

U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Reports No. 50-315/89012(DRSS); 50-316/89012(DRSS)

Docket Nos. 50-315; 50-316

Licenses No. DPR-58; DPR-74

Licensee: Indiana Michigan Power Company
1 Riverside Plaza
Columbus, OH 43216

Facility Name: D. C. Cook Nuclear Plant, Units 1 and 2

Inspection At: D. C. Cook Site, Bridgman, Michigan

Inspection Conducted: March 8-10, 1989

Inspector: C. F. Gill
C. F. Gill

3/23/89
Date

Approved By: W. G. Snell
W. G. Snell, Chief
Emergency Preparedness
and Effluents Section

3/23/89
Date

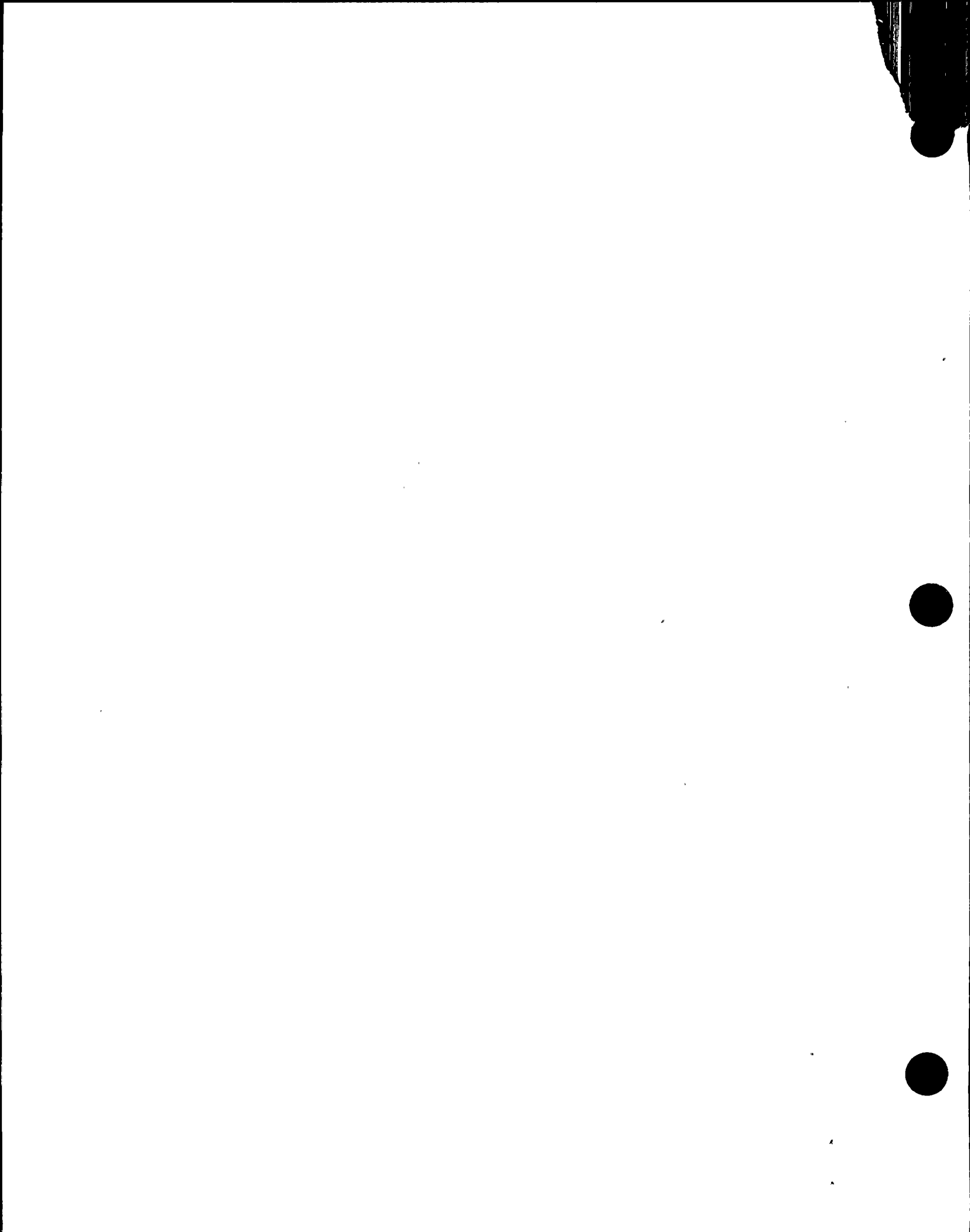
Inspection Summary

Inspection on March 8-10, 1989 (Reports No. 50-315/89012(DRSS);
No. 50-316/89012(DRSS))

Areas Inspected: Special, announced inspection of licensee action following the identification that the Turbine Room Sump had not been sampled and analyzed in accordance with the Technical Specification surveillance requirements.

Results: The licensee's action following the identification of violations of the Technical Specifications was generally adequate. No additional violations or deviations were identified by the inspector. However, one unresolved item was identified regarding the apparent lack of adequate assurance that further violations of the Technical Specification limit on liquid effluent radioactive concentrations will not occur (Section 5).

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DETAILS

1. Persons Contacted

R. Allen, Administrative Compliance Coordinator
K. Baker, Operations Superintendent
S. Brewer, Manager of Nuclear Safety and Licensing, AEPSC
J. Fryer, Radiation Material Control General Supervisor
L. Gibson, Assistant Plant Manager, Technical Support
M. Gumms, Administrative Compliance Coordinator
K. Haglund, Chemistry General Supervisor
L. Holmes, AEPSC Site QA Auditor
H. Jones, Radiological Support Section, AEPSC
J. Kauffman, Construction Manager
B. Lauzau, Nuclear Safety and Licensing, AEPSC
D. Loope, Plant Radiation Protection Supervisor
D. McWethy, Technical Engineering Performance Engineer
T. Postlewait, Technical Engineering Superintendent
J. Rutkowski, Assistant Plant Manager, Production
J. Sampson, Safety and Assessment Superintendent
W. Smith, Jr., Plant Manager
M. Staek, Technical Engineering Performance Engineer
S. Wolf, AEPSC Site QA Auditor
J. Wojcik, Technical-Physical Sciences Superintendent

M. Farber, NRC Region III, Technical Assistant, Reactor Projects Branch 2
B. Jorgensen, NRC Senior Resident Inspector
D. Passehl, NRC Resident Inspector
D. Waters, NRC Consultant

The above individuals attended the exit meeting on March 10, 1989. In addition to the above individuals, the inspector contacted other licensee personnel during the inspection.

2. General

This inspection was conducted to review the circumstances surrounding the identification that the Turbine Room Sump had not been sampled and analyzed in accordance with the Technical Specification surveillance requirements.

3. Licensee Event Report (LER) Followup

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. The LERs listed below are closed.

LER No.

Description

315/88-012-00
315/88-012-01

Turbine Room Sump not sampled and analyzed in accordance with Technical Specifications as a result of personnel cognizant error.

These LERs were reviewed as part of the inspection into the licensee's failure to identify the Turbine Room Sump discharge as radioactive effluent released to an unrestricted area; this matter is discussed in Section 4.

4. Failure to Identify the Turbine Room Sump Discharge as Radioactive Effluent Released to an Unrestricted Area (IP 93702, 92700, 84723)

a. Event Summary

On November 11, 1988, during a review of plant Technical Specifications (T/S) and the Offsite Dose Calculation Manual (ODCM), the licensee identified that the Turbine Room Sump (TRS) had not been sampled and analyzed in accordance with T/S 4.11.1.1.1, Table 4.11-1 as identified in the ODCM. The licensee's followup investigation of this event originally identified the TRS overflow pathway to Lake Michigan as the only possible discharge to an unrestricted area. The licensee's records indicated that all effluent releases via this pathway were within the limits specified by T/S. LER No. 315/88-012-00 regarding this event was issued on December 12, 1988.

On December 12, 1988, further evaluation of the event by the licensee resulted in the identification of the release on March 4, 1987 from the TRS to the onsite absorption pond as having been in excess of the T/S 3.11.1.1 liquid effluent discharge concentration limit to an unrestricted area (pursuant to 10 CFR 20, Appendix B, Table II, Column 2); however, the licensee had historically considered the absorption pond to be a restricted area because it was located on "owner-controlled" property. On January 9, 1989, further licensee review resulted in the revised conclusion that access control of the absorption pond was such that it should be classified as an unrestricted area. Subsequently, the licensee identified four other occasions when TRS discharge to the absorption pond was in excess of the T/S liquid effluent concentration limit. On February 10, 1989, the licensee revised LER No. 315/88-012-00 to include the appropriate additional information.

b. Event Causation

The following occurrences contributed to the failure of the licensee to implement the TRS sampling and analysis T/S requirements and to identify the TRS discharge as radioactive effluent released to an unrestricted area:

- (1) When the T/S were amended on February 7, 1983 to implement the Radiological Effluent Technical Specifications (RETS), the licensee failed to incorporate the TRS sampling and analysis

requirements into plant procedures even though the requirements were cross-referenced in T/S 3/4.11.1.1 and the ODCM and failed to identify the absorption pond as an unrestricted area. (The inspector also noted that the licensee failed to identify that the TRS discharge pathway surveillance requirements in the T/S was superseded (T/S Appendix B, Technical Specification 2.4) by the amendment which implemented RETS).

- (2) Numerous licensee audits and special T/S compliance reviews conducted since each unit became operational failed to identify that the TRS discharge T/S surveillance requirements had not been implemented.
- (3) The required biennial procedure reviews also failed to identify that the TRS discharge T/S surveillance requirements had not been incorporated into the appropriate implementation procedures.
- (4) If the corrective action for an earlier licensee identified failure to incorporate RETS requirements (T/S 3/4.11.2.1) into implementation procedures (see LER No. 315/85-002-00) had been more comprehensive, the failure to implement T/S 3.4.11.1.1 might also have been identified and corrected much earlier. (LER No. 315/85-002-00 states that a plant procedure (PMI-4030, Technical Specification Review and Surveillance, Review No. 8, September 28, 1984) was issued which requires T/S amendments to be assigned to a lead department, to review for changes required for complete implementation, to assure no problems of this type occur. If this procedural requirement had been backfitted by the licensee to the RETS amendment (February 7, 1983), the failure to implement T/S 3/4.11.1.1 presumably could have been identified and corrected in early 1985.)
- (5) It appears that the licensee's delay in identifying the TRS discharge absorption pond as an unrestricted area was due, in part, to the somewhat ambiguous definition of an unrestricted area presented in T/S 1.37 and Figure 5.1-3.

c. Corrective Actions

- (1) Prior to the discovery (on November 11, 1988) that the TRS had not been sampled and analyzed in accordance with T/S 4.11.1.1.1, the correct sampling and analysis schedule (per Table 4.11-1) for the TRS was implemented; therefore, no immediate corrective action was necessary. Although the licensee was not cognizant that Table 4.11-1 was applicable to the TRS, good radiological practices resulting in the TRS being routinely sampled and analyzed daily for tritium, I-131, and principal gamma emitters, even before T/S 3/4.11.1.1 was issued. On October 26, 1988, the licensee implemented a full sampling and analysis program (per Table 4.11-1) for the TRS because of concern regarding additional plant system discharges into the TRS.

- (2) On December 9, 1988, Change Sheet No. 1 to Revision No. 7 of Procedure No. 12 THP 6020 LAB.100, Laboratory Surveillance Requirements, was issued to add the TRS to the sampling schedule as specified in T/S 3/4.11.1.1, Table 4.11-1.
- (3) On December 31, 1988, Revision 1 of Procedure No. 12 THP 6020 LAB.175, Laboratory Counting Calculations, was issued, in part, to include the correct volume/decay times needed to ensure the required lower limits of detection (LLDs) are met for TRS samples.
- (4) On January 9, 1989, Revision No. 6 of Procedure No. 12 THP 6020 LAB.110, Operation of Turbine Sump Discharge pH Monitor, Automatic Sump Compositor and Turbine Sump Neutralization Recirc. pH Monitor, was issued, in part, to revise procedural steps to ensure ODCM and T/S Table 4.11-1 compliance and to add associated Worksheet No. 110-4.
- (5) On January 25, 1989, the AEPSC Radiological Support Section issued to the plant Chemistry General Supervisor interim guidance on monitoring TRS discharge and demonstrating T/S compliance.
- (6) On March 7, 1989, Change Sheet No. 3 to Revision No. 1 of Procedure No. 12 THP 6020 LAB.175, Laboratory Counting Calculations, was issued to add Section 5.15 on maximum permissible concentration (MPC) determination for TRS activity and associated Worksheet No. 175-16.

d. Safety Significance

The safety significance of this event appears minimal. As discussed in Subsection 4.c.(1) above, the daily composite TRS sample has been analyzed daily for tritium, I-131, and principal gamma emitters for many years (at least since 1981); the licensee evaluation indicates that historically the I-131 concentration has been the major component of the TRS discharge during times of high total MPC fraction. Thus, although the implementation of the full TRS sampling and analysis program was not begun until October 1988, the licensee has been able to quantify previous TRS discharge by evaluating the TRS sampling and analysis data and the analysis data from the steam generator blowdown flash tanks for Sr-89, Sr-90, and Fe-55 (quarterly composite samples) and gross alpha (monthly composite samples); the flash tanks are the highest concentration TRS contributor sources and therefore provide conservative estimates of missing TRS discharge data. There are only five licensee identified occasions where TRS discharge to the absorption pond has been greater than the release to unrestricted areas concentration limit specified by 10 CFR 20, Appendix B, Table II, Column 2; the licensee does not appear to have violated 10 CFR 20.106 which allows the concentrations to be averaged over a period not to exceed one year.

Access to the absorption pond by the general public is unlikely because it is located well within the "owner-controlled" area, surrounding by difficult terrain, and fenced with posted warning signs; licensee representatives stated that they knew of no incidents where trespassers had gained access to the absorption pond. Although the absorption pond has an overflow pipe, it discharges to another low lying area on owner-controlled property. The absorption pond is sampled and analyzed weekly; a review of analysis records indicates that only occasional trace amounts of tritium are detected. Thus, the absorption pond does not appear to be a significant health hazard to the general public.

e. Licensee Identified Violations of Regulatory Requirements

The TRS had not been sampled and analyzed in accordance with T/S 4.11.1.1, Table 4.11-1 in that composite samples had not been analyzed for Sr-89, Sr-90, Fe-55, and gross alpha and monthly grab samples had not been taken or analyzed for dissolved and entrained gases (gamma emitters). On one occasion (March 4, 1987), TRS discharge to the onsite absorption pond was in excess of the T/S 3.11.1.1 liquid effluent concentration limit to an unrestricted area (pursuant to 10 CFR 20, Appendix B, Table II, Column 2); also on four occasions (October 2 and 5, 1981 and August 1 and 3, 1982), TRS discharge to the onsite absorption pond was in excess of the concentration limit of T/S Appendix B, Technical Specification 2.4 (this T/S had the same concentration limit as T/S 3.11.1.1 and was superseded by that T/S). The licensee also identified that the reporting requirements had not been met for 10 CFR 50.73(a)(2)(i)(B) for the five violations of T/S, 10 CFR 50.73(a)(2)(viii)(B) on three occasions (October 5, 1981, August 1, 1982, and March 4, 1987) for releasing in excess of two times the combined MPC when averaged over a one hour period, and 10 CFR 20.405(a)(1)(v) on October 5, 1981 for exceeding ten times the T/S limit to an unrestricted area. The above violations appear to meet the fire criteria of 10 CFR Part 2, Appendix C for self-identification and correction of problems; therefore, a Notice of Violation is not being issued.

No violations or deviations were identified by the inspector.

5. Additional Regulatory Concerns (IP 93702, 92700, 84723)

Although this inspection concentrated on a review of the licensee's failure to implement the TRS sampling and analysis T/S surveillance requirements, other regulatory concerns were noted by the inspector and discussed with the licensee. These additional regulatory concerns are related to the licensee's failure to identify the TRS discharge as a radioactive effluent released to an unrestricted area.

Because the TRS discharge to the onsite absorption pond is not monitored by a radiation detector and the daily composite sample for this pathway is analyzed after the release the compositor has sampled, the licensee will not know if future violations of concentration limit of T/S 3.11.1.1

occur in time to satisfy the T/S action requirement to immediately restore the concentration within the T/S limit. However, the addition of a radiation monitor capable of isolating the discharge line before T/S 3.11.1.1 is violated would not prevent the TRS from overflowing into Lake Michigan (an unrestricted area) via the overflow line. If the TRS overflow line is also isolated, the licensee has no processing alternate for the discharge water. Because of the above technical difficulties, the licensee is considering requesting a T/S amendment to limit the TRS release concentrations based on averaging over a period not greater than one year (pursuant to 20.106(a)) or proposing a license amendment pursuant to 20.106(b) with limits higher than those specified in 20.106(a). As an interim measure the licensee has established an interim grab sample program which would be initiated if the TRS discharge daily composite sample analysis should indicate a significant fraction of the T/S 3.11.1.1 release limit. Until these regulatory concerns are resolved by the licensee, this matter is considered an unresolved item. (Unresolved Item 315/89012-01; 316/89012-01)

No violations or deviations were identified by the inspector; however, one unresolved item was identified.

6. Exit Meeting (IP 30703)

The inspector met with licensee representatives (denoted in Section 1) at the conclusion of the inspection on March 10, 1989. The inspector summarized the scope and findings of the inspection, including the unresolved item and the licensee identified violations. The inspector also discussed the likely informational content of the inspection report with regard to documents or processes reviewed by the inspector during the inspection. The licensee did not identify any such documents/processes as proprietary.

