



Illinois Emergency Management Agency  
Division of Nuclear Safety

Rod R. Blagojevich, Governor  
Andrew Velasquez III, Director  
Joseph G. Klinger, Acting Assistant Director

April 15, 2008

United States Nuclear Regulatory Commission - Region III  
Quad Cities Nuclear Station  
22710 206<sup>th</sup> Avenue North  
Cordova, IL 61242

Attention: M. James McGhee

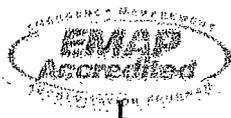
SUBJECT: IEMA – Bureau of Nuclear Facility Safety, Inspection Report  
Quarterly Inspection Period: October 1 to December 31, 2007

Dear: Mr. McGhee,

On March 31, 2008 the Illinois Emergency Management Agency-Bureau of Nuclear Facility Safety Resident Inspector completed the quarterly inspection activities at the Quad Cities Nuclear Station, Units 1 and 2. Per the terms and conditions of the Memorandum of Understanding (MOU) between the NRC and IEMA-BNFS, the enclosed inspection report documents our agency's inspection issues and concerns that were previously discussed with you and members of your resident inspection staff.

The IEMA-BNFS inspection activities were conducted as they relate to nuclear safety and to compliance with the Commission's rules and regulations and with the conditions of the plant license. The inspector(s) reviewed selected licensee procedures and records, observed licensee activities, and interviewed licensee personnel.

Specifically, the IEMA-BNFS inspection activities for this period focused on Equipment Alignments (R04), Fire Protection (R05), Maintenance Risk Assessment and Emergent Work Evaluation (R13), Post Maintenance Testing (R19), Refuel and Outage Activities (R20), Surveillance Testing (R22), Access Control to Radiologically Significant Areas (OS1), Radiological Environmental Monitoring Program (REMP) and Radioactive Material Control Program (PS3), Identification and Resolution of Problems (OA2), Event Follow Up (OA3) and other inspection activities as identified herein and as disseminated within the text of the IEMA-BNFS Inspection Report.



H-64



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Based on the results of this inspection, the inspectors identified the following IEMA-BNFS Open / Follow-up Items and are discussed within their respective report reference ( ):

1. Inspector verification that procedure QCOP 1300-09 will be revised with IEMA comments. [1R04.2]
2. Investigation into why the system engineer feels that out of normal range CRD pump oil levels are acceptable. [1R04.3]
3. The inspector will perform a follow-up investigation on the design difference in hangers between Unit 1 and 2 for the Torus vent line to verify that Unit 2 does meet its design requirement. [1R04.4]
4. Inspector review of the engineering troubleshooting to be performed on Unit 2 spent fuel pool liner leakage. [1R20.2]

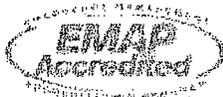
Any issues, open items and/or concerns that are discovered during the course the inspection period are normally entered into the IEMA – Bureau of Nuclear Facility Safety Plant Issues Matrix, and by this letter, are considered as disseminated to your NRC staff for disposition in accordance with NRC policies and procedures. In full cooperation with the and at the request of the NRC, IEMA-BNFS will continue to follow and assist the NRC Resident Inspection Staff with resolution and closure of all such issues, open items and/or concerns.

In full cooperation with and at the request of the NRC, IEMA-BNFS will continue to follow and assist the NRC Resident Inspection Staff with resolution and closure of all such issues and concerns.

If you have any questions, please contact me at your earliest convenience.

Sincerely yours,

Richard J. Zuffa  
IEMA-BNFS/RI Unit Supervisor  
Resident Inspection Staff

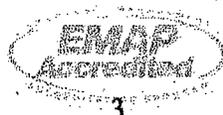




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Docket Nos. 50-254; 50-265  
License Nos. DPR-29; DPR-30  
Enclosure(s): Inspection Report: 08QC-1QIR  
cc w/o encl: A.C. Settles, Chief Division of RICC  
C.H. Mathews, IEMA-BNFS-RI





ITEMS CLOSED:

None

## Report Details

### Plant Status

#### Unit 1

Unit 1 operated the entire inspection period at full rated electrical load of 912 MWe, with the following exceptions. Small power reductions were performed as required to facilitate planned control rod maintenance activities.

#### Unit 2

Unit 2 began the inspection period operating at full rated electrical load of 912 MWe and operated at or near full power through the inspection period until March 3, 2008 when the unit entered Refuel Outage Q2R19. Small power reductions were performed prior to the refuel outage as required to facilitate control rod maintenance activities.

### **1 REACTOR SAFETY**

Initiating Events, Mitigating Systems, Barrier Integrity

#### 1R04.1 Equipment Alignment (IEMA Keystone: Reactor Safety) (71111.04)

##### a. Inspection Scope

The inspector performed equipment configuration alignment and general area inspections in the following plant areas:

- Main Control Room and Back Panel Areas
- Auxiliary Electrical Equipment Room (AEER)
- Both Unit Reactor Feed Water Pump Rooms
- Both Unit 4 KV Buses (safety and non-safety)
- Both Unit Condensate Pump Bays
- Both Unit High Pressure Coolant Injection (HPCI) Rooms
- Unit 1&2 Residual Heat Removal Service Water (RHRSW) Pump Vaults
- Unit 1&2 Emergency Core Cooling System (ECCS) Pump Rooms
- Safe Shutdown Make-up Pump (SSMP) Room

- Unit 1, Unit 2, and Unit ½ Emergency Diesel Generator (EDG) Rooms
- Refuel Floor
- 

b. Observations and Findings

During walk down inspections of plant equipment areas, the inspector verified equipment configuration and observed for any material condition deficiencies that could prevent proper equipment operation. Equipment areas were inspected for system leakage, personnel safety hazards, potential interference with system components and controls, fire hazards, water intrusion, and the integrity of system structural supports. The inspector monitored equipment areas for abnormal vibration, odors, sounds, or other conditions that could impact proper equipment operation and plant safety.

On January 3, 2008, the ½ Emergency Diesel Generator (EDG) Cooling Water Pump (CWP) was returned to service following the completion of its operability surveillance. During the week of January 7, 2008, the ½ EDG was removed from service for numerous planned work activities. On January 11 at 0615 operability surveillance steps were taken to restore the ½ EDG to its operable status. During this post maintenance test (PMT), at 0810, the ½ EDG tripped on high temperature due to the EDGCWP not transferring to Bus 28 when the output breaker was changed from Unit 1 to Unit 2. This rendered the ½ EDG and the ½ EDGCWP inoperable.

At 1000, the inspector questioned the Unit 1 Unit Supervisor regarding the Administrative Technical Requirements (ATR) for the ½ EDGCWP. The Unit 1 Supervisor stated that he had not entered that ATR but should have. The ATR was then entered. Entering the ATR added no additional actions for protecting equipment beyond those taken for the ½ EDG. IR 722562 was initiated to document not entering the ATR.

On January 18, the inspector verified the standby line-up of the Unit 1 EDG per QCOP-6600-01, Diesel Generator 1(2) Preparation for Standby Operation revision 34, as it was designated as protected pathway equipment with the Unit 2 Diesel Generator out of service. On January 22, the inspector verified the standby line-up of the Unit 2 EDG, per QCOP-6600-01, while it was protected equipment with the Unit 1 Diesel Generator out of service.

On January 30, the inspector noticed from computer point F205, that the Unit 2 Reactor Feedwater line pressure had increase and appeared to be upscale, at 1998 psig. The inspector questioned the Unit 2 Unit supervisor and was told by him that operations personnel had observed some abnormal

indications but was not aware of the high feedwater pressure indication from the computer point. Investigation by the Unit 2 crew determined that with outside temperatures in the single digits, the turbine building roll-up door had been opened to move in scaffold and left open when the workers left the area. The shift foreman closed the door. It was determined that the feedwater pressure sensing line, which was located around the corner and not far down the hall from the open door, had frozen. Upon closing the door, feedwater pressure, and other indications soon returned to normal. IR 729019 was initiated to document the event.

On February 22, the inspector identified that the 1A and 2B Standby Liquid Control System (SBLC) pumps had oil levels in the pump 1/8 to 1/4 inch above the maximum allowable level as indicated by paint marks on the pump casing and on the sight glass. Operations shiftly rounds look at these oil levels on a daily basis, but no issues were noted. The inspector contacted the SBLC system engineer and he concurred with the inspector that the levels were high in the two pumps and asked operations to lower oil level to the acceptable range. The system engineer determined that there was no immediate operability issue but that oil level needed to remain within the band. Oil levels were lowered and IR 740013 initiated to document the event.

In September 2007, the inspector had discovered that the operations crews were not maintaining the mode switch in the proper position per Technical Specifications (TS) when in hot and cold shutdown, modes 3 and 4 respectively. The TS in question was 3.10.3, but the operations department was informed that TS 3.10.1 and 3.10.2 were similar to TS 3.10.3. To resolve the issue with mode switch compliance, a Standing Order was initiated explaining how management wanted the mode switch position controlled for T.S. 3.10.3. On March 3, the first day of the Unit 2 refuel outage (Q2R19), the inspector at approximately 4 pm, with the unit in mode 4, asked the Unit 2 Unit Supervisor what was the current mode switch position. The inspector was informed that the mode switch was in Refuel. The inspector then asked if any control rod exercising was in progress (TS 3.10.3) and was told no, that they had been performing Intermediate Range Monitor (IRM) testing but that they had secured from that testing approximately four hours earlier to have engineering determine how to proceed.

The mode switch, while the unit is in Mode 4, Cold Shutdown, can be placed into the Refuel position "to allow testing of instrumentation associated with the reactor mode switch interlock functions" per TS 3.10.1. IRM surveillance testing is an example of this type of testing. The TS does

not allow unlimited time in Refuel if testing is not being performed. The guidance in the Operations Standing Order stated that if control rods were not being moved for 4 hours, that the mode switch must be moved back to the Shutdown position.

The inspector questioned both Unit 2 Unit supervisors (there was an extra unit supervisor for the outage) and the shift manager and they all saw nothing wrong with their management of the reactor mode switch and did not feel that the guidance in the Operations Standing Order applied here. The shift manager stated that he was busy but that he would look into the issue later. The inspector a short time later contacted the shift manager and stated he wanted it to be clear that he was questioning Unit 2's compliance with TS 3.10.1. Shortly thereafter, the shift manager talked to operations management and determined that the mode switch, in that instance needed, to be returned to the Shutdown position. IR 744297 was initiated to document this issue.

The inspector identified several other minor items that are documented within this report for trending proposes.

- On January 11 while exiting the ½ EDGCWP room water tight door, the door hand wheel came off in the inspectors' hand. The hand wheel had not been secured to the door mechanism. IR 721011 was initiated by the licensee and the hand wheel was subsequently repaired.
- On February 4 at 1:30 pm, the inspector identified workers carrying scaffold materials into the Unit 2A Residual Heat Removal (RHR) heat exchanger room. The Unit 2A RHR system was at that time protected equipment. The inspector questioned the scaffold builders if they knew that the 2A RHR system was protected equipment and if they had permission to build scaffold. They informed the inspector that they did not know that 2A RHR was protected equipment, though there was a sign at the top of the stairs where they entered. They did say that they had permission to assemble scaffold around the heat exchanger. The inspector questioned the Unit 2 control room operators who stated that the scaffold crew had permission to build the scaffold and that they had been briefed on the protected status of the equipment. The inspector informed the operators that the workers did not know that RHR A was protected equipment. Operations took no further action.
- On February 4 at 1:30 pm, the inspector identified an Aggreko air mover with a 2.5 foot flexible duct stored in the Unit 2 Standby Gas Treatment System room, 666' elevation. The air mover and flexible ductwork were marked as internally contaminated. The ductwork had a plastic radiation bag over the opening to prevent the spread of

contamination, but it was taped on only one of four sides. The inspector informed radiation protection (RP) personnel and they had the plastic cover secured. No IR initiated.

- On March 6, the inspector identified a beaded plastic lanyard, like the old keycards lanyards, wrapped around and hanging from a temperature element for the Unit 1 torus. This temperature element was approximately 10 feet above the floor. Operations had the lanyard removed and initiated IR 746000.

c. Conclusions

While there were several observations of licensee performance that appeared below their standard of expectation, but there were no significant issues associated with this inspection activity.

1R04.2 Equipment Alignment (IEMA Keystone: Reactor Safety) (71111.04)

a. Inspection Scope

The inspector performed a walkdown of procedure QCOP 1300-09 rev 21, RCIC Local Manual Operation, to determine if it could be performed within five minutes, as required to meet the design criteria.

b. Observations and Findings

On January 15, 2008, the Unit 1 Reactor Core Isolation Cooling (RCIC) System controller failed from its automatic control mode to the manual mode with a Fail Red light illuminated in the control room. RCIC was declared inoperable and unavailable.

Following discussions between the Shift Manager and the Station Risk Coordinator, the Shift Manager assigned a dedicated operator to perform a manual RCIC start, in accordance with QCOP 1300-09 revision 21, RCIC Local Manual Operation, if needed. This operator was not assigned to any specific area to stay in, just that he be able to get to the controls to perform the local startup of RCIC. Assignment of the dedicated operator and availability of RCIC were based upon getting the RCIC System aligned to inject within 30 minutes, per 10CFR50, Appendix R analysis.

The inspector walked through the performance of QCOP 1300-09 in the field and verified that the procedure could be performed within 30 minutes, but with substantial distance between components in the reactor building

and the RCIC room, it would be difficult. The Nuclear Regulatory Commission (NRC) Senior Resident Inspector (SRI) questioned this practice and ultimately determined that RCIC is designed for loss of feedwater and thus is necessary to be aligned for injection within approximately 5 minutes.

From the inspector's walk down, the operator would not be able to complete this activity within the 5 minute timeframe and thus RCIC would be unavailable. In addition to the time issue, the inspector identified several procedure issues that would slow the start-up or potentially prevent operation of RCIC. Precaution step D.2 of QCOP 1300-09 stated that, "RCIC operation below 400 gpm should be minimized to limit cycling to Turbine Exhaust check valve." Procedure step F.5.6.c directed the operator to establish RCIC discharge flow less than 400 gpm. These two steps were in obvious disagreement. The Operations department stated that they would revise the procedure to remove the dichotomy.

c. Conclusions

The inspector will verify that procedure QCOP 1300-09 is revised to remove the dichotomy between procedural steps. This is considered an inspector **Open Item [08QC-1QIR-001]**.

1R04.3 Equipment Alignment (IEMA Keystone: Reactor Safety) (71111.04)

a. Inspection Scope

The inspectors performed a walkdown of the Unit 1 control rod drive (CRD) room and determined that the oil levels on several sight glasses for the running and the standby CRD pumps were as much as ½ inch above the maximum allowable levels.

b. Observations and Findings

On March 6, the inspector touring the Unit 1 control rod drive (CRD) room identified that oil levels on several sight glasses for the running and the standby CRD pumps were as much as ½ inch above the maximum allowable levels, as marked on the pump. An informal engineering review was performed and documented by the licensee that stated that while the oil levels were high and "although it is not the perfect situation" that this was considered acceptable. The inspector and the engineer have been unable to reconvene at this time to resolve this issue.

c. Conclusions

The inspector will continue to investigate why the system engineer feels that the high CRD pump oil levels are acceptable. This is considered an inspector **Open Item [08QC-1QIR-002]**.

1R04.4 Equipment Alignment (IEMA Keystone: Reactor Safety) (71111.04)

a. Inspection Scope

The inspectors performed a walkdown of the Unit 1 reactor building, the operating unit, and noticed that a pipe hanger (for a Torus vent line) was oscillating under the pipe that it apparently should have been supporting.

b. Observations and Findings

On March 20, the inspector, while touring the Unit 1 reactor building, noticed that a pipe hanger (for a Torus vent line) was oscillating under a portion of pipe that apparently it should have been supporting. The inspector noticed a second, newer looking, set of pipe hangers on this line also, but the hanger in question was the same as the one on Unit 2. The inspector brought this condition to the attention of the licensee's engineering department whose response was that Unit 1 underwent a modification that added the new stronger hangers because of increased calculated loads, and the old hangers were no longer credited with a support function. Therefore, the lack of support by the hanger in question was not an issue since the support function of the hanger was no longer needed. The inspector then questioned the engineer as to why the Unit 2 supports were not the newer style like those found on Unit 1. The response to the inspector was that most likely the calculated piping loads associated with each unit were not the same. IR 752598 was initiated for this issue and subsequently closed. The inspector will further investigate the Unit 2 hangers to verify that they meet design.

c. Conclusions

The inspector will perform a follow-up investigation on the design difference in hangers between Unit 1 and 2 for the Torus vent line to verify that Unit 2 does meet its design requirement. This is considered an inspector **Open Item [08QC-1QIR-003]**.

1R05 Fire Protection (IEMA Keystone: Reactor Safety) (71111.05)

a. Inspection Scope

The inspector evaluated the licensee's fire protection program for operational status, and material condition and verified the adequacy of:

- Controls for combustibles and ignition sources within the plant
- Fire detection and suppression capability
- Material condition of passive fire protection features

b. Observations and Findings

The inspector made several tours of the Quad Cities power block over the quarter and each time looked for deficiencies within the fire protection program. Because the licensee had in the past identified several scaffolds that were built for the Unit 2 refuel outage that blocked access to fire protection equipment, the inspector paid particular attention to that potential, however no additional deficiencies were identified.

The inspector reviewed Exelon procedures OP-AA-201-004 rev 7, Fire Prevention for Hot Work, and OP-AA-201-009 rev 6, Control of Transient Combustible Material for this inspection period to assist in assessment of items found in the plant. No deficiencies were noted.

c. Conclusions

There were no significant inspector issues associated with this inspection activity.

1R13 Maintenance Risk Assessment & Emergent Work Evaluation (IEMA Keystone: Reactor Safety) (71111.13)

a. Inspection Scope

The inspector monitored the licensee's on-line risk assessment on a continued basis.

b. Observations and Findings

The inspector monitored the on duty shift activities concerning risk assessment practices during scheduled plant maintenance and emergent work activities. The on-shift supervisors updated the on-line risk

assessments to appropriate levels when plant conditions warranted and it was their practice to consult the Station Risk Coordinator in the event they encountered an equipment configuration not previously evaluated.

During Unit 2 Refuel Outage Q2R19, the inspector reviewed on a daily basis the risk evaluations associated with the shutdown unit.

c. Conclusions

There were no significant issues associated with this inspection activity.

1R19 Post Maintenance Testing (IEMA Keystone: Reactor Safety) (71111.19)

a. Inspection Scope

The inspector reviewed several surveillances performed to verify post-maintenance testing was adequately performed to verify system operability, and functional capability.

b. Observations and Findings

On January 24, the inspector reviewed QCOS 1300-05 rev 43, RCIC Pump Operability (IST), performed on January 22, to verify that the RCIC system was operable following controller replacement. The surveillance was performed adequately and demonstrated RCIC operability however several procedure deviations were identified. On step H.8.a, MO 1-1301-53 is to be opened 19 turns, a hand initiated note in the surveillance results indicate that the valve was opened 19.5 to 20 turns. The intention of this step is to establish a starting discharge pressure for the test. The valve is later throttled as necessary in step H.20.c. to fine tune discharge pressure. A procedure step change was given to the procedure writers group to incorporate prior to the next performance of the surveillance.

c. Conclusions

There were no significant issues associated with this inspection activity.

1R20.1 Refuel and Outage Activities (IEMA Keystone: Reactor Safety) (71111.20)

a. Inspection Scope

The inspector evaluated licensee outage activities during the Unit 2 Refuel Outage Q2R19, to verify that the licensee considered risk in developing outage schedules; controlled plant configuration; and adhered to operating license and technical specification requirements that ensure defense-in-depth.

The inspectors also ensured areas not accessible during at-power operations were inspected, especially the safety-related and risk significant Structures, Systems, and Components (SSCs).

b. Observations and Findings

Over the course of the Unit 2 Refuel Outage, the inspector toured plant areas not accessible during plant operations. Issues identified are discussed within this section. The areas toured include:

- Unit 2 Torus
- Unit 2 Drywell
- Unit 2 Turbine Low Pressure Heater bay
- Unit 2 High Pressure Heater room
- Unit 2 MSIV room

On March 4, the inspector monitored Inservice Inspection (ISI) of an Emergency Core Cooling System (ECCS) ring header suction pipe weld between the ring header pipe and the torus. This weld inspection was performed using magnetic particle test method and was performed in the area of the Torus basement within a contaminated zone. No issues were observed.

On March 4, the inspector also identified that the high radiation area locked gate in the High Pressure Coolant Injection (HPCI) room was positioned directly below an identified "Hot Spot". The inspector discussed this with Radiation Protection (RP) personnel and they felt that this practice was sanctioned for the following reasons:

1. There was no other place to put the gate
2. It would be costly to have engineering evaluate the pipe to install lead shielding
3. The "Hot Spot" wasn't really a hot spot so there was no need to worry about excessive personnel exposure. Dose from the "Hot Spot" was 6 mr and adding the lead lowered it to 2 mr.

The inspector discussed with Radiation Protection (RP) personnel the counter As Low As Reasonably Achievable (ALARA) implication created by this practice. RP decided that since HPCI was out of service, lead

shielding could be installed on the piping above the exit gate. An IR 757858 was initiated on this issue.

On March 20, the inspector monitored control room activities for the Unit 2 reactor hydrostatic test (hydro) per QCOS-201-8 rev 43; Reactor Vessel Class 1 and Associated Class 2 System Leak Test. The inspector monitored the press-up to test pressure and concluded that the press-up portion of the hydro test had been completed successfully. There were no issues associated with this activity.

On March 21, the inspector, along with the Shift Foreman, performed what was intended to be, the final Torus material condition closeout inspection per QCOS 1600-32 revision 11, Drywell/Torus Closeout. During this walkdown several foreign material items were identified floating on the surface of the Torus water. These items included:

- Ear plugs
- Electrical tape
- String
- Pieces of Rubber Gloves
- What turned out to be dirt

Those items were removed from the Torus and a second walkdown was performed (without NRC or IEMA due to time of day and decision of SRI) closing out the Torus. A licensee evaluation of the foreign material stated that the operability of the ECCS systems was not affected. IR 753127 was initiated on this issue.

On March 26, the inspector attended the 3 pm Plant Operations Review Committee (PORC) meeting to consider the authorization of the Unit 2 restart per OP-AA-108-108 revision 8, Unit Restart Review. The major portion of the meeting involved discussions of the results of the snubber testing that yielded eight failed snubbers and the subsequent inspection scope increase; and the results of the 10CFR50 Appendix J leak rate testing, both the local and integrated leak rate tests. After the PORC accepted those items, the balance of the meeting was spent determining how large of a scope of work was left and if it was small enough, and properly captured and scheduled, to allow Operations department to manage this work to assure a smooth startup. The conclusion from the PORC was that the outstanding items were larger in number than normal, but acceptable.

The inspector identified several other minor items that are documented below for trending purposes.

- On March 4, while touring the turbine building, the inspector identified a catch basin under Fire Protection valve 2-4199-172 (TB 626 column C-10 & C-11) that had the discharge tubing going from a clean area into a contaminated area then back into the clean area; then to a drain. This tubing could easily have been routed along the outside of contaminated boundary with no increase in tubing length. The inspector pointed this out to Radiation Protection and they rerouted the tubing.
- On March 13, the inspector spotted a worker building a scaffold directly above the 2C Motor Driven Feedwater pump who was wearing a safety harness, but the harness tie-off was anchored at his feet as opposed to above the head and shoulders. After the worker saw the inspector, he moved his anchor to a beam above his head, like his fellow scaffold builders. The inspector informed the OCC and they investigated the issue. No IR was initiated.
- During work on the 2B Residual Heat Removal (RHR) System, the 1A RHR system room was used as a staging area. The issue here was that 1A RHR was protected equipment and workers were storing supplies on top of and around the Limitorque operator for valve 1-1001-5A. The inspector informed the Shift Manager and he stated he would have the shift foreman monitor the area to protect the equipment. Per Exelon procedure WC-AA-101, On-Line Work Control Process revision 14, "no maintenance work or testing is allowed that would render the component incapable of performing its intended function". The shift foreman stated that the material left on the valve operator would not have prevented the valve from performing its intended function. He stated that he would continue to monitor that area while it was protected equipment. This condition repeated until work was complete in the 2B RHR room.
- On March 17, while leaving the Unit 1 Torus room, the inspector elected to exit via the 1A RHR room so that 2B RHR work progress could be observed. Access to the 2B RHR room is via the Torus room or the 1A RHR room. Most of the 2B RHR room is a High Radiation/Contaminated-Zone area. After looking into the 2B RHR room for a few minutes, the inspector left and went up to 595' (ground floor exit) where the door was secured by rope from the outside along with a sign stating "CRUSH HAZARD". The contract outage workers on the other side asked the inspector where he came from and how he got into the room. The inspector told them from the watertight door from the Torus room on the basement level. The contract outage workers were unaware of the door from the Torus basement and thought that the 595' elevation entrance was the only access. The workers were at the 595' entrance to control access into the 2B RHR

room because they were lifting and setting the floor plugs above the 2B RHR heat exchanger. They were concerned that the inspector was able to get into the 2B RHR room without their knowledge. They stated that they would send someone to the basement when the lifting began to stop anyone else. The workers did not know the plant layout well enough to control the 2B RHR room access, especially during a hazardous lift. No IR was initiated.

- On March 17 the inspector observed that a fan was in use on the Refuel floor inside the contaminated area to provide a cool environment to the workers in that area. The inspector questioned RP personnel who turned the fan off, and then they explained that the fan was allowed by procedure RP-QC-466 revision 1, Use of Portable Air Moving Equipment in Radiologically Controlled Areas. This procedure allowed the use of a fan in contaminated areas up to 50K. The inspector's concern was that the fan could have created an airborne inhalation hazard for the workers. The inspector could not find any regulation or policy preventing this practice.
- On March 18, the inspector identified a cart in the Unit 1 Standby Liquid Control System room, which was not secured to the extent to prevent the wheels from rotating and the cart moving. The inspector contacted the Outage Control Center (OCC) and was later informed that the cart was properly secured per the procedure. The inspector researched the procedure, MA-AA-716-026 revision 5; Station Housekeeping / Material Condition Program, and found that page 12 stipulated the Exelon cart restraint requirements. The procedure stated that, "RENDER all rolling equipment or furniture (cart, table, bottle-dolly, etc.), immobile and unable to rotate in any direction, using any of the appropriate methods". The cart was not secured per the requirements of this procedure but when returning the next day the cart had been removed from the area. No IR was initiated.

c. Conclusions

Observations of licensee performance that was questionable commensurate with their procedures and policies were discussed with the appropriate licensee personnel. There were no significant issues associated with this inspection activity.

1R20.1 Refuel and Outage Activities (IEMA Keystone: Reactor Safety) (71111.20)

a. Inspection Scope

The inspector while reviewing IR 745343 questioned the conclusion that the IR could be closed to trending without further investigation.

b. Observations and Findings

On March 7, the inspector reviewed IR 745343 which described a 15 drops per minute (dpm) water leak from the NW corner of the Spent Fuel Pool liner. The IR concluded that the leak was acceptable because four Fuel Pool Cooling pumps were operating. The inspector talked to the system engineer and was told that Unit 1 has a known leak when operating with four Fuel Pool Cooling pumps. The surveillance procedure, QCTS 0820-11 revision 2, Surveillance of Dryer-Separator Pool, Spent Fuel Pool, and Drywell Liner Drains, used to monitor the liner flows has an acceptance criteria that states "NO evidence of running water in liner drains". On March 11, the inspector proceeded to the pool liner drains and visually observed 12 of 18 of the liner drains for indication of flow. Six liner drains were in a High Radiation Area and were not accessible for observation. Of the six drains on Unit 1, the liner drain flows were as follows:

- NW – pencil stream flow
- SW – ~30 dpm
- Drain 4 – 0
- Drain 3 – 0
- Drain 2 – 0
- Drain 1 – 0 > but < 1 dpm

Of the six drains on Unit 2, the liner drain flows are as follows:

- NW – 7 dpm; down from the IR identified 15 dpm
- SW – ~4 dpm
- Drain 4 – 0
- Drain 3 – 0
- Drain 2 – 0
- Drain 1 – 0 > but < 1 dpm

The inspector then found that there was an engineering justification from a previous troubleshooting effort performed on Unit 1 that showed that the Unit 1 leakage was from a leak in the Unit 1 scupper drain trough and would not have the capability to drain the spent fuel pool. There was no equivalent evaluation performed on Unit 2, as this was newly identified leakage. IR 74833 was initiated to perform troubleshooting to identify the location of the Unit 2 fuel pool liner leakage.

c. Conclusions

The inspector will continue to follow up on the spent fuel liner issue until the issue is resolved. This is considered an inspector **Open Item [08QC-1QIR-004]**.

1R22 Surveillance Testing (IEMA Keystone: Reactor Safety) (71111.22)

a. Inspection Scope

The inspector verified that surveillance testing of risk-significant systems, and components demonstrated that the equipment was capable of performing its' intended safety function and enabled the equipment to be considered operable.

b. Observations and Findings

On January 29, the inspector reviewed the operability surveillances for the Unit 2 Emergency Diesel Generator and associated cooling water pump. The inspector reviewed the following completed surveillances:

- QCOS 6600-42 rev 27; Unit 2 Emergency Diesel Generator Load Test,
- QCOS 6600-06 TIC 1975; Diesel Generator Cooling Water Pump Flow Rate Test,
- QCOS 6600-03 rev 19; Diesel Fuel Oil Transfer Pump Monthly Operability.

The results of these tests were satisfactory and the inspector had no issues.

On February 28, the inspector observed the performance of surveillance QCOS 1100-07 revision 29; SBLC Pump Flow Rate Test for the 1B Standby Liquid Control (SBLC) System pump. The following day the inspector reviewed the completed surveillance documentation. The result of the test was satisfactory and the inspector had no issues.

c. Conclusions

There were no significant issues associated with this inspection activity.

**2 RADIATION SAFETY**

2PS Public Radiation Safety

2PS3 Environmental Monitoring Program (REMP) and Radioactive Material Control Program: (IEMA Keystone: Public Radiation Safety) (71122.03)

a. Inspection Scope

The inspector verified that the Radiological Environmental Monitoring Program (REMP) analyses the impact of radioactive effluent releases to the environment and sufficiently validates the integrity of the radioactive gaseous and liquid effluent release program and ensures that the licensee's surveys and controls are adequate to prevent the inadvertent release of uncontrolled radioactive contaminants into the public domain.

b. Observations and Findings

The inspector reviewed several IRs that showed that the extreme winter temperatures had an impact on the REMP sample collