APPENDIX

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

NRC Inspection Report: 50-482/92-15

Operating License: NPF-42

Licensee: Wolf Creek Nuclear Operating Corporation (WCNOC)
P.O. Box 411
Burlington, Kansas 66839

Facility Name: Wolf Creek Generating Station

Inspection At: Burlington, Kansas

Inspection Conducted: August 24-28, 1992

Inspectors: C. J. Paulk, Reactor Inspector, Plant Systems Section, Division of Reactor Safety

R. B. Vickrey, Reactor Inspector, Plant Systems Section, Division of Reactor Safety

T. G. Scarbrough, Senior Mechanical Engineer, Mechanical Engineering Branch, Office of Nuclear Reactor Regulation

Approved: T. F. Westerman 9-28-92
T. F. Westerman, Chief, Plant Systems Section Date
Division of Reactor Safety

Inspection Summary

Areas Inspected: Special, announced followup inspection of the status of the licensee's program for implementing commitments to the provisions of Generic Letter (GL) 89-10, "Safety-Related Motor-Operated Valve Testing and Surveillance," and followup on actions taken for a previously identified deviation, an unresolved item, and a licensee event report.

Results:

- The licensee has developed a program for MOVs that will be in accordance with the recommendations of GL 89-10 when actions identified in this report are completed.

- Corrective actions taken for MOVs with degraded grease were a positive indication of improvement in the corrective action program.

Summary of Inspection Findings:

- This inspection completes Temporary Instruction (TI) 2515/109 Phase 1 activities, however, this TI remains open pending completion of the Phase 2 inspection.
- Licensee Event Report 91-024-01 was closed (paragraph 3).
- Unresolved Item 492/9134-03 was closed (paragraph 4).
- Deviation 492/9134-01 was closed (paragraph 5).

Attachments:

- Attachment 1 - Persons Contacted and Exit Meeting
- Attachment 2 - Kalsi Study Questions

DETAILS

1 PLANT STATUS

During this inspection the plant was operating at 100% power.

2 REVIEW OF TEMPORARY INSTRUCTION 2515/109, "SAFETY-RELATED MOTOR-OPERATED VALVE TESTING AND SURVEILLANCE" (2515/109)

In conducting the inspection and assessment at WCNOC's Wolf Creek Generating Station (WCGS), the inspectors followed 2515/109 (January 14, 1991), "Inspection Requirements for Generic Letter 89-10, Safety-Related Motor-Operated Valve Testing and Surveillance." In November 1991, the NRC conducted a similar inspection at WCGS (NRC Inspection Report 50-482/91-34). Numerous problems with the implementation of the licensee's response to GL 89-10 and other licensee activities related to safety-related MOVs were identified. Uncertainties were identified in the capability of several safety-related MOVs which caused the licensee to delay restart from its refueling outage. The November 1991 inspection findings regarding the weaknesses in the licensee's response to GL 89-10 led to a Notice of Deviation. In addition, the lack of adequate corrective action in response to MOV problems resulted in escalated enforcement action. During this inspection, the inspectors focused again on Phase 1 of the TI which involves a review of the program being established in response to GL 89-10 and on the corrective actions taken in response to the previous inspection.

As required by Section 04.01 of the TI, the inspectors reviewed the licensee's commitments to the generic letter contained in the WCNOC December 26, 1989, response to the NRC. The inspectors reviewed WCNOC-85, Revision 0, "Motor Operated Valve Program Description," and supporting documentation.

2.1 Discussion

During a previous inspection of the licensee's efforts to meet commitments to follow the recommendations of GL 89-10, the inspectors concluded that the licensee's program was not sufficiently comprehensive to achieve the commitments. As a result, this followup inspection was conducted to evaluate the licensee's progress toward developing a program that was in accordance with its commitments.

During this inspection, the inspectors reviewed the scope of the program and the methodologies for performing design basis reviews, selecting and controlling motor operated valve (MOV) sizing and switch settings, performing design basis differential pressure and flow testing, verifying MOV capability, tracking and trending MOV failures and corrective actions.

2.2 Conclusions

2.2.1 Scope

During the November 1991 inspection, the inspectors considered the scope of the licensee's MOV program, to the extent reviewed, to be consistent with the provisions of GL 89-10. At that time, the licensee identified the positive displacement pump minimum flow recirculation valve, BG HV-8109, as excluded from the program.

During this inspection, the inspectors found that the licensee had included this MOV in the program until justification for exclusion is developed. The inspectors also noted that the licensee was making good progress in developing its GL 89-10 program.

Additional efforts will be needed to complete the development of the licensee's GL 89-10 program. For example, the licensee had not initiated MOV tests under differential pressure and flow conditions and needed to complete development of its acceptance criteria to ensure that the test results demonstrate design basis capability.

The NRC will review the licensee's justification for exclusion of any MOVs from the program during future inspections.

2.2.2 Design Basis Reviews

During the November 1991 inspection, the inspectors found weaknesses in the procedures and the lack of consideration of other design basis parameters for determining maximum differential pressure for the operation of MOVs.

During this inspection, the inspectors noted that, in Section II of WCNOC-85, the licensee described its method for determining the design basis functions for the MOVs in its GL 89-10 program. In Section III of WCNOC-85, the licensee described its methodology for determining maximum expected differential pressure (MEDP) for each MOV in its GL 89-10 program. The inspectors found that the licensee was documenting other design basis parameters (such as flow and temperature) on the MEDP data sheets.

The NRC will review the licensee's consideration of applicable design basis parameters in evaluating the results of MOV tests during future inspections.

2.2.3 MOV Sizing and Switch Setting

During the November 1991 inspection, the inspectors found that the licensee had failed to establish a method to properly size MOVs and to select switch settings. The inspectors also found weaknesses in the licensee's determination of minimum available voltages for MOVs and its consideration of minimum voltage in some MOV calculations. Also during the November 1991 inspection, the NRC found that the licensee had not provided sufficient control for the settings of torque switches in safety-related MOVs.

During this inspection, the inspectors noted that, in Section VI of WCNOC-85, the licensee described the methodology to be used to determine design requirements for MOV torque/thrust and torque/thrust capabilities for MOVs in its GL 89-10 program. One of the factors to be addressed in MOV calculations performed in accordance with Section VI of WCNOC-85 was "rate of loading." Load sensitive behavior (or rate of loading) can cause the thrust delivered by the motor operator of an MOV to be less when operating its valve under differential pressure and flow conditions than when operating under static (zero differential pressure and flow) conditions. In Appendix B to WCNOC-85, the licensee stated that it was assuming a stem friction coefficient of 0.2 in an effort to bound the effects of load sensitive behavior. The licensee did not have any justification to demonstrate that use of a 0.2 stem friction coefficient bounded the actual stem friction coefficient exhibited by its MOVs. The inspectors discussed the use of the stem friction coefficient to bound the effects of load sensitive behavior. The licensee stated that they would evaluate their position on the basis of future test results.

Another effect of load sensitive behavior is the reduction in thrust delivered at torque switch trip when the MOV is operated under differential pressure and flow conditions from the thrust delivered at torque switch trip under static conditions. The inspectors discussed this effect of load sensitive behavior with the licensee. The licensee stated that its WCNOC-85 would be revised to address this effect of load sensitive behavior. The licensee also stated that its test procedures and acceptance criteria will include margin for reduction in thrust at torque switch trip caused by load sensitive behavior.

The inspectors also noted, during this inspection, that some MOV sizing calculations (for example, Calculation EJ-M-006, Revision 3, for MOVs BB RV-8702A&B and EJ HV-8701A&B) did not specifically discuss results that indicated the predicted thrust requirements were greater than the thrust capability of the MOV. The licensee provided explanations to the inspectors that supported its conclusion that an operability concern did not exist because of conservative assumptions for valve and stem factors. The inspectors made the observation that the licensee will need to ensure that documented evaluations of MOV operability are available when MOV calculations predict thrust requirements greater than MOV capability. For example, tests of MOVs by the licensee might reveal that valve or stem factors assumed in particular MOV calculations are not conservative. The licensee acknowledged this observation and stated that any instance where MOV operability was questioned would be fully addressed.

During this inspection, the inspectors noted that, in Section IV of WCNOC-85, the licensee described its methodology for determining the minimum available voltage at the motor terminals for MOVs in its GL 89-10 program. The inspectors noted that, in Section IV of WCNOC-85, the licensee had used a degraded voltage factor less conservative than the Limitorque recommended methodology. The inspectors found that the non-conservative value for degraded voltage was introduced by one of its contractors. The licensee had properly evaluated all of its MOVs for operability under degraded voltage conditions prior to restart of the plant after the previous inspection. The

licensee stated that it would use the correct reference voltage value until it could demonstrate another value was acceptable.

The inspectors found that the licensee had prepared E-025-00007-W01, Revision 0, "MOV Design Configuration Document," to provide a means of maintaining a data sheet for each MOV providing torque switch settings and required thrust as well as motor, actuator, and valve data. The data sheets cannot be modified without approval of a Design Document Change Notice. The inspectors considered the licensee to have resolved the concern about the documentation and control of torque switch settings.

In WCNOC-85, the licensee indicated that it may use E-025-00008-W01, June 30, 1992, "Thrust Rating Increase of Limitorque SMB-000, SMB-00, SMB-0, and SMB-1 Actuators," in evaluating the size of MOVs in its GL 89-10 program. This document included a study by Kalsi Engineering (Kalsi) of the capability of Limitorque actuators to withstand overthrust and a letter (dated June 10, 1992) from the NRC to the Duke Power Company containing comments provided at a presentation of the Kalsi study on April 15, 1992. The licensee considered the Kalsi report to be proprietary and the inspectors did not obtain a copy of the report.

The inspectors discussed with the licensee the Kalsi second phase study to review the torque capability of Limitorque actuators. The inspectors also discussed with the licensee the reporting requirements of 10 CFR Part 21 if any deficiencies in the torque ratings of actuators are identified.

In Technical Notice 92-01, Limitorque Corporation accepted the results of the Kalsi study, with certain conditions, up to 140% of the rated thrust of the actuators within the scope of the study. Because the licensee intended to rely on the Kalsi study in its GL 89-10 program, the inspectors reviewed the report and provided the licensee with the questions identified in Attachment 2. The licensee was requested to respond to the questions in Attachment 2 within 90 days of receipt of this inspection report. This response was requested to permit the NRC to review the applicability of the Kalsi study to the licensee's program. The NRC will review the MOV calculations during future inspections.

2.2.4 Design Basis Differential Pressure and Flow Testing

During the November 1991 inspection, the inspectors found that the licensee had failed to develop procedures for the performance of design basis testing, acceptance criteria, and feedback mechanisms.

During this inspection, the inspectors noted that, in Section VII of WCNOC-85, the licensee provided general guidance for performing differential pressure tests of MOVs and evaluating the results. In Section I of WCNOC-85, the licensee stated that each MOV in the GL 89-10 program will be tested under maximum expected differential pressure, or partial differential pressure when full design basis conditions cannot be safely achieved. The inspectors noted that, in initiating the GL 89-10 testing program, the licensee intended to

perform as found static tests, refurbish each MOV, and then perform static and dynamic tests. The inspectors also noted that the licensee intended to test MOVs at degraded voltage levels under design basis dynamic conditions. The licensee indicated that the results of its MOV tests would be evaluated such that the operability of each tested MOV would be ensured before the MOV was returned to service. The licensee was developing detailed procedures to provide the acceptance criteria for evaluating MOV operability based on the MOV test results. The licensee stated that the detailed procedures and acceptance criteria would be available before performing MOV tests under the GL 89-10 program.

The NRC will evaluate the licensee's test procedures and acceptance criteria during future inspections.

2.2.5 Periodic Verification of MOV Capability and Post-Maintenance Testing

During the November 1991 inspection, the inspectors found that the licensee's GL 89-10 program description did not address periodic verification of MOV capability recommended in GL 89-10. The inspectors also found weaknesses in the licensee's procedures for testing MOVs following maintenance to ensure their capability to perform safety functions.

During this inspection, the inspectors reviewed a draft revision of Administration Procedure ADM 08-240, Revision 0, "Post Maintenance Testing." The inspectors found that the proposed revision would address the issue of post maintenance testing. The licensee intended, however, to perform static testing for periodic verification of the capability of the MOVs to function under design basis conditions. The inspectors found that the licensee did not have any justification for this position. The NRC has not accepted static tests without justification to demonstrate the capability of MOVs, because of the uncertainties in the relationship between the performance under static and design basis conditions.

The NRC will review the licensee's actions with regard to this issue during future inspections.

2.2.6 MOV Failures, Corrective Actions, and Trending

During the inspection conducted in November 1991, the inspectors' review determined that, contrary to its commitment to GL 89-10, the licensee's program description did not address the provisions of GL 89-10 on the evaluation of MOV failures, and appropriate corrective actions, and trending. Furthermore, a review of the licensee's disposition of MOV program evaluations and MOV performance data by the inspectors identified an apparent significant weakness in the licensee's corrective action program.

During this inspection, the inspectors noted that, in Section VIII of WCNOC-85, the licensee provided guidelines to collect and maintain MOV data and to trend MOV performance. The inspectors found that the licensee had not completed the details of this effort. The NRC will review the licensee's

program for tracking and trending of MOV failures and corrective actions during future inspections.

The inspectors reviewed the licensee's disposition of MOV program evaluations for three valves which the license had found with unacceptable gear operator grease. The licensee had initiated corrective action work requests and, based upon satisfactory VOTES test results, had determined that the valves were operable. The inspectors considered these actions to be positive indications that the licensee's corrective action program was beginning to work.

2.2.7 Schedule

In a letter dated December 26, 1989, the licensee had committed to meet the provisions and schedule of the GL 89-10. The schedule recommended in GL 89-10 for completing the MOV testing program was June 28, 1994, or three refueling outages after December 28, 1989, whichever was later. In a letter dated May 22, 1992, the licensee notified the NRC staff of its intention to complete the testing program for GL 89-10 later than June 28, 1994 (which was the date applicable to Wolf Creek from the GL 89-10 schedule). Subsequently, in the May 22 letter, the licensee stated that it would complete the testing program by December 31, 1994.

In a response dated June 22, 1992, the NRC stated that the licensee should have justification for its schedule extension on site for NRC review. During this inspection, the inspectors reviewed the licensee's justification for its planned completion date of December 1994. Although being delayed because of previous program deficiencies, the inspectors found that the licensee had assigned a knowledgeable team of engineers (MOVT) dedicated exclusively to its MOV program, had established an aggressive MOV test plan (including testing MOVs under maximum achievable conditions), and intended to follow the two-stage approach for MOVs that cannot be tested under design basis conditions.

The inspectors considered the licensee to have adequately justified its revised GL 89-10 schedule.

2.2.8 MOV Organizational Enhancements

In addition to the MOVT, the licensee was in the process of establishing an MOV Maintenance Team which would coordinate with the MOVT. The MOV Maintenance Team initially consisted of four personnel composed of an Electrical Engineer, a Mechanical Engineer, an Electrician, and a Mechanic. The licensee was still in the process of developing the team charter. The informally proposed charter functions included the rewriting of procedures, sequencing of work, disposition of MOVT discrepancies, tracking and scheduling, and providing an MOVT meeting representative. Decisions had not been formalized as to the team supervision or whether the size of the team would remain the same. The licensee had set a goal of having draft procedures from the MOV Maintenance Team by September 30, 1992.

The NRC will review the effectiveness of the licensee's organizational enhancements during future inspections.

2.2.9 MOV Training

During the inspection conducted in November 1991, the inspectors evaluated the licensee's MOV training courses, facilities, and knowledge of its training personnel related to the implementation of the GL 89-10 program. The inspectors reviewed training requirements, course descriptions, interviewed training personnel, and toured the training facility. The licensee had planned to perform refresher diagnostic training before each refueling outage, but had not implemented this training at the time of that inspection.

During this inspection, the inspectors reviewed training requirements, training records, course descriptions, and interviewed training personnel. The licensee's training guidelines were documented in WCNOC-85. The guidelines addressed personnel qualifications and refresher training requirements. A review of training records confirmed that the MOV Team had received valve/valve actuator, VOTES basic, and advanced VOTES training in 1992. In addition, other licensee personnel associated with MOVs attended these training classes.

The licensee has established and implemented a training program that is supportive of the MOV program.

3 ONSITE REVIEW OF LICENSEE EVENT REPORTS (92700)

(Closed) Licensee Event Report 482/91-024-01: Deficiencies Discovered in Motor Operated Valve Testing Program

During the November 1991 MOV inspection, deficiencies were identified in the WCNOC program for implementing commitments to the provisions of GL 89-10. In response to these deficiencies, the licensee determined that 28 MOVs may have been inoperable or may not have met the requirements of GL 89-10 at times in the past.

During this inspection, the inspectors reviewed a matrix, developed by the licensee, of the MOVs and the associated discrepancies. The problems identified fell into 10 general areas (see LER 482/91-024-01) and were addressed by the licensee. The inspectors reviewed the corrective actions taken to assure the operability of the MOVs. The inspectors considered the licensee's actions to have been appropriate.

The licensee determined the root cause of the failure to meet the requirements of GL 89-10 was WCNOC management's failure to communicate expectations to personnel involved in the MOV program. The licensee has implemented a Management Action Plan and Performance Enhancement Program to address this problem. The inspectors found that the personnel involved with the MOV program were aware of the significance of the program. These people expressed

their feeling that WCNOC management was very involved in the implementation of the MOV program.

This LER is considered closed. The Management Action Plan and Performance Enhancement Program are being tracked under other programs and will be addressed in future NRC inspections.

4 FOLLOWUP (92701)

(Closed) Unresolved Item 482/9134-03: MOV Operability Evaluations

During the November 1991 inspection, the inspectors identified an unresolved item relating to the operability of MOVs.

During this inspection, the inspectors reviewed the licensee's evaluations and corrective actions taken with respect to MOV operability for those valves identified in LER 482/91-024-01. As part of its corrective action, the licensee identified additional examples of MOVs that may not have functioned under all design conditions. However, in that escalated enforcement action was previously taken (EA 91-161) and based on the provisions of Section VII.B.(5) of the NRC's Enforcement Policy, the NRC is waiving consideration of enforcement action for any violations of regulatory requirements that may have resulted in the condition of these valves, all of which were identified in Licensee Event Report 91-024-01.

On the basis that Violation 482/9134-02 enveloped the identified MOVs, this item is considered closed.

5 FOLLOWUP ON CORRECTIVE ACTIONS FOR A DEVIATION (92702)

(Closed) Deviation 482/9134-01: Failure to Meet Commitment to Comply With GL 89-10

During the November 1991 inspection, the inspectors found that the licensee had not developed a program for MOVs in accordance with its commitment to meet the recommendations to GL 89-10.

On the basis of the results of this inspection, the inspectors found that the licensee is developing a program to meet its commitment to follow the recommendations of GL 89-10.

ATTACHMENT 1

1 PERSONS CONTACTED

WCNOC

J. Black, Reactor Operator, Motor Operated Valve Team (MOVT)
R. Buffum Supervising Instructor, Electrical Training
K. Fullen, Electrical Engineer, MOVT
S. Hedges, Mechanical Engineer, MOVT
C. Hernandez, Civil Engineer, MOVT
R. Holloway, Manager, Maintenance and Modifications
D. Hooper, Engineering Specialist
J. Lutz, Licensing Engineer
G. Mathur, Equipment Engineer, MOVT
O. Maynard, Director, Plant Operations
K. Moles, Manager, Regulatory Services
K. Powell, Scheduler, MOVT
L. Ratzlaff, Supervisor Engineer, MOVT
F. Rhodes, Vice President, Engineering
C. Rich, Supervisor, Electrical Maintenance
C. Sprout, Manager, System Engineering
H. Stubby, Supervisor, Technical Training
W. Walton, Supervising Instructor, Mechanical Training
D. Weninger, Mechanical Engineer, MOVT
S. Wideman, Supervisor, Licensing
D. Williams, Supervisor, Maintenance Planning

CONTRACTOR PERSONNEL

T. Hinterscher, Engineer, ABB Impell

NRC

G. Pick, Senior Resident Inspector

The persons listed above attended the exit meeting.

2 EXIT MEETING

An exit meeting was conducted on August 28, 1992. During this meeting, the inspectors reviewed the scope and findings of the report. The licensee identified a test report as proprietary, however, no proprietary information is contained in this report.

ATTACHMENT 2

KALSI STUDY QUESTIONS

1. The industry has years of successful performance of the Limitorque actuators with the original thrust ratings, but little experience with the higher thrust allowable limits proposed by the Kalsi study. The Kalsi study did not include the effects of running load in applying overthrust to the tested actuators. The Kalsi study conducted tests on only one actuator for evaluating the overthrust capability of actuators in each actuator size class within the scope of the study.

   How will WCNOC demonstrate that the results of the Kalsi study were applicable to its MOVs?

2. The Kalsi study provided frequent lubrication of the actuator stem and stem nut. The Kalsi report stated that long-term aging and degradation of the lubricant was not evaluated. In a nuclear plant environment, stem lubricant degradation may result in accelerated wear of the stem nut. As found recently at two nuclear plants (Fitzpatrick and Cooper), stem nut failure may occur without warning. In the Kalsi study, stem and stem nut damage occurred during the testing of one actuator. Because of worm and worm gear failures, the Kalsi report recommends consideration of periodic inspection and maintenance of the actuator.

