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Nuclear Business Unit

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U. S. Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

LER 354/00-009-00
HOPE CREEK GENERATING STATION
FACILITY OPERATING LICENSE NO. NPF-57
DOCKET NO. 50-354

Gentlemen:

This Licensee Event Report entitled "Inoperability Of The Filtration, Recirculation, and Ventilation System Recirculation Subsystem Caused By An Improperly Secured Manual Damper" is being submitted pursuant to the requirements of the Code of Federal Regulations 10CFR50.73(a)(2)(v).

Sincerely,



FOR M. BEZILLA

M. B. Bezilla
Vice-president - Operations

Attachment

/rbk

C Distribution
LER File 3.7

The power is in your hands.

IEA2

LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

Estimated burden per response to comply with this mandatory information collection request: 50 hrs. Reported lessons learned are incorporated into the licensing process and fed back to industry. Forward comments regarding burden estimate to the Records Management Branch (T-6 F33), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, and to the Paperwork Reduction Project (3150-0104), Office of Management and Budget, Washington, DC 20503. If an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

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TITLE (4)
Inoperability Of The Filtration, Recirculation, and Ventilation System Recirculation Subsystem Caused By An Improperly Secured Manual Damper

| EVENT DATE (5) | | | LER NUMBER (6) | | | REPORT DATE (7) | | | OTHER FACILITIES INVOLVED (8) | |
|----------------|-----|------|----------------|-------------------|-----------------|-----------------|-----|------|-------------------------------|---------------|
| MONTH | DAY | YEAR | YEAR | SEQUENTIAL NUMBER | REVISION NUMBER | MONTH | DAY | YEAR | FACILITY NAME | DOCKET NUMBER |
| 05 | 25 | 00 | 00 | 009 | 00 | 06 | 23 | 00 | | 0500 |
| | | | | | | | | | FACILITY NAME | DOCKET NUMBER |
| | | | | | | | | | | 0500 |

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|--------------------|----|---|-------------------|------------------|---|--|--|--|--|--|
| OPERATING MODE (9) | 1 | THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11) | | | | | | | | |
| POWER LEVEL (10) | 15 | 20.2201(b) | 20.2203(a)(2)(v) | 50.73(a)(2)(i) | 50.73(a)(2)(viii) | | | | | |
| | | 20.2203(a)(1) | 20.2203(a)(3)(i) | 50.73(a)(2)(ii) | 50.73(a)(2)(x) | | | | | |
| | | 20.2203(a)(2)(i) | 20.2203(a)(3)(ii) | 50.73(a)(2)(iii) | 73.71 | | | | | |
| | | 20.2203(a)(2)(ii) | 20.2203(a)(4) | 50.73(a)(2)(iv) | OTHER | | | | | |
| | | 20.2203(a)(2)(iii) | 50.36(c)(1) | X 50.73(a)(2)(v) | Specify in Abstract below or in NRC Form 366A | | | | | |
| | | 20.2203(a)(2)(iv) | 50.36(c)(2) | 50.73(a)(2)(vii) | | | | | | |

LICENSEE CONTACT FOR THIS LER (12)

| | |
|-------------------------------------|--------------------------------------|
| NAME | TELEPHONE NUMBER (Include Area Code) |
| Brooke Knieriem, Licensing Engineer | (856) 339-1782 |

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

| CAUSE | SYSTEM | COMPONENT | MANUFACTURER | REPORTABLE TO EPIX | CAUSE | SYSTEM | COMPONENT | MANUFACTURER | REPORTABLE TO EPIX |
|-------|--------|-----------|--------------|--------------------|-------|--------|-----------|--------------|--------------------|
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| SUPPLEMENTAL REPORT EXPECTED (14) | | | | EXPECTED SUBMISSION DATE (15) | MONTH | DAY | YEAR |
| YES (If yes, complete EXPECTED SUBMISSION DATE). | X | NO | | | | | |

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

On May 25, 2000, at 2254, during performance of a 31-day Technical Specification surveillance, the four running Filtration, Recirculation, and Ventilation System (FRVS) Recirculation Fans tripped on low flow as the result of the inadvertent closure of a manual damper located in their common supply duct. The FRVS is an Engineered Safeguards Feature system that serves to limit offsite doses during a loss of coolant accident, refueling accident, or high radioactivity in the secondary containment. The apparent cause of this event was inattention to detail during the installation of a locking device on manual damper 1SMGUD-925. Contributing to this event was inadequate procedural guidance regarding damper locking device installation and independent verification of FRVS component positions. Upon discovery, damper 1SMGUD-925 was opened and FRVS was restored to OPERABILITY. Other manual FRVS dampers that could render FRVS inoperable were verified to be in their correct positions with their locking devices properly installed. To prevent recurrence, procedure HC.OP-SO.GR-0001(Q), Reactor Building Ventilation System Operation, will be revised to require independent verification of FRVS components, and to provide guidance regarding the proper installation of manual FRVS damper locking devices.

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PLANT AND SYSTEM IDENTIFICATION

General Electric - Boiling Water Reactor (BWR/4)

Filtration, Recirculation, and Ventilation System {VA/-}*

* Energy Industry Identification System (EIIS) codes and component function identifier codes appear as {SS/CC}

CONDITIONS PRIOR TO OCCURRENCE

At the time of the occurrence, Hope Creek was in OPERATIONAL CONDITION 1 (Power Operation) at 15% power, with the Main Generator off line awaiting replacement of the C phase Main Power Transformer.

DESCRIPTION OF OCCURRENCE

On May 25, 2000, at 2254, during the performance of a 31-day Technical Specification surveillance, the four running Filtration, Recirculation, and Ventilation System (FRVS) Recirculation Fans {VA/FAN} tripped. At that time, FRVS Recirculation Subsystem had been operating for approximately 10 hours. The operating FRVS Ventilation Fan {VA/FAN} remained in service, maintaining a negative pressure on the Reactor Building {NG/-}(secondary containment). Several attempts were made to start the Reactor Building Ventilation System (RBVS){VA/-} but the RBVS Supply fans {VA/FAN} also tripped.

Upon investigation, supply damper 1SMGUD-925 {VA/DMP}, located in the common supply to the FRVS Recirculation Fans and the RBVS Supply Fans was found in the closed position. The closure of damper 1SMGUD-925 isolated flow from the Reactor Building to all six FRVS Recirculation Fans, causing the four running fans to trip on low flow. Inspection of damper 1SMGUD-925 revealed that a locking device used to secure the damper in the open position was loose. At 0043 on May 26, 2000 damper 1SMGUD-925 was reopened and the RBVS was placed in service. At 0138, RBVS was removed from service and the FRVS Recirculation Fans were returned to service to complete testing.

Because the closure of damper 1SMGUD-925 alone isolated flow from the Reactor Building to all six FRVS Recirculation fans, this condition alone would have prevented the FRVS Recirculation Subsystem from carrying out its design function. Therefore, this event is being reported in accordance with 10CFR50.73 (a) (2) (v).

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APPARENT CAUSE OF OCCURRENCE

The apparent cause of this event was inattention to detail on the part of operations personnel (utility non-licensed operator) during the positioning of damper 1SMGUD-925. The error occurred during the alignment of the RBVS system for power operation following a recent refueling outage. Damper 1SMGUD-925 is closed as a part of the RBVS lineup for refueling operations to enhance ventilation to the refueling area, and is opened during alignment of RBVS for power operation. The damper is secured in position by a locking device consisting of a bolt, a nut, and a lock washer. Following this event the locking device nut for damper 1SMGUD-925 was found to be loose and its edges rounded. The improperly installed locking device allowed system vibration and flow to close damper 1SMGUD-925.

Contributing to this event was an inadequate procedure. Procedure HC.OP-SO.GR-0001(Q), Reactor Building Ventilation System Operation, is used to align RBVS for refueling operations, including damper 1SMGUD-925, as well as other dampers considered to be a part of FRVS. Procedure HC.OP-SO.GR-0001(Q) specified that damper 1SMGUD-925 be opened following refueling operations but did not specify that the damper be locked. Additionally, since FRVS is a safety-related system, independent position verification of its components is required by administrative procedure NC.NA-AP.ZZ-0005(Q), Station Operating Practices. However, procedure HC.OP-SO.GR-0001(Q) did not require an independent component verification of the FRVS dampers.

PRIOR SIMILAR OCCURRENCES

A review of LERs for Hope Creek for the past two years identified one LER involving personnel error during the positioning of plant components that affected safety system operation. Hope Creek LER 354/00-008-00 reported an unplanned High Pressure Coolant Injection System isolation during system warmup caused by a mispositioned valve. However, the corrective actions to prevent recurrence of the event described in Hope Creek LER 354/00-008-00 would not have prevented this event.

SAFETY CONSEQUENCES

The FRVS is an Engineered Safeguards Feature system consisting of a Recirculation Subsystem and a Ventilation Subsystem. The two subsystems together serve to limit offsite doses to below 10CFR100 limits by providing iodine and particulate activity removal during a loss of coolant accident.

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SAFETY CONSEQUENCES (Cont.)

The Recirculation Subsystem also provides secondary containment cooling under accident conditions. If the closure of damper 1SMGUD-925 had occurred during system response to a postulated loss of coolant accident, the activity removal and secondary containment cooling capability of the FRVS Recirculation Subsystem would have been unavailable until plant personnel could diagnose the problem and restore the system to service. However, during the time that damper 1SMGUD-925 was improperly positioned, Hope Creek was operating at 15% power in power ascension following a refueling outage and had not yet achieved the postulated accident power level of 100%.

The closure of damper 1SMGUD-925 occurred during surveillance testing of the FRVS system and was immediately detected by plant personnel as a loss of all FRVS Recirculation Fans, and by the inability to start the RBVS Supply fans. Upon discovery that all running FRVS Recirculation Fans were inoperable, plant personnel immediately carried out the appropriate Technical Specification ACTION to place the unit in a condition in which the FRVS is not required. Plant personnel diagnosed the loss of FRVS Recirculation fans and restored the FRVS Recirculation subsystem to service within 1 hour and 49 minutes of the event.

If the closure of damper 1SMGUD-925 occurred during normal plant operation, during normal alternative operating conditions, or during off-normal conditions expected to occur during the life of the plant, rather than during surveillance testing, the closure of damper 1SMGUD-925 would have been immediately detectable as a loss of the running RBVS Supply Fans.

Therefore, based on the above, there was no impact on the health and safety of the public as a result of this event.

CORRECTIVE ACTIONS

1. Damper 1SMGUD-925 was opened and secured in position.
2. The other FRVS dampers in the ventilation supply and return ventilation flow path for refueling operations were verified to be secured in their correct positions.

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CORRECTIVE ACTIONS (CONT.)

3. Procedure HC.OP-SO.GR-0001(Q), Reactor Building Ventilation System Operation, will be revised to require independent verification of FRVS components, and to provide guidance regarding the proper configuration and installation of damper locking devices. This revision will be implemented by 10/1/2000.

4. Non-licensed operator training will be enhanced to make personnel aware of the safety significance of the FRVS dampers in the ventilation supply and return ventilation flow path for refueling operations, and to provide guidance for the proper operation of those dampers. This action will be completed by 10/1/2000.

5. A review of operating procedures for systems that do not require independent verification will be performed to identify instances in which components located in systems that require independent verification are manipulated. Where identified, corrective action, as appropriate, to implement independent verifications will be taken. This action will be completed by 12/31/2000.

COMMITMENTS

Corrective Actions 3, 4, and 5 cited in this LER are commitments.