U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-483/85024(DRP)

Docket No. 50-483

Licensee No. NPF-30

Licensee: Union Electric Company

Post Office Box 149 - Mail Code 400

St. Louis, MO 63166

Facility Name: Callaway Plant, Unit 1

Inspection At: Callaway Site, Steedman, MO

Inspection Conducted: December 17, 1985 through February 10, 1986

Inspectors: B. H. Little

C. H. Brown

Approved By:

Reactor Projects Section 1A

Date

2/26/86

Inspection Summary

Inspection on December 17 through February 10, 1986 (Report No. 50-483/86024(DRP)) Areas Inspected: Routine unannounced safety inspection by the resident inspectors of previous inspection findings, TMI action plan requirements, regional request, surveillance, operational safety, maintenance, and crew training. In addition, an Incident Reduction Program status meeting was held. The inspection involved a total of 312 inspector-hours onsite by two NRC inspectors including 67 inspector-hours onsite during off-shifts.

Results: No violations, deviations or safety concerns were identified in the areas reviewed.

DETAILS

1. Persons Contacted

D. F. Schnell, Vice President, Nuclear

*S. E. Miltenberger, General Manager, Nuclear Operations

*D. C. Poole, Consultant

*A. P. Neuhalfen, Manager, Quality Assurance

*J. D. Blosser, Assistant Manager, Operations and Maintenance

J. F. Hogg, Supervisor, Quality Assurance

*W. R. Robinson, Superintendent, Instrument and Controls

*J. R. Peevy, Assistant Manager, Technical Services

*C. H. Naslund, Manager, Operations Support

*Denotes those present at one or more exit interviews.

In addition, a number of equipment operators, Reactor Operators, Senior Reactor Operators, and other members of the Quality Control (QC), Operations, and Maintenance staffs were contacted.

2. Followup on Frevious Inspection Findings

(Closed) Open Item 483/84021-01(DRP): Review of Fuel Handling Equipment Problems. Minor fuel handling equipment problems were experienced during the initial fuel handling operations. Most of the problems related to equipment electrical controls and interlocks which were corrected by setpoint and interlock adjustments. On one occasion, fuel handling operations were temporarily suspended when the Nuclear Source Range Channel N-32 initiated a containment evacuation alarm. The licensee's investigation determined that the detector cable connector contained a crimped O-ring which allowed moisture to enter the connector and caused signal spiking. The inspector has reviewed the incident reports which documented the equipment deficiencies and determined that the licensee has taken appropriate corrective action.

(Closed) Open Item 483/84035-03(DRSS): Acceptability of Using Fire Hose to Supply Filter System Deluge System. The licensee's filter housings are equipped with temperature monitors (High Temperature Annunciator Alarms) and employ manually actuated spray systems. The Callaway Plant Alarm Response Procedure specifies securing the subject fan and connecting a hose to the spray connection. The acceptability of Callaway's system/practice (use of a fire hose) was discussed with NRC Region III Fire Protection Specialist and NRR Fire Protection Reviewer. Based on this discussion, the inspector determined that Callaway's filter deluge system/practice is acceptable to the NRC.

(Closed) Open Item 483/84041-01(DRS): Control Room Inaccessibility Procedure Walkdown. On August 7, 1984, the licensee accompanied by a NRC inspector, performed a procedural walkdown of Procedure No. OTO-ZZ-00001 (Control Room Inaccessibility). During the walkdown, delays were experienced in gaining access to two rooms which contained equipment that would need to be operated in the event of a control room evacuation due to fire. Room access delays resulted from the correct keys not being included in the set of master keys assigned for the walkdown. The licensee has added the keys to the shift supervisors' master key ring and performs a semiannual key surveillance. The inspector has reviewed the licensee's completed semiannual key inventory forms for the emergency key boxes and the shift supervisors' key ring; and determined that the licensee has implemented an appropriate key verification program.

(Closed) Violation 483/85004-01(DRS): Failure to Properly Document Test Acceptability. This matter relates to deficiencies which were identified during the NRC review of the licensee's startup engineering test data. The test result packages contained deficiencies which had not been identified or corrected during the licensee's review process. The inspector determined that the nature of the deficiencies did not adversely impact acceptability of the tests. The test results package deficiencies have been corrected.

(Closed) Open Item 483/85004-02(DRS): Class 1E 480 Volts AC (VAC) Normal Operating Procedure Has No Pre-Energization Checklist. During a review of the licensee's normal operating procedures, a NRC Inspector determined that the licensee had not developed a pre-energization checklist for the 480 VAC electrical distribution system. In response to the inspectors questions in this matter, the licensee evaluated the desirability of having a pre-energization checklist and determined that their existing procedural controls for system line up and energization was preferable. The procedural controls in place assures system line up is complete prior to providing electrical power to the components. In the event the electrical distribution system is deenergized for maintenance, Workmens' Protection Assurance procedures provide tagging and re-energization controls. The inspector determined that the licensee has implemented adequate procedural controls for the energization of electrical systems.

No violations or deviations were identified.

3. Inspection of TMI Action Plan Requirements

This inspection concerned licensee actions relative to certain NRC requirements developed as a result of the Three Mile Island (TMI) Unit 2 accident. These requirements were contained in NUREG-0737, "Clarification of TMI Action Plan Requirements," and were assigned item numbers for identification.

Completion of certain licensee actions required by the items reviewed during this inspection was previously verified by NRC inspection personnel. This inspection was conducted to establish a correlation between individual

items (by number and title assigned in NUREG-0737) and the NRC Inspection Reports which document these verifications. This inspection was also conducted to supplement previous inspection activities as necessary to verify completion of required licensee actions for all items reviewed.

- I.A.1.1, Shift Technical Advisor (STA): The staff found that the licensee's staffing and training programs were acceptable in Callaway Safety Evaluation Report (SER) NUREG-0830 Section 13.1 and 13.2. The staff's review determined that the licensee's commitments with regard to STAs, met the requirements of Action Plan Item I.A.1.1 of NUREG-0737. These commitments included education, training, experience, and independent reporting. The STA manning requirements are specified in Callaway Technical Specifications (TS) Section 6 (Minimum Shift Crew Composition). Region III inspections of operational staff and staff training are documented in NRC Inspection Reports No. 50-483/83032(DRP) and 50-483/ 84020(DRP). The licensee conducted special training programs which included the Control Board Certification and Mitigation of Core Damage courses. The STAs were included in these special courses. The inspectors determined by the review of training records, personnel interviews, and direct observations that the licensee has implemented the required STA program.
- I.A.1.2, Shift Supervisor's Administrative Duties: The staff found licensee's management directives and commitments regarding the Shift Supervisors' authorities and responsibilities acceptable in SER NUREG-0830 Section 22 as meeting the requirements of Action Plan Item I.A.1.2. The inspector determined by review of plant administrative procedure APA-ZZ-00010 (Conduct of Operations Operations) that the licensee has administrative procedures in place which define the Shift Supervisors' duties, responsibilities, and authority. The administrative procedure establishes the Shift Supervisor as the senior licensed management representative on site during back-shifts and directly responsible for overall plant operations. Routine NRC inspections have determined the licensee's implementation of this commitment is in accordance with regulatory and procedural requirements.
- I.A.1.3. Shift Manning: In Callaway SER Section 22, the staff found that the licensee's commitments regarding Shift Manning met the requirements of Action Plan Item I.A.1.3 of NUREG-0737. The staff's review was based on licensee letter dated August 19, 1081, and Callaway Final Safety Analysis Report (FSAR) Site Addendum, Revision 3. The Callaway Technical Specifications Section 6, provides licensee's staff organization structure and specifies minimum shift crew composition. The Callaway plant Procedure APA-ZZ-00130 provides limitations of staff working hours.

The inspector determined by discussions with licensee personnel, review of licensee commitments and Technical Specifications, and observation of shift manning that the licensee had established shift crews which exceed the requirements of NUREG-0737.

I.A.2.1, Immediate Upgrading of Operator and Senior Operator Training and Qualification: In Callaway SER Section 22, the staff determined that the licensee's training and qualification commitments, as described in the Callaway FSAR Site Addendum Section 13.1, satisfied the requirements of Action Plan I.A.2.1 of NUREG-0737. The licensee's commitments, regarding operator training and qualification, were reviewed and found acceptable during previous inspections and documented in Inspection Reports No. 50-483/83032(DRP) and 50-483/84020(DRP).

The Callaway Plant Operating License NPF-30, contains plant specific operating staff experience requirements. To satisfy these requirements, the licensee implemented the Shift Operating Advisor Program. NRC Inspection Report No. 50-483/84020(DRP) documented that the licensee had implemented the required training program. During routine inspections Resident Inspectors (by direct observation and personnel discussions) verified required shift staffing of operating advisors and determined that they were effectively utilized in overall plant operations.

I.A.2.3, Administration of Training Programs for Licensed Operators: The staff concluded in Callaway SER, Section 22, that the licensee's commitments as described in the Callaway FSAR Site Addendum Section Item 13.2 complied with the requirements of Action Plan I.A.2.3 of NUREG-0737.

NRC Inspection Reports No. 50-483/83032(DRP) and 50-483/84020(DRP) document that the licensee's training program commitments contained in the Callaway FSAR Site Addendum Section 13.2 had been fully implemented. Prior to "cold licensing", the instructors were Westinghouse instructor certified. During the initial NRC "cold licensing", three instructors were licensed at the Senior Reactor Operator level. Since then three additional instructors have received NRC Senior Reactor Operator licenses and one instructor holds a NRC Instructor Certification and is a licensed Reactor Operator.

I.B.1.2, Independent Safety Engineering Group (ISEG): In Callaway SER Section 13.4, the staff found that the licensee's organization, program for the review of plant operations and commitments met the requirements of Action Plan Item I.B.1.2 of NUREG-0737. Callaway Technical Specifications, Section 6, contains ISEG requirements.

The NRC inspector determined by review of the licensee's staff organization, personnel interviews, and observations that the licensee's ISEG staffing exceeds the Action Plan and Technical Specification requirements. The ISEG reports off site, independent of plant management. The ISEG is comprised of eleven engineers, all but one are Shift Technical Advisor (STA) certified. Two of the STAs hold NRC Senior Reactor Operators' licenses.

I.C.1 Short Term Accident and Procedure Review: Callaway SER Supplement 3, Section 22, provides staff evaluation and acceptance of this Action Plan Item. The staff review consisted of an evaluation of (1) the applicant's plant-specific technical guidelines, including the planned method for developing plant-specific Emergency Operating Procedures (EOPs) from

approved generic technical guidelines that are based on the reanalysis of transients and accidents, as described in NUREG-0660, Section I.C.1, and clarified in Item I.C.1 of NUREG-0737; (2) the applicant's plant-specific writer's guide, detailing the specific methods to be used in preparing EOPs based on the technical guidelines to ensure that the EOPs are useable, accurate, complete, readable, convenient to use, and acceptable to control room personnel; (3) the applicant's program for verifying and validating EOPs to ensure that they accurately reflect the technical guidelines and the writer's guide, and that the EOPs will guide the operator in mitigating transients and accidents; and (4) the applicant's program for training operators on EOPs to ensure that the operators will be adequately trained prior to implementing the upgraded EOPs.

The staff determined that the licensee had adequately responded to Item I.C.1 with the exception that the licensee needed to provide additional analysis to identify operator tasks and information and control needs (Function and Task Analysis). Callaway Operating License NPF-30, Condition Item 7.(a) required the licensee to submit the results of the function and task analysis for NRC review and approval. This item is tracked under Action Plan Item I.D.1. of NUREG-0737.

NRC Inspection Reports No. 50-483/84013(DRP) and 50-483/84020(DRP) document the inspectors' review of licensee's administrative, normal, off-normal and emergency procedures. These inspections included a review of procedure verification, validation, and training activities. The deficiencies noted during this review were satisfactorily resolved by the licensee prior to fuel load.

I.C.2, Shift and Relief Turnover Procedures: Based on the staff's review of the licensee's commitments contained in Callaway FSAR Site Addendum regarding administrative procedures which govern shift and relief turnover, the staff found that the requirements of Action Plan Item I.C.2 of NUREG-0660 were met.

NRC Inspection Report No. 50-483/84048(DRP) documents the inspector's review of Callaway Operation Department Procedure No. 0DP-ZZ-00003 (Shift and Relief Turnover). Implementation of the procedure had been observed frequently by both NRC resident and region based inspectors during performance of the NRC augmented inspections as documented in NRC Inspection Report No. 50-483/84042(DRP).

I.C.3, Shift Supervisor Responsibilities: This Action Plan Item was included in the staff's review of Item I.A.1.2 and found acceptable. The inspector determined by review of the licensee's administrative procedure APA-ZZ-00010 (Conduct of Operations) that the licensee has specified management responsibility and command authority of the shift supervisor.

Callaway Technical Specification Section 6.1.2 specifies that the shift supervisor shall be responsible for the control room command function and requires that a management directive to this effect be reissued on an annual basis. The inspector verified that the licensee reissues Nuclear Function Directive NFD-20 (Shift Supervisor Duties and Responsibilities) on an annual basis.

The inspector verified that the licensee has continued to reissue management directives which emphasize primary management responsibility and clearly establish the command authorities of the shift supervisor.

The resident inspector's observations made during routine inspections had indicated that these procedures and directives were effectively implemented.

I.C.4, Control Room Access: In SER Section 22, the staff found the licensee's commitments regarding control room access, as described in Chapter 18 of the Callaway FSAR Site Addendum, to be acceptable to meet the requirements of Action Plan Item I.C.4 of NUREG-0660.

By review of Callaway Plant Administrative Procedure APA-ZZ-00010 (Conduct of Operations - Operations), Section 6.8, "Control Room Access", the inspector determined that the licensee has developed administrative procedures which assign responsibility and authority for access control. This procedure limits access to designated personnel during normal and emergency conditions. The resident inspector's observations during routine inspections indicate that the procedure was effectively implemented.

I.C.5, Procedures for Feedback of Operating Experience to Plant Staff: In Chapter 18 of the Callaway FSAR Site Addendum, the licensee committed to assign to the Independent Safety Engineering Group (ISEG) the task of independent review of reactor operating experience at the Callaway Plant and other facilities. Based on the staff's review of the licensee's administrative Procedure AP-A-20 (Review of Recent Reactor Operating Experience) the staff determined that the licensee meets the requirements of Action Plan Item I.C.4 of NUREG-0660.

The inspector determined by review of the licensee's administrative procedures and training records that the licensee has satisfied its commitments and has implemented an accordable operating experience review program. The inspector has reviewed the following procedures:

NSEP-NS-00600 Operating Experience Review Program (this procedure

supersedes AP-A-20)

QS-21 Review of Current Operating Experience

TDP-ZZ-00009 Course Deficiencies

These procedures assign the ISEG responsibility for review of operating events identified in various utility and NRC reports including "Nuclear Network" and "See-In" publications. The licensee has included the Operating Experience Review Program results in the operating staff's training program.

I.C.6, Verify Correct Performance of Operating Activities: In Chapter 18 of the Callaway FSAR Site Addendum, the licensee is committed to having procedures which ensure an effective system of verifying correct performance of operating activities. In a letter dated August 14, 1981, the licensee provided a rough draft procedure addressing the requirements of

Item I.C.6 of NUREG-0737. Based upon the staff's review of the rough draft procedure and Chapter 18 of the FSAR Site Addendum, the staff found the licensee meets the requirements of Action Plan Item I.C.6 of NUREG-0737.

During this inspection the following procedures were reviewed:

APA-ZZ-00310	Workman's Protectio	n Assurance and	d Caution	Tagging
APA-ZZ-00380	Temporary System Mo	difications		
ODP-ZZ-00002	Equipment Status Co	ntrol		
ODP-ZZ-00003	Shift Relief and Tu	rnover		
ODP-ZZ-00004	Locked Component Co	ntrol		

The inspector determined that the procedures satisfy the licensee's commitments regarding this Action Plan Item. These procedures provide for independent verification of system alignment and return to service of safety related equipment. Included are instructions for tagging, logging, and transfer of operating equipment status information at shift change. NRC Inspection Reports No. 50-483/84042(DRP) and 50-483/84048(DRP) document the inspector's review and observations in this area. These inspections determined that the licensee has implemented an effective system of verifying correct performance of operating activities.

I.C.8, Pilot Monitoring of Selected Emergency Procedures for Near-Term Operating License Applicants: In the SER, the staff stated that the staff does not plan to conduct a pilot monitoring review of selected emergency operating procedures in accordance with guidelines for Item I.C.8.

The licensee had committed to implement emergency operating procedures based on the review of Westinghouse owners group guidelines. The staff review of the licensee's program for developing emergency operating procedures was described in Item I.C.1; therefore, the staff stated in Supplement 3 of the SER that the Item I.C.8 was considered to be resolved.

II.B.2. Print Snielding to Provide Access to Vital Areas and Protect Safety Equipment for Post Accident Operation: The requirement was for the licensee to perform a design review of the shielding to verify protection for operators (time-dose rates) performing required post accident functions and to show that equipment necessary for mitigation of, or recovery from, an accident would be functional during this time period. The staff reviewed the licensee's evaluation program and found it to be acceptable as documented in Supplement 2 of the SER. Region III inspectors reviewed the evaluation results and noted one sampling area for which a time and motion study had not been performed; results of the inspection are documented in Inspection Report No. 50-483/84016(DRS). The licensee subsequently performed a time and motion study for the sampling area and

found the area to be within the guidelines. As documented in Inspection Report No. 50-483/84027(DRS), the results of the study were reviewed by a Region III radiation specialist and found to be acceptable. The requirements of Action Plan item II.B.2 of NUREG-0737 are considered to have been met.

II.K.2.2 and .13, Orders on Babcock and Wilcox (B&W) plants: These items are not applicable to Callaway and are being closed to maintain continuity of the NRC tracking system.

III.D.1.1, Integrity of Systems Outside Containment Likely to Contain Radioactive Material for Pressurized Water Reactors: The Licensee was required to evaluate leak-tightness of systems that may have radioactive water outside of containment and to maintain leakage at a very low level.

The staff reviewed the commitments from the licensee to perform walkdowns and leakage tests of these systems and perform maintenance to maintain the leakage at a "low as practical" level. Leakage tests are to be performed on a refueling cycle basis. The staff considered the commitments adequate to meet the requirements of this action item and closed this item in the SER.

The inspectors, during routine tours and inspections, have not noted a leakage or maintenance problem with these systems. Leakage testing procedures have been developed and the tests are scheduled to be performed during the upcoming refueling outage. The results of applicable "Section XI" code tests are being factored into the leak reduction program. The controlling administrative procedures defining the responsibilities appear to be adequate. This item is considered complete.

III.D.3.3, Improved Inplant Iodine Instrumentation Under Accident Conditions: The licensee was required to provide equipment, procedures, and training necessary for accurately determining the airborne iodine concentration. The staff reviewed the licensee's commitments for the improvement of determining radioactive concentrations under accident conditions and considered them sufficient to meet the requirements of this action item. Inspection Report 50-483/84016(DRMSP) documents the inspectors' review of the licensee's capability to obtain and analyze iodine air samples under accident conditions and found no problems.

4. Followup on Regional Request

Limitorque Valve Operators - Environmental Qualifications (EQ). NRC Region III memorandum from E. Greenman dated December 13, 1985, advised resident inspectors of non-environmentally qualified wire found in some Limitorque Valve Operators, and requested that the licensee be appraised of the potential problem. On December 26, 1985, the inspector met with members of the licensee's Quality Assurance (QA) Department advising them of this problem. QA's response in this matter was to perform a special surveillance to assess the EQ status of wiring used in the Limitorque Motor Valve Operators installed in Callaway Plant. Subsequently, on

January 14, 1985, the NRC issued IE Information Notice No. 86-03 to all nuclear power reactor facilities, which informed licensees of this potential problem.

The licensee has completed its review in this matter. QA Surveillance Report No. P8601-12 documents that, "Each Limitorque Motor Valve Operator was inspected using a startup work request to verify the type of wiring used. The types of wiring used fell into two categories: (Rockbestoes Firewall III or Raychem Flamtrol). Both categories were analyzed and submitted under Revision 3 to the SNUPPS "Report of Independent Review of Environment Qualification Programs to NUREG-0588". Both categories were concluded to be environmentally qualified".

The inspector reviewed QA Surveillance Report No. P8601-12 and Startup Work Request No. KC-266 with attachments (inspection checklists and wiring identification) for Limitorque Valve Operator KC-HV-253.

Based on this review, the inspector determined that this matter was given prompt and thorough evaluation by the licensee QA staff, and that the licensee has documentation which demonstrates that the wiring in Limitorque Valve Operators installed in the Callaway Plant meet EQ requirements.

5. Surveillance

The inspector reviewed/observed the following Technical Specification required surveillance testing:

Surveillance Procedure	Test
OSP-SE-0004	NIS Power Range Heat Balance
ISL-GS-0042B	Containment Hydrogen Concentration (Surveillance Task Sheet No. 0011226)
ISF-SE-00N43	I&C Surveillance Functional (Nuclear Power Range N-43)
ISP-BB-OTN431	<pre>I&C Surveillance Functional (Temperature - Loop - 3)</pre>
ISL-AB-OP546	I&C Loop Calibration Surveillance (Steam Generator-D-Pressure)
ISF-AB-OP546	I&C Functional Test (Steam Generator-D)
ISL-GT-00R31	I&C Calibration Surveillance (Containment Atmos. Radiation Detector)

ISL-EG-000L2

I&C Calibration Surveillance
(CCW Surge Tank Level)

ISF-SB-00A29 and OSP-SB-00001

"A" Train Functional (Reactor Trip Breakers)

Items which were considered during the inspection included: that testing was performed in accordance with adequate procedures; that test instrumentation was calibrated; that test results conformed with Technical Specifications and procedure requirements and were reviewed by personnel other than the individual directing the test; and, that any deficiencies identified during the testing were reviewed and resolved by appropriate management personnel.

No violations or deviations were identified.

6. Operational Safety Verification

The inspector observed control room operations, reviewed applicable logs and conducted discussions with control room operators throughout the inspection period. The inspector verified the operability of selected safety related systems, reviewed tagout records, and verified proper return to service of affected components. Tours of the auxiliary and turbine buildings were conducted. During these tours, observations were made relative to plant equipment conditions, fire hazards, fire protection, adherence to procedures, radiological control and conditions, housekeeping, security, tagging of equipment, ongoing maintenance and surveillance, containment integrity, and availability of safety related equipment.

No violations or deviations were identified.

7. Maintenance

Station maintenance activities of safety related systems and components listed below were observed/reviewed to ascertain that they were conducted in accordance with approved procedures, regulatory guides, 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; parts and materials used were properly certified; radiological controls were implemented; and fire prevention controls were implemented.

The following maintenance activities were observed/reviewed:

Number	Activity
WR 52578	Troubleshoot Loop Pressure Steam Generator-D (Lead Lag Time Bistable Setpoint)
WR 053130	Essential Service Water Pump Room Fan "A" Train
WR 54041	Continuous Air Monitor Strip Chart Recorder (Fuel Building)
WR 300094	Replace Fan Motor DC-GL-038B (CMP 840271A) (Auxiliary Building Exhaust)
WR 300095	Install Control Circuit (CMP 840271A) for Damper GLD009
Equipment ID No. 18518	Install Scaffolding (Non-Safety Over Safety (II/I))

No violations or deviations were identified.

8. Crew Training

On February 3, 1986, the inspector observed off-shift crew fire brigade training. The training included a briefing, simulated fire in the equipment operators' room, and critique of the fire brigade's performance during the fire drill. The brigade members' performance during the drill was business-like and indicated that they and been adequately trained in the use of fire fighting equipment.

No violations or deviations were identified.

9. Incident Reduction Program Status Meeting

On February 5, 1986, the licensee met with the NRC Region III Administrator and staff members at Glen Ellyn, Illinois. The meeting was held to brief NRC staff on the licensee's Incident Reduction Program (IRP) and Quality Assurance organizational changes. During the meeting, the licensee presented IRP status, IRP findings of root causes, trends, and the corrective measures taken to reduce the frequency of reactor trips. The presentation high ighted licensee attention and determination toward significant improvement in this area.

No violations or deviations were identified.

10. Exit Interview

The inspector met with licensee representatives (denoted under Persons Contacted) at intervals during the inspection period. The inspector summarized the scope and findings of the inspection. The licensee representatives acknowledged the findings as reported herein. 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.