U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-346/88010(DRP)

Docket No. 50-346

Operating License No. NPF-3

Licensee: Toledc Edisor Company Edison Plaza, 300 Madison Avenue Toledo, OH 43652

Facility Name: Davis-Besse 1

Inspection At: Oak Harbor, Ohio

Inspection Conducted: April 1 through May 15, 1988

Inspectors: P M. Byron

D. C. Kosloff

P. J. Prescott

T. E. Vandell

RC this for

Approved By: R. DeFayette, Chief Reactor Projects Section 3A

6/9/81

Date

Inspection Summary

Inspection on April 1, through May 15, 1988 (Report No. 50-346/88010(DRP)) Areas Inspected: Routine, unannounced inspection by resident inspectors of licensee action on previous inspection findings; operational safety; maintenance; surveillance; licensee event reports; licensee events; bulletins; and fire protection. Results: No violations or deviations were identified.

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DETAILS

1. Persons Contacted

a. Toledo Edison Company (TED)

D. Shelton, Vice President Nuclear

*L. Storz, Plant Manager

*N. Bonner, Assistant Plant Manager, Maintenance

*R. Flood, Assistant Plant Manager, Operations

*E. Salowitz, General Superintendent Outage and Program Management

L. Ramsett, Quality Assurance Director

*S. Jain, Independent Safety Engineering Director

G. Grime, Industrial Security Director

*B. Beyer, Nuclear Projects Director

*T. Myers, Nuclear Licensing Director

*J. Scott-Wasilk, Nuclear Health & Safety

P. Hildebrandt, Engineering General Director

J. Wood, Systems Engineering Director

W. Johnson, Primary Systems Manager

G. Gibbs, Performance Engineering Director

V. Watson, Design Engineering Director

R. Scott, Chemistry Superintendent

*G. Honma, Compliance Supervisor

*R. Schrauder, Nuclear Licensing Manager

D. Erickson, Radiological Control Superintendent

R. Donnellon, Mechanical Superintendent

T. Haberland, Electrical Superintendent

C. Daft, Technical Planning Superintendent

D. Lightfoot, Facility Modification Superintendent

L. Young, Licensing, Fire Protection

J. Moyers, Quality Verification Manager

S. Zunk, Nuclear Group Ombudsman

D. Harris, Manager Quality Systems

*J. Sturdavant, Licensing Principal

C. Bramson, Document Systems Manager

G. Skeel, Nuclear Security Operations Manager

L. Wade, Quality Control Manager

L. Worley, Configuration Process Manager

E. Benson, Nuclear Materials Manager

*J. Syrowski, Nuclear Training Director (Acting)

*A. Zarkesh, Independent Safety Engineering Manager

*J. Schultz, Quality Control Supervisor

b. USNRC

*P. Byron, Senior Resident Inspector

*D. Kosloff, Resident Inspector

P. Prescott, Reactor Inspector

T. Vandell, Reactor Inspector

*Denotes those personne! attending the May 16, 1988 exit meeting.

2. Licensee Action on Previous Inspection Findings (92701)

- (Closed) Open Item (346/00019-RY): Auxilia.; Feedwater System a. (AFWS) Reliability Review. After the June 9, 1985, Loss of Feedwater Event, the licensee submitted a Course of Action (COA) report to the NRC. The COA, which included numerous commitments, defined the licensee's program to correct identified weaknesses and deficiencies. Additional information on the COA may be found in NUREG-1177, "Safety Evaluation Report Related To The Restart Of Davis-Besse Nuclear Power Station, Unit 1, Following The Event Of June 9, 1985" (Restart SER). Appendix C.2.3 of the COA included Revision 3 of the "Davis-Besse Nuclear Power Station Unit 1 Auxiliary Feedwater System Reliability Analysis Based On NUREG-0611," dated November 12, 1985. Section 4.2 of the Restart SER reported the NRC staff's conclusion that the AFWS reliability had been improved by a factor of at least five and was sufficiently reliable to permit restart. The Restart SER also reported that the licensee had committed to completing and submitting an additional AFWS reliability study within 90 days of restart. Revision 0 of Impell Corporation Report No. 02-1040-1376, "Auxiliary Feedwater System Reliability Analysis," was co.pleted on March 29, 1987, and submitted to the NRC. This item is closed.
- b. <u>(Closed) Open Item (346/00021-RY)</u>: Surveillance Test Review. The licensee's COA report included a commitment to establish a System Review and Test Program (SRTP). One function of the SRTP was to review the scope of surveillance testing conducted on systems important to safe operation to assure that the systems are properly tested. The surveillance test review was inspected as part of the SRTP inspection and the inspection was documented in Inspection Reports 50-346/85036, 85039, 86009, 86015, 86022 and 86030. The test review as described in the COA was completed and this item is closed. However, due to problems identified during the SRTP, the licensee began a Technical Specification Verification Program (TSVP) of greater scope. The TSVP is still in progress and is being tracked as open item 346/86030-01(DRP).
- c. <u>(Closed) Open Item (346/00022-RY)</u>: Test Program. The licensee's COA report included a commitment to establish a System Review and Test Program (SRTP). One function of the SRTP was to develop a test program for each system important to safe plant operation which would identify testing required to assure that the system would perform all functions important to safe operation. The test program included verification of operation after modifications and included tests in addition to normal surveillance testing. The test program was inspected as part of the NRC inspection of the SRTP and the inspection was documented in Inspection Reports 50/346-85036, 85039, 86009, 86015, 86022 and 86030. The test program as described in the COA was completed and this item is closed.

- d. <u>(Closed) Unresolved Item (346/85016-04(DRP))</u>: Main Steam Isolation Valve (MSIV) testing does not test each set of solenoid valves independently. The licensee issued Potential Condition Adverse to Quality Report (PCAQR) 86-0538 to document the described condition. The licensee replaced the original surveillance test with surveillance test procedure ST 5031.20, "Main Steam Isolation Valves Response Time Test," which initiates MSIV closure by individually tripping Steam and Feedwater Line Rupture Control System (SFRCS) actuation channels. The licensee verified this test during the restart effort in December 1986 by the performance of Test Procedure TP 851.11, "MSIV Response Time Test." The licensee issued Licensee Event Report (LER) 86-042 to report this event in accordance with 10 CFR 50.73. The LER was closed in Inspection Report No. 50-346/87008(DRP) which also closed out this item.
- e. <u>(Closed) Unresolved Item (346/86014-02(DRP))</u>: Deficiencies in the storage of service water pump parts that had been removed for repair of the pump. The Assistant Plant Manager Maintenance and the Mechanical Superintendent discussed their corrective actions with the inspectors. The corrective actions appeared to be appropriate. Since this item was identified the inspectors have periodically observed jobsite storage for work in progress and have noted that storage has been satisfactory. This item is closed.
- f. <u>(Closed) Open Item (346/86023-02(DRP))</u>: Failure to follow Generic Guidance Memorandum, POL-21, "Vertal Communications," in that operators were not repeating back verbal orders. Section 6.7.1.c. of Administrative Procedure AD 1839.00, "Conduct of Operations," Revision 17, dated January 19, 1988, requires that for all non-written directives the person receiving the directive shall repeat back the directive to the originator whenever eye contact is not possible. This action closes this item. However, the inspectors have observed marginal adherence to this requirement. The inspectors noted that procedural language may contribute to poor adherence in that the requirements are guidelines rather than mandatory.
- g. <u>(Open) Open Item (346/86030-O1(DRS))</u>: Completion of Phase II of the Technical Specification Verification Program (TSVP). The inspectors reviewed the licensee's progress toward completion of the TSVP. The licensee had originally intended to complete Phase II by December 1987. However, the licensee has expanded the scope of the TSVP and the current six-month refueling outage has reduced resources available for completion of the TSVP. The licensee now anticipates that Phase II of the TSVP will be completed in early 1989.
- h. <u>(Closed) Unresolved Item (346/87008-02(DRP))</u>: Heat damage of an electrical flex conduit (Sealtite) associated with the motor operator for Main Steam Valve MS 107. The inspectors reviewed the licensee's written evaluation of the damage and the conditions that

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caused the damage. A steam leak from a check valve near MS 107 raised the ambient temperature around MS 107, which caused the operating temperature of MS 107 and its associated electrical components to increase. The licensee's evaluation determined that the environmental qualification of MS 107 would not be adversely affected as long as the ambient temperature around the valve was returned to normal within ten years. The inspectors verified by observation that the steam leak and the Sealtite were repaired, and that the ambient temperature in the area was normal following the repairs. This item is closed.

(Open) Open Item (346/88007-03(DRP)): Review of the licensee's 1. response to recommendations related to air-operated valves (AOV). The recommendations were included in licensee SRTP reports SW-RR-007 and SIA-NRR-019. Discussions with licensee personnel revealed that a task force has begun further evaluations of AOV's. On May 5, 1988, ADV service water valve SW 1429 failed to open on demand. The licensee documented this failure in PCAQR 88-0340. The plant was in Mode 6 at the time of this failure and SW 1429 is not required to be operable in Mode 6. As documented in Inspection Report No. 50-346/88007, the licensee had concluded that improved control of maintenance on SW 1424, SW 1429, and SW 1434 would reduce failure of these valves. SW 1429 was recently refurbished using the improved maintenance controls. The subsequent failure of Sw 1429 indicates that an additional failure mechanism may exist. The inspectors will review the licensee's corrective actions for PCAQR 88-0340 in conjunction with their further review of this open item.

No violations or deviations were identified in this area.

3. Operational Safety Verification (71707)

The inspectors observed control room operations, reviewed applicable logs and conducted discussions with control room operators during the months of April and May. The inspectors verified the operability of selected emergency systems, reviewed tagout records and verified proper return to service of affected components.

Tours of the reactor, auxiliary, turbine, water treatment and service water buildings were conducted to observe plant equipment conditions, including potential fire hazards, fluid leaks, and excessive vibrations and to verify that maintenance requests had been initiated for equipment in need of maintenance. The inspectors by observation and direct interview verified that the physical security plan was being implemented in accordance with the station security plan.

The inspectors observed plant housekeeping and cleanliness conditions and verified implementation of radiation protection controls. During the months of April and May, the inspectors walked down accessible portions

of the Safety Fea ures Actuation, Service Water, Emergency Diesel Generator, Essential 120 Volt AC, Essential 4160 Volt AC, Essential 480 Volt AC, Essential 125 Volt DC, Component Cooling Water and Spent Fuel Pool Cooling Systems to verify operability.

These reviews and observations were conducted to verify that facility operations were in conformance with the requirements established under technical specifications, 10 CFR, and administrative procedures.

Recently, a licensed operator tested positive during a random drug screening. However, confirmatory tests revealed that the individual had been taking prescription medication which caused the positive results in the initial test. The inspectors questioned the licensee and determined it was unaware that the individual was on medication. Further questioning revealed that the Health Center was aware of the situation but its policy precluded giving this information to the licensee. The inspectors reminded the licensee of previous concerns relating to the Employee Assistance Program (Inspection Reports No. 50-346/87008 and No. 50-346/87014). It appears that the licensee did not consider all of the ramifications of the inspectors' previous concerns.

The inspectors were concerned that if operators were taking medication it could affect job performance and it was important that licensee management be aware to determine the fitness of the individuals to perform their duties. The inspectors discussed their concern with the licensee. Licensee management reached an agreement with the Health Centor Provider to allow licensee management to know the potential side effects of medication. The shift supervisor will have access to information relating to potential side effects of various medications. This policy is in effect only for licensed operators. The inspectors have reviewed the procedure governing the process and it appears to satisfy the requirements. The inspectors will periodically review the program to verify its effectiveness.

No violations or deviations were identified in this area.

4. Monthly Maintenance Observation (62702) and (62703)

Station maintenance activities of systems and components important to safety and listed below were observed/reviewed to ascertain that they were conducted in accordance with approved procedures, regulatory guides and industry codes or standards and in conformance with technical specifications.

The following items were considered during this review: the limiting conditions for operation were met while components or systems were removed from service; approvals were obtained prior to initiating the work; activities were accomplished using approved procedures and were inspected as applicable; functional testing and/or calibrations were

performed prior to returning components or systems to service; quality control records were maintained; activities were accomplished by qualified personnel; parts and materials used were properly certified; radiological controls were implemented; and fire prevention controls were implemented.

Work requests were reviewed to determine status of outstanding jobs and to assure that priority is assigned to maintenance of equipment which is safety related or important to safety which may affect system performance.

The following maintenance activities were observed/reviewed:

- ⁹ Cleaning, inspection and eddy-current testing of Component Cooling Water (CCW) Heat Exchangers (HXs). The licensee removed a significant amount of silt and corrosion products from the Service Water side of all three CCW HX's. Upon completion of removal of loose material from all three HX's, the licensee began a more thorough removal of tightly adherent material from CCW HX 1-2. During this process the licensee discovered significant local corrosion of HX shell welds. The licensee documented this condition in PCAQR 88-0339 and notified the inspectors of the condition. The licensee is continuing to evaluate the condition and develop a corrective action plan. This is considered an open item (346/88010-01(DRS)) pending review of the licensee's evaluation and corrective action.
- Installation of new redundant safety-grade AFWS flow indication.
- Installation of new SFRCS cabinets.
- Installation of new Post Accident Monitoring System instrumentation in the control room.
- Modification of Motor Driven Feedwater Pump discharge piping.
- Preventive maintenance on AFWS Pump Turbine 1-1. The inspectors observed balancing of the rotor and turbine wheel. The inspectors noted that the Maintenance Work Order (MWO) did not refer to a maintenance procedure, nor did it include any guidance for this work item other than a statement telling the technicians to balance the rotor and wheel assembly. The inspectors also noted that the technicians were recording data on a form which was not a part of the MWO. Discussions with the technicians and an engineer at the jobsite revealed that the technicians had been trained on the use of the IRD balancing equipment, were familiar with the IRD equipment manual, and that the engineer was present to assist the technicians in determining the specific method to use in balancing the rotor and wheel assembly. A representative from Dresser, the turbine

manufacturer, was also present. However, no one present was aware of any procedure or other written instructions intended to control the specific task of balancing the AFWS pump turbine rotor and wheel assembly. Although licensee personnel at the jobsite seemed unsure of some details of the balancing process, they appeared to be performing the work in a cautious manner commensurate with the safety significance of the AFWS pump. However, it appeared that the scope of the work was being controlled by the workers rather than a work control document (MWO). The inspectors then discussed the work control process with Mr. Bonner, the Assistant Plant Manager -Maintenance. Mr. Bonner informed the inspectors that the work in progress was part of a new effort to gather baseline data on rotating equipment. Mr. Bonner also stated that he would ascertain what written instructions were appropriate for the task. Mr. Bonner later informed the inspectors that the work had been stopped and the balancing data program was being reviewed to determine the best method for controlling the process. This will remain an open item (346/88010-02(DRP)) until the inspectors can review the licensee's method of controlling work related to the rotating machinery balancing program.

- Preventive maintenance of Class 1E electrical breaker.
- Installation of new electrical cubicle to allow electric power to be supplied to the Startup Feedwater Pump.
- Removal of existing decay heat removal (DHR) and high pressure injection (HPI) flow indicators in the control room.
- Installation of new DHR and HPI flow indicators in the control room and in the auxiliary shutdown panel. After the indicators were installed, operations personnel noted that a fuse was repeatedly blowing in the circuit supplying power to the indicators. The licensee documented this concern in PCAQR 88-0352. This is considered an open item (346/88010-03(DRP)) perding the inspectors review of the licensee's corrective action.
- Preventive maintenance of Emergency Diesel Generator 1-2.

Following completion of maintenance on the Service Water, CCW, and DHR Systems the inspectors verified that these systems had been sturned to service properly.

No violations or deviations were identified in this area.

5. Monthly Surveillance Observation (61726)

The inspectors observed technical specifications required surveillance testing on the Reactor Protection System, ST 5091.01, "Source Range

Functional Test," and verified that testing was performed in accordance with adequate procedures, that test instrumentation was calibrated, that limiting conditions for operation were met, that removal and restoration of the affected components were accomplished, that test results conformed with technical specifications and procedure requirements were reviewed by personnel other than the individual directing the test, and that any deficiencies identified during the testing were properly reviewed and resolved by appropriate management personnel.

The inspectors also witnessed portions of the following test activities:

- ST 5031.01, "Safety Features Actuation System Monthly Test"
- ST 5075.01, "Service Water System Monthly Test"
- ST 5092.02, "Core Alteration Prerequisites and Periodic Checks"

No violations or deviations were identified in this area.

6. Licensee Event Reports Followup (92700)

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a. Through direct observations, discussions with licensee personnel, and review of records, the following event reports were reviewed to determine that reportability requirements were fulfilled, immediate corrective action was accomplished, and corrective action to prevent recurrence had been accomplished in accordance with technical specifications.

(<u>Closed</u>) <u>LER 83-031</u>: Chlorine Detectors Not Adequately Protected from Tornado-Driven Missiles. The licensee used a railroad tank car to store liquid chlorine for its chlorination system. Chlorine detectors AE 4863 A and B were located near the tank car to protect the control room atmosphere if the tank car ruptured. Certain tornado-driven missiles could disable the chlorine detectors. As short term corrective action, the licensee changed AD 1827.00, "Tornado Procedure," to require the operators to isolate the control room atmosphere from the outside air if a Tornado Warning was declared. As long term corrective action, the licensee installed a sodium hypochlorite solution chlorination system and permanently removed the tank cars.

(Closed) LER 83-038: Trip Alarm received on Steam and Feedwater Line Rupture Control System (SFRCS) Logic Channel 3 causing half trip of Actuation Channel 1. Revision 1 to this LER was also reviewed. The licensee determined that the corrective action for this event was to provide forced ventilation to the SFRCS cabinets. The inspectors observed the operation of the forced ventilation system that the licensee installed. The reactor is currently defueled and the SFRCS cabinets involved in this event have been removed. New SFRCS cabinets will be installed prior to refueling. (Closed) LER 86-015: Seismic Qualification, Domestic Water Lines in Battery Rooms A and B. Domestic water lines above Class 1E electrical equipment were not seismically qualified. The inspectors verified by observation that the domestic water lines have been removed.

(Closed) LER 88-002: Class 1E Battery Charger Placed in Service after Maintenance without All Seismic Qualification Requirements Met.

b. The following LER's were reviewed during the inspection period but could not be closed:

(Open) LER 88-007: Air Operated Valve Accumulator Leakage and Subsequent Decay Heat Removal System Inoperability.

(Open) LER 88-008: Nuclear Safety Related Equipment Potentially Impacted by Non-Seismic Equipment.

(Open) LER 88-009: Incorrect Termination of a Continuous Fire Watch.

(Open) LER 88-010: Missed Fire Watch due to Unidentified Inoperable Fire Detection.

No violations or deviations were identified in this area.

7. Bulletins (92703)

For the Bulletin listed below, the inspectors verified that the written response was within the time period stated in the bulletin, that the written response included the information required to be reported, that the written response included adequate corrective action commitments based on information presented in the bulletin and the licensee's response, that licensee management forwarded copies of the written response to the appropriate onsite management representatives, that information discussed in the licensee's written response was accurate, and that corrective action taken by the licensee was as described in the written response.

(Open) 85-03: The licensee identified the selected safety-related valves and their associated maximum differential pressures as requested by Action Item e. of Bulletin 85-03, "Motor-Operated Valve Common Mode Failures During Plant Transients Due to Improper Switch Settings." The licensee's program to assure valve operability was defined in its letters to the NRC dated May 15, 1986, and February 25 and April 22, 1987. The letters indicated the need for additional information which was contained in a Region III letter dated August 11, 1987. Review of the licensee's September 18, 1987 response to this request for additional information indicates that the licensee's selection of the applicable safety-related valves to be addressed and the valves' maximum. differential pressures met the requirements of the bulletin and that the program to assure valve operability requested by Action Item e. of the bulletin is now acceptable.

The results of the inspections to verify proper implementation of this program and the review of the final response required by Action Item f. of the bulletin will be addressed in additional inspection reports.

No violations or deviations were identified in this area.

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8. Onsite Followup of Events (62702), (82201), (82203), (82206) and (93702)

During the inspection period the licensee experienced several events, some of which required prompt notification of the NRC pursuant to 10 CFR 50.72. The inspectors pursued the events onsite with licensee personnel. In each case, the inspectors verified that the notification was correct and timely, that the licensee was taking prompt and appropriate actions, that equipment functioned properly, if required, and that activities were conducted within regulatory requirements. The specific events are as follows:

April 6, 1988: At 6:25 a.m. EDT, the licensee declared an Unusual Event due to the transportation off site of an injured potentially radiologically contaminated man.

The individual was transported to Magruder Hospital by the Carroll Township EMS in his protective clothing. It was determined at the hospital that neither the individual nor his clothing were contaminated. The Unusual Event was terminated at 7:14 a.m. Two communication weaknesses were identified during this event. The computerized automatic notification system (CANS) failed to operate and the white ringdown phone did not operate properly.

The CANS is used to notify key site personnel of abnormal plant conditions or events. The licensee determined that the source of the problem was an error in data entry which has been corrected.

A local citizen contacted the Resident Office and discussed several concerns related to the event. The citizen had been informed that neither the Carroll Township EMS nor Magruder Hospital had been notified that the victim was potentially contaminated. The inspectors listened to the recorded conversations of the Ottawa County Sheriff's dispatcher relating to the incident. Both organizations were notified that the victim was contaminated.

The licensee reviewed the event and identified other weaknesses which were less important than the two previously identified weaknesses. The licensee's report of its review of the event included proposed corrective actions for the identified weaknesses.

May 6, 1988: The licensee determined that one containment air cooler could not remove heat from the containment at the rate stated in the USAR. The licensee documented this condition in PCAOR 88-0345 and notified the NRC via the ENS. The licensee later determined that the ENS report was not required. During the inspection period, the licensee also identified potential degradation in the heat transfer rate of the CCW HX. The licensee documented this condition in PCAQR 88-0245. The licensee's analysis of the data gathered in response to PCAQR 88-0245 indicated that the CCW HX's were capable of performing their safety function. The licensee discovered both cases of degraded performance during performance testing of the equipment. This testing verifies the essential performance attribute of coolers; such testing is not required by the technical specifications. The inspectors discussed the heat exchanger and cooler performance testing program with licensee personnel. The discussion revealed that it is difficult for the licensee to develop a credible program because of the dearth of information and experience within the industry, lack of installed instrumentation, and low differential temperatures across the HX. The inspectors will continue to follow the licensee's efforts.

May 9, 1988: An inadvertent Level 1 actuation of the Safety Features Actuation System (SFAS) occurred when a used radioactive filter was placed near SFAS radiation monitors for Channels 1 and 4.

No violations or deviations were identified in this area.

9. Fire Protection (64704)

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The licensee is having difficulty managing its corrective actions for the problems associated with its fire protection program from both the engineering and implementation aspects. The increased number of fire protection LER's which have been issued recently is indicative of this. However, there are indicators that the licensee may be beginning to effectively deal with the problems. First, there is a higher level of management involvement. The Engineering General Director has been made personally responsible for the success of the program. In addition, the licensee restructured the fire protection group and named a contractor as Fire Protection Compliance Manager. The licensee also plans to complete the program on a room-by-room basis rather than on a system-by-system basis. The Plant Manager made this suggestion in order to gain control of the program within the plant.

The licensee has developed tools which should reduce the number of problems associated with implementation. The inspectors have met with the licensee to discuss the new programmatic approach and review some of the new tools. It appeared that some of the tools developed by the licensee failed to incorporate the needs of all the users and suffered from a limited view of the problem. The licensee issued a procedure to assist the shift supervisor in determining location of fire barriers and detectors by room number. This procedure is to be used to dispatch fire watches. However, security officers who perform fire watch duties utilize door numbers rather than room numbers as a reference. The licensee had a separate procedure which listed the applicable door number with a specific fire barrier. The inspectors suggested to the licensee that all the information be contained in one procedure. The inspectors will continue to follow these issues to evaluate the effectiveness of the most recent changes.

No violations or deviations were identified in this area.

10. Open Items

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Open items are matters which 've been discussed with the licensee, which will be reviewed further by the inspectors, and which involve some action on the part of NRC or licensee or both. Open items disclosed during the inspection are discussed in Paragraph 4.

Exit Interview (30703)

The inspectors met with licensee representatives (denoted in Paragraph 1) throughout the month and at the conclusion of the inspection and summarized the scope and findings of the inspection activities. The licensee acknowledged the findings. After discussions with the licensee, the inspectors have determined there is no proprietary data contained in this inspection report.