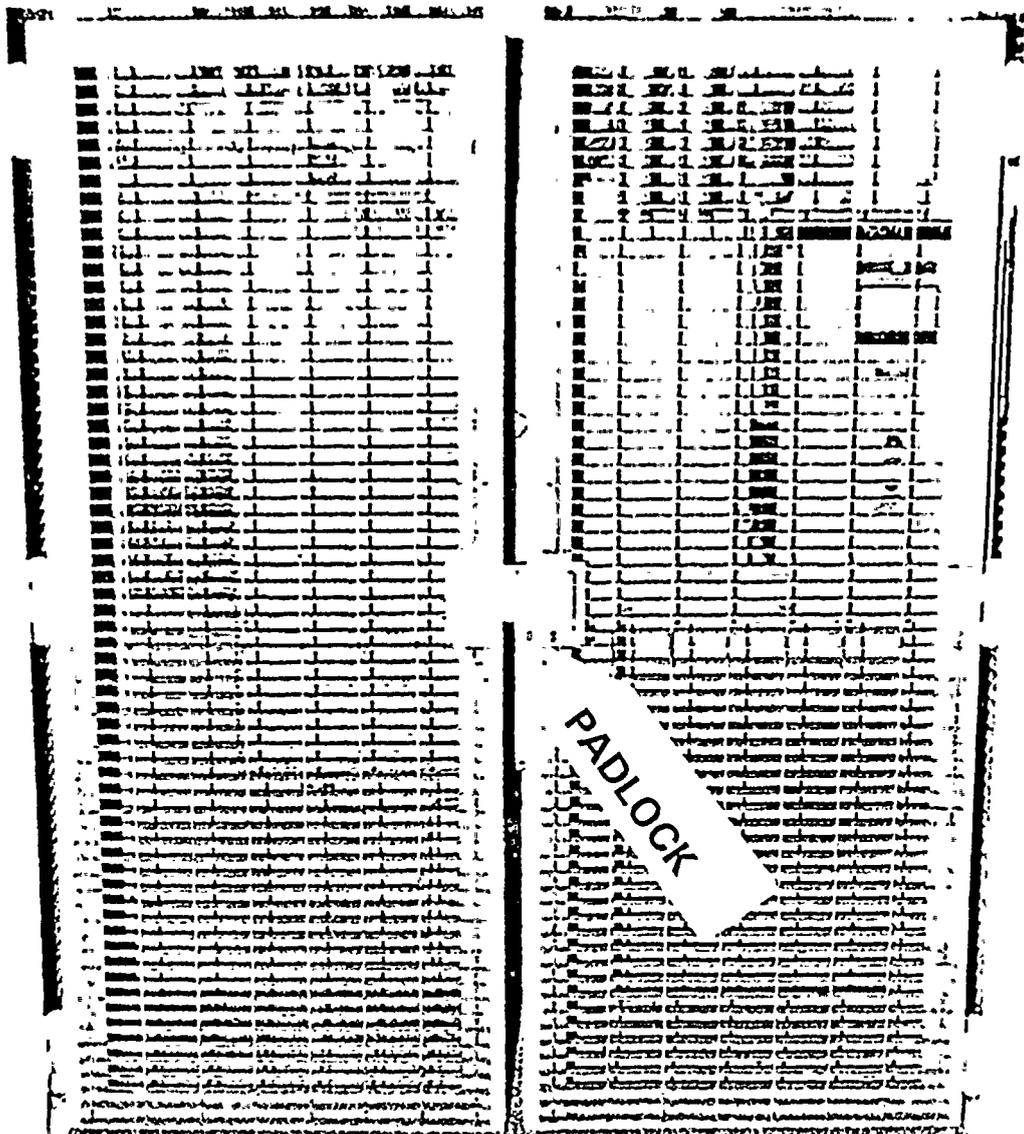
ST. LUCIE NUCLEAR PLANT
AUGUST, 1996

FIGURE 5



ST. LUCIE NUCLEAR PLANT
AUGUST, 1996

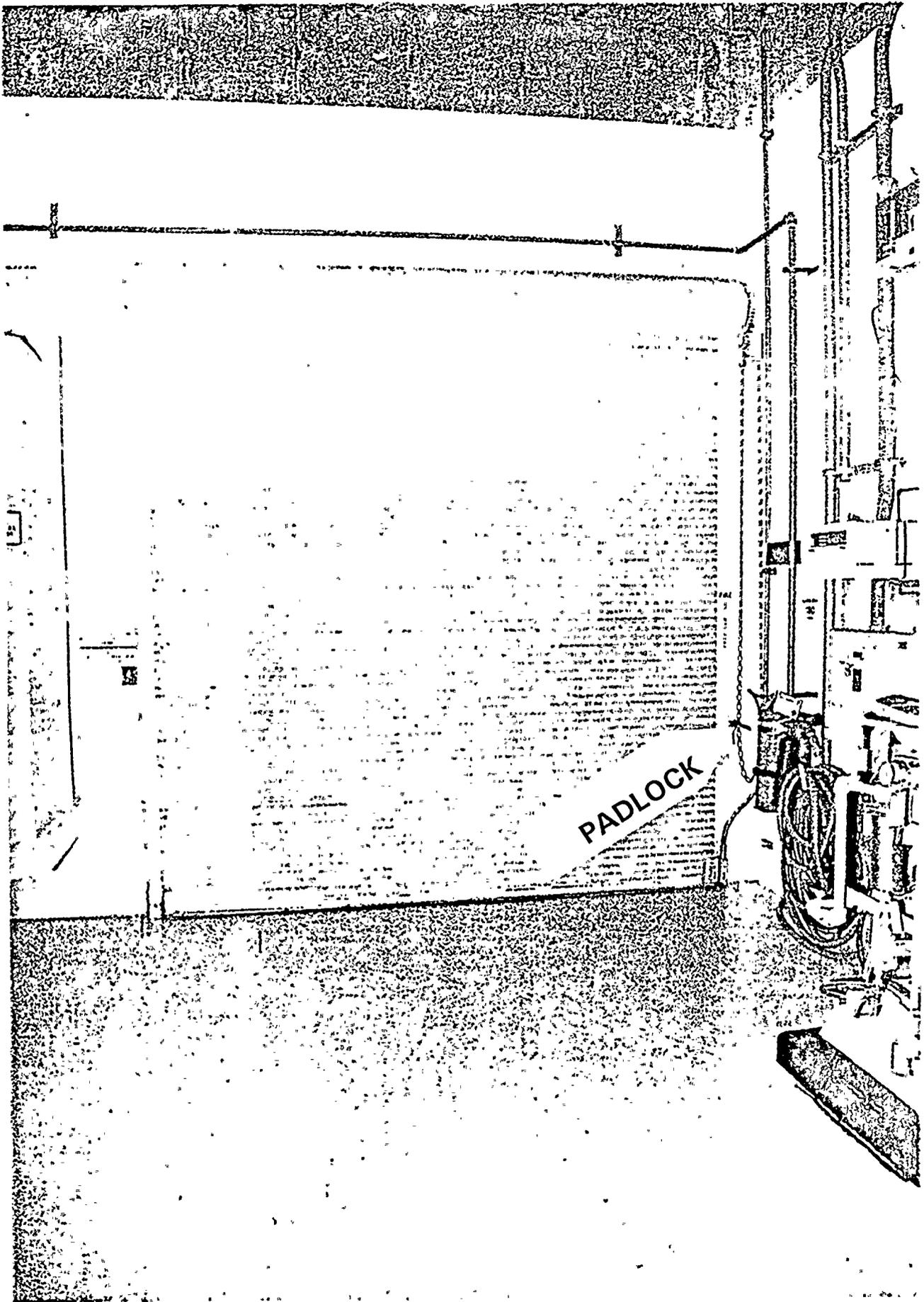
FIGURE 6



PADLOCK

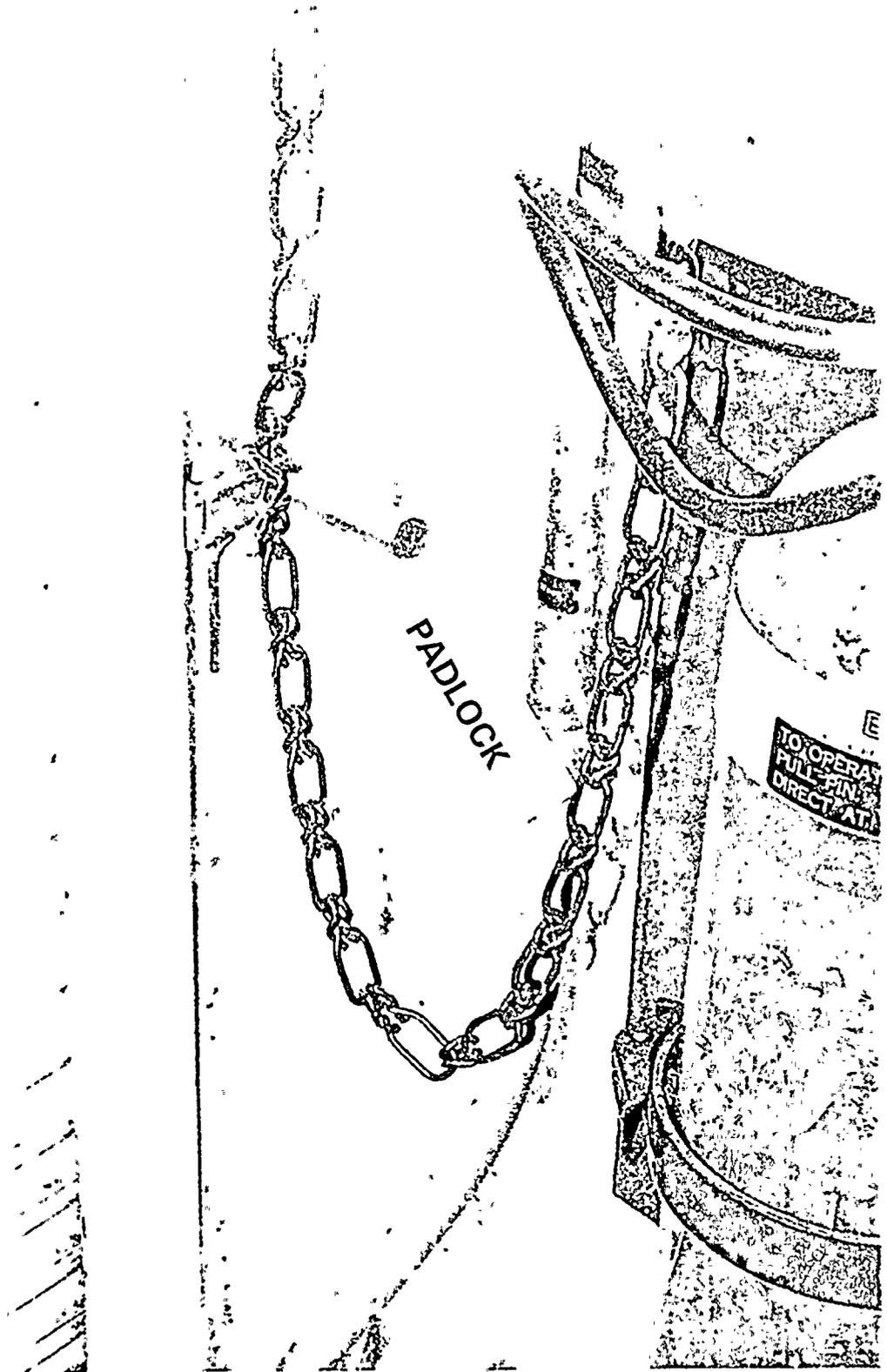
ST. LUCIE NUCLEAR PLANT
AUGUST, 1996

FIGURE 7



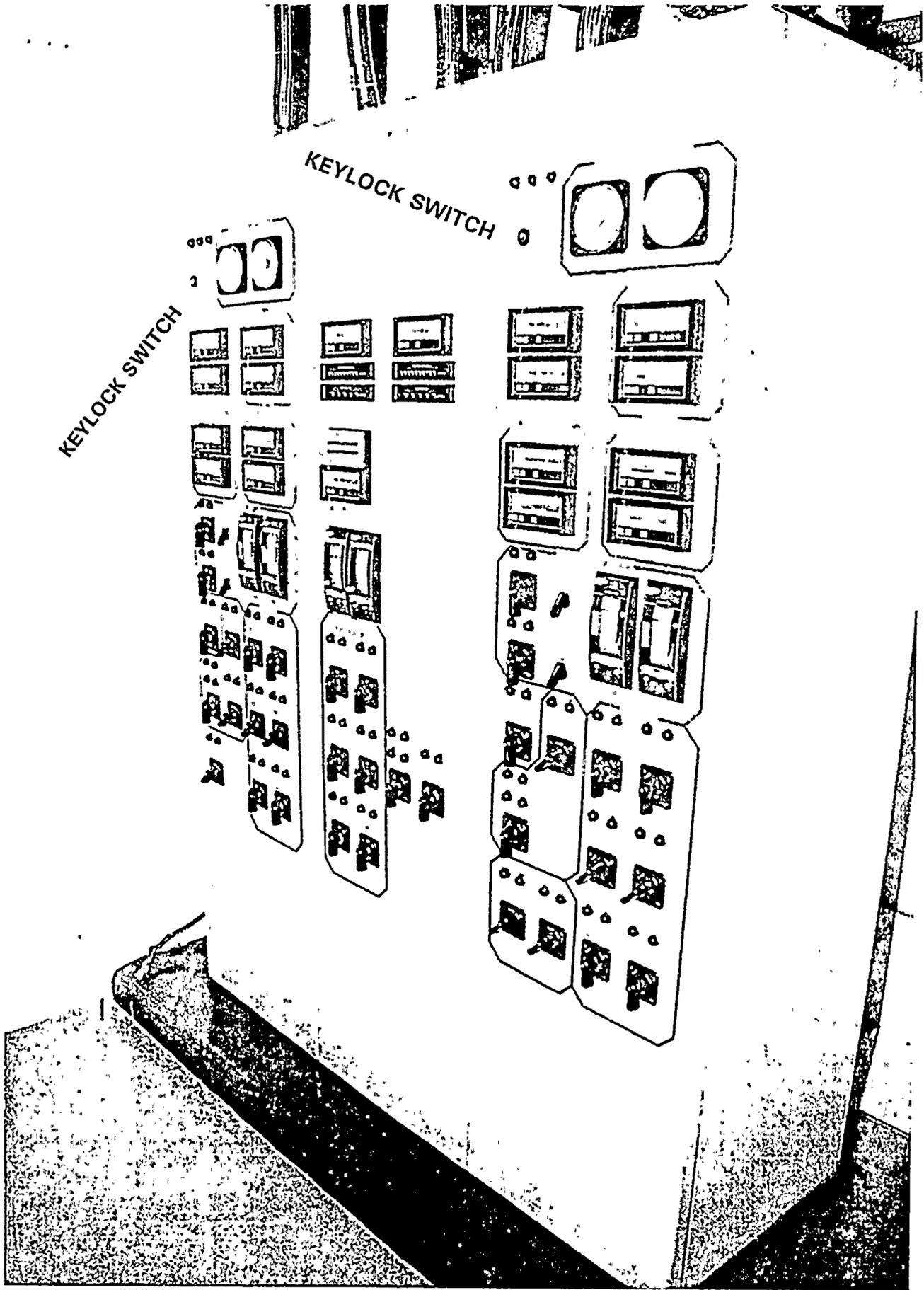
ST. LUCIE NUCLEAR PLANT
AUGUST, 1996

FIGURE 8



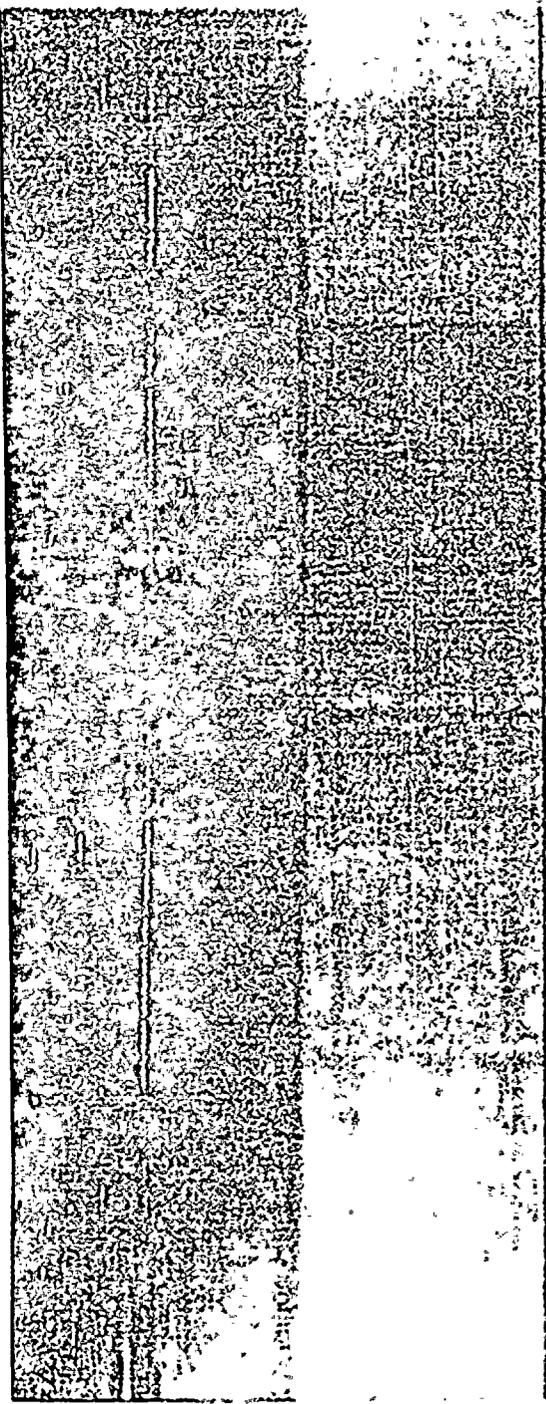
ST. LUCIE NUCLEAR PLANT
AUGUST, 1996

FIGURE 9

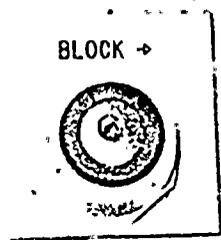


ST. LUCIE NUCLEAR PLANT
AUGUST, 1996

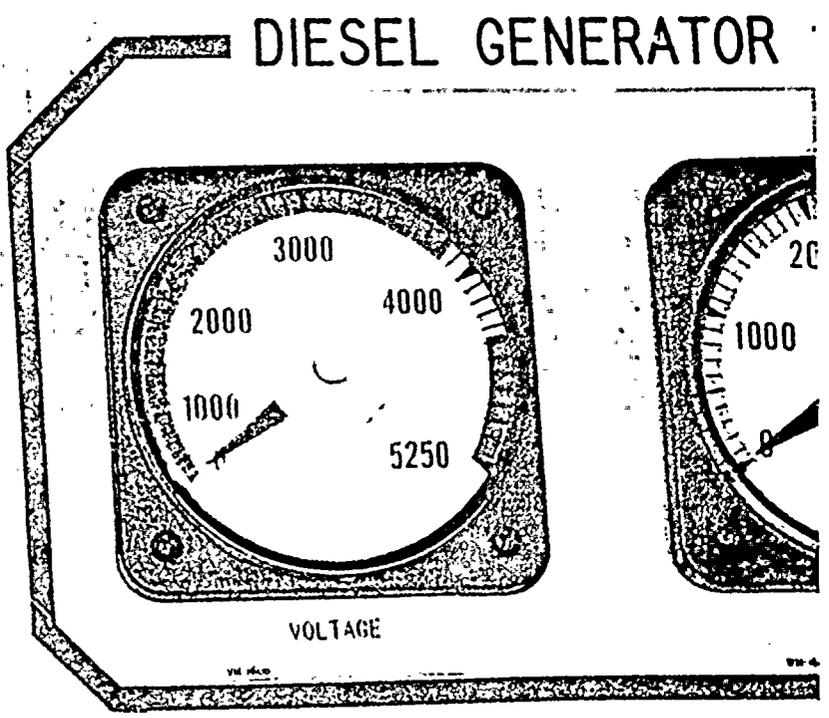
FIGURE 10



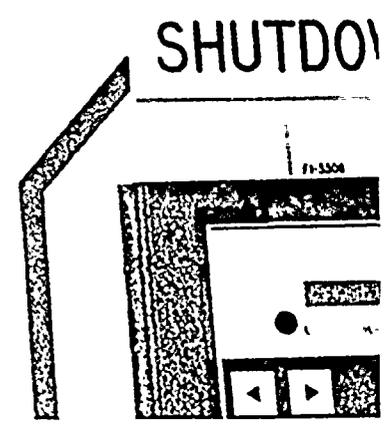
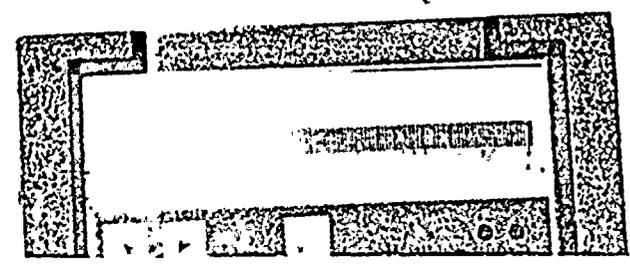
SIAS BLOCK
CHANNEL A
ALEY 01



KEYLOCK SWITCH



CHARGING FLOW
TO REGEN HX
77-1112

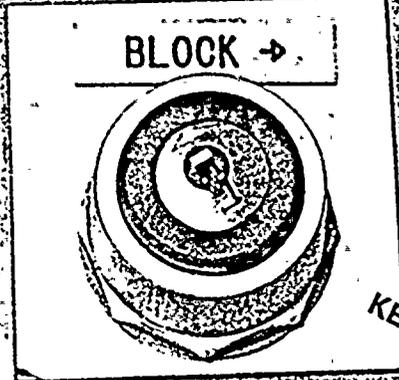


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AUGUST, 1996

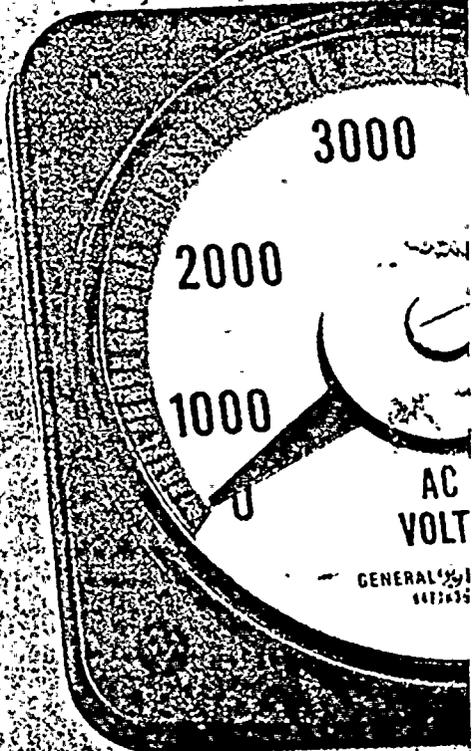
FIGURE 11

DIES

SIAS BLOCK
CHANNEL B
KEY 153



KEYLOCK SWITCH

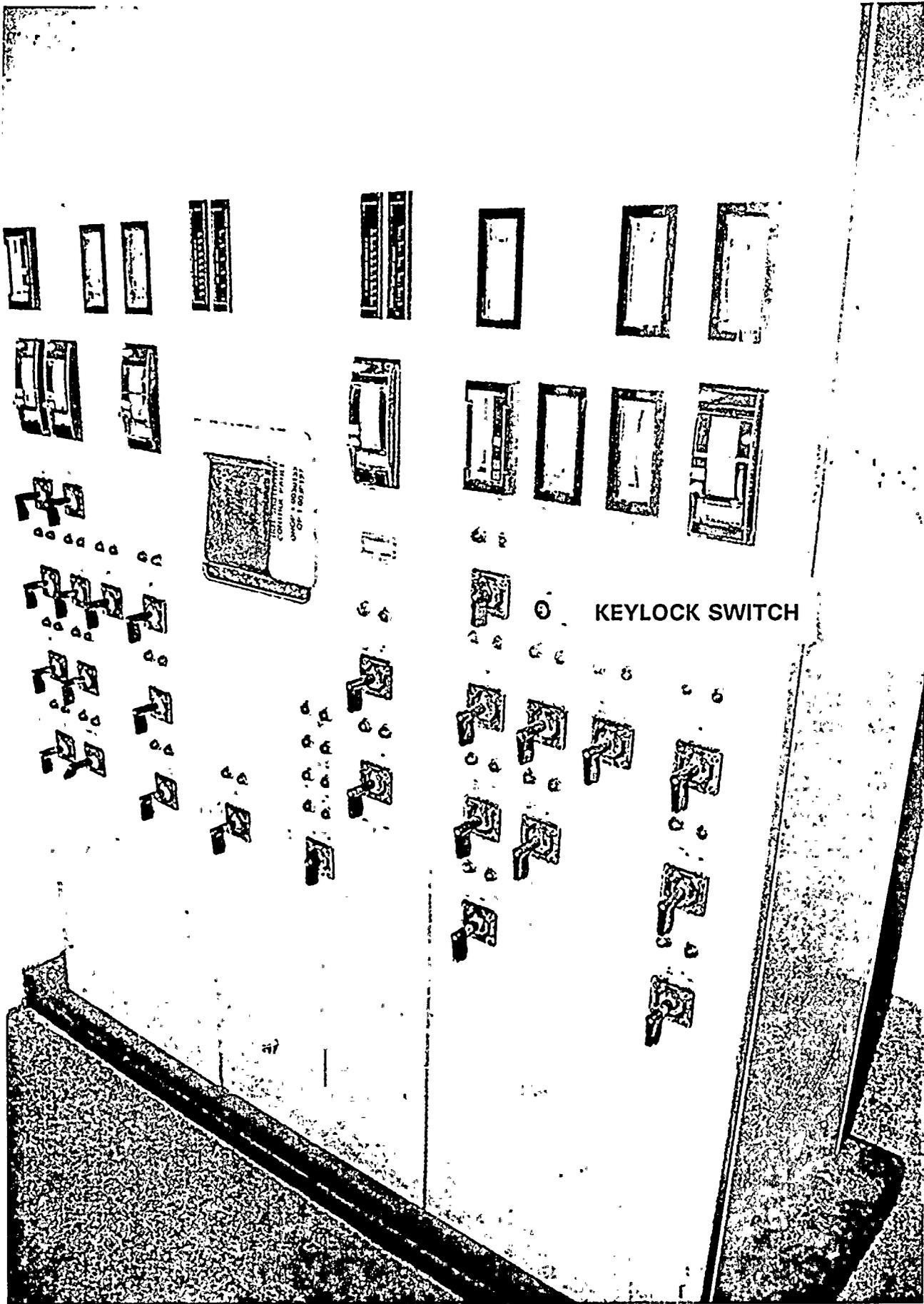


VOLT
VM-1818-1

CHARGING HDR
PRESSURE
PI-2212

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AUGUST, 1996

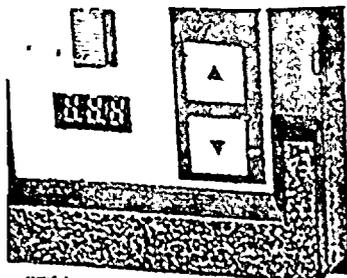
FIGURE 12



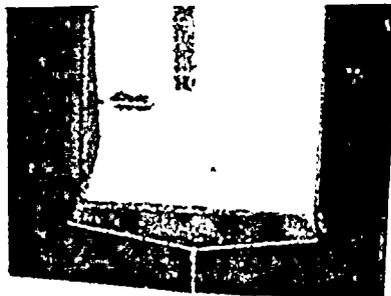
ST. LUCIE NUCLEAR PLANT
AUGUST, 1996

FIGURE 13

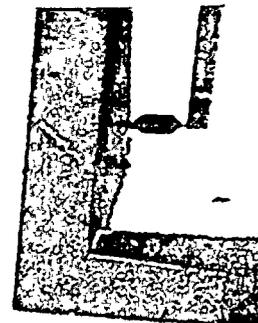




PRESSURIZER LEVEL
LI-1110Y 1



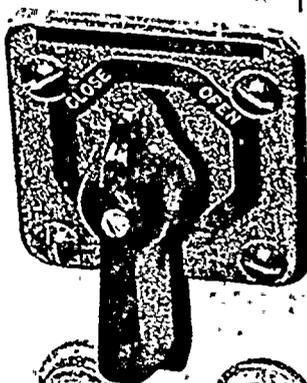
PRESSURIZER PRESSURE
PI-1100Y-3



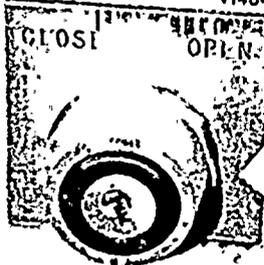
PZR PRES LOW RAM



PRZR RELIEF BLOCK VALVE
VI404



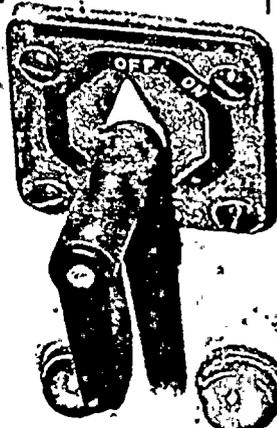
PRESSURIZER RELIEF VALVE
80202 VI404



KEYLOCK SWITCH



B-4 BACKUP HEATER BANK
40804



B-5 BACKUP HEATER BANK
40805



PRESSURIZER AUXILIARY SPRAY
120 VDC BUS 16 CXT 28 SE-02-4



B-6 BACKUP HEATER BANK

ST. LUCIE NUCLEAR PLANT
AUGUST, 1996

FIGURE 14



LIST OF LICENSEE DOCUMENTS REVIEWED

Condition Report 96-0890

Condition Report 96-1247

Condition Report 96-1469

Condition Report 96-1876

ENG-SPSL-96-0384; Response to Condition Report 96-1992; JPN-PSL-SENS-96-057; Evaluation of Equipment Tampering dated August 19, 1996

Documented statements dated July 26, 1996, from various Security Officers concerning discovery of damaged locks

Operations Procedure No. OP-1-0010125A, Revision 4, Surveillance Data Sheets # 23B, Safety/Relief Valves Tested During Refueling

Operations Procedure No. OP-2-0010125A, Revision 3, Surveillance Data Sheets #23B, Safety/Relief Valves Tested During Refueling

Final Safety Analysis Report - Unit 1

Final Safety Analysis Report - Unit 2

Safety Evaluation Report - Unit 1

Safety Evaluation Report - Unit 2

Updated Final Safety Analysis Report - Unit 1

Updated Final Safety Analysis Report - Unit 2

Listing of Nuclear Plant Work Orders initiated between July 20, 1996 and August 20, 1996

Listing of Condition Reports issued from April 1996 to August 1996

Radiological Event Reports issued between January 1, 1996 and August 20, 1996

Radiological Deficiency Reports issued between January 1, 1996 and August 20, 1996

Operations Department Chronological Log Unit 1, Shift Numbers 774, 775, and 776

Operations Night Order dated July 26, 1996

Internal FPL memos from C. Marple to J. Scarola dated August 15, 1996, and August 16, 1996, concerning inspections of control rooms

Internal FPL memo from C. Burton to J. Scarola dated August 15, 1996, concerning walkdown of plant structures

Internal FPL memo from J. West to J. Scarola dated August 16, 1996, concerning piping and valve walkdowns

Internal FPL memo from W. Busch and W. Korte dated August 15, 1996, and checklists concerning electrical power system integrity

Unit 1 OP No. 1-0030151, Revision 30 Checklist completed August 18, 1996

Unit 1 OP No. 1-1400059, Revision 26 completed Checklist dated August 16, 1996

Unit 1 Administrative Procedure No. 1-0010123, Revision 101, completed Appendixes A, D, F, G, H, I, J, K, L, M, and O dated August 16, 1996, and August 17, 1996

Unit 1 OP No. 1-0410050, Revision 48, Data Sheets A, B, D, and E dated August 17, 1996

Unit 1 OP No. 1-2200050A, Revision 28, complete Appendix A dated August 17, 1996

Unit 1 OP No. 1-0420050, Revision 38, completed checklist dated August 18, 1996

Units 1 & 2, OP No. 1800050, Revision 51 completed checklist dated August 17, 1996

Unit 2 OP No. 2-0410050, Revision 31, Data Sheets A, B, C, D dated August 17, 1996, and August 18, 1996

Unit 2 OP No. 2-0420050, Revision 42, completed checklists dated August 17, 1996, and August 18, 1996

Unit 2 OP No. 2-0030151, Revision 20 Checklists completed August 18, 1996, and August 19, 1996

Unit 2 OP No. 2-1400059, Revision 23 completed Checklist dated August 16, 1996

Unit 2 OP No. 2-0700050, Revision 42 completed Data Sheets A, B, and C dated August 18, 1996

Unit 2 Administrative Procedure No. 2-0010123, Revision 73, completed Appendix D dated August 16, 1996, and August 17, 1996

Unit 2 OP No. 2-0010125, Revision 5, Check Sheet 2 dated August 17, 1996

Unit 2 OP No. 2-0010125A, Revision 3, Data Sheet 20 dated August 17, 1996

Unit 1 Administrative Procedure No. 1-0010123, Revision 101, completed Appendixes D, E, F, G, H, I, J, K, L, M, N and O dated August 14, 1996

Unit 2 Administrative Procedure No. 2-0010123, Revision 73, completed Appendixes A, E, F, G, H, I, J, K, L, M, N and O dated August 14, 1996

D

Physical Security Plan

Safeguards Contingency Plan

Safeguards Contingency Plan Implementing Procedure

Reporting of Safeguards Events Procedure

Security Lock and Key Procedure

Security Personnel and Material Control Procedure

Security Force Instruction #4, Response Section

Security Force Instruction #5, Emergency Instructions

Security Force Instruction #8, The Badge Office