   How will WCNOC provide for identifying stem nut wear before the operability of the MOV, under design basis conditions, becomes questionable?

3. The Kalsi study experienced several failures of actuator parts because of torque. In some cases, the torque failures occurred at less than the torque rating of the actuator.

   How will WCNOC ensure that the failures were not also the result of excessive thrust?

4. During the Kalsi study, small cracks in the housing of actuators occurred after 2000 cycles.

   Because the statistical methodology used by Kalsi in establishing margin for a sample size of one relied on 4000 successful cycles, how will WCNOC ensure that the cracks did not affect the acceptability of the remaining cycles?

5. The Kalsi study did not include the effects of the inaccuracy of the load cell used to measure thrust and torque, nor the uncertainty associated in reading the strip chart used to record test data in the margin provided to support the conclusions.

How will WCNOC ensure that the accuracy of MOV diagnostic equipment and the strip chart are included when using the results of the Kalsi study?

6. The Kalsi report stated that the actuator housing cover bolts must be torqued in a prescribed manner. The NRC has been informed by Limitorque that Kalsi may be able to justify removal of this precondition for the use of the Kalsi report.

   How does WCNOC satisfy the appropriate conditions of the Kalsi study for bolt torquing?

7. A report in accordance with 10 CFR 50, Part 21, was issued regarding the sizing of the bolts used in Limitorque 000 actuators.

   How will WCNOC ensure that actuator housing cover and mounting bolts are adequately sized for the increased allowable thrust limits?

8. The Kalsi report does not consider manufacturing differences or aging effects.

   How does WCNOC provide assurance that the results of the Kalsi study are applicable to actuators at Wolf Creek considering any manufacturing differences and aging effects?

9. The low stem friction coefficients observed during the Kalsi study might not be achieved under running loads and actual nuclear plant conditions. The Kalsi report also indicates that thrust overload can occur without exceeding the torque rating of an actuator if the stem friction coefficient is low.

   How will WCNOC justify stem friction coefficient assumptions at WCGS? How will WCNOC ensure that the thrust allowable limits are not exceeded?

10. The Kalsi report indicated that the actuator bolts had to be tightened during the seismic tests.

    How will WCNOC ensure that the tightening of the bolts did not affect the acceptability of the remaining cycles following the seismic tests in determining the total number of successful cycles?

11. The stated objective of the Kalsi study was to demonstrate the capability of the Limitorque actuators to withstand a specific thrust for 2000 cycles. All cycles experienced by the actuator since its manufacture must be included in the 2000 cycle limit.

How will WCNOC ensure that its actuators do not exceed 2000 cycles?

12. The NRC has been informed of decreased thrust output of actuators that had their housing cover bolts tightened to the torque prescribed in the Kalsi report. The thrust reduction apparently was caused by an overcompression of the housing cover gasket resulting in internal actuator binding.

    How will WCNOC ensure that any tightening of actuator housing cover bolts is followed by thrust verification tests?

13. The Kalsi study experienced several failures of the motor pinion key in its tested Limitorque SMB-0 actuator. The Kalsi report stated that the motor pinion key should be replaced with high strength material in all SMB-0 actuators for which the Kalsi study will be applied. The NRC discussed potential failure of motor pinion keys in Information Notice 90-37.

    How will WCNOC ensure that motor pinion keys in all safety-related actuators are of sufficient strength to withstand the stress exerted on them?

14. The Kalsi study experienced spurious engagement of the manual declutch lever during the seismic testing of the Limitorque SMB-000 actuator. The Kalsi report stated that the declutch lever in SMB-000 actuators should be secured before applying the Kalsi conclusions. As noted in NRC Vendor Inspection Branch Inspection Report 99900404/92-01, a study of overthrust capability by Westinghouse Corporation experienced spurious engagement of the declutch lever of a different size Limitorque actuator.

    How will WCNOC ensure that the manual declutch levers are secured for all Limitorque actuators that will be evaluated using the Kalsi study?

15. The Kalsi study used specific stem and stem nut materials in its tested actuators.

    How will WCNOC ensure that the conclusions of the Kalsi study are applicable to the stem and stem nut materials used at WCGS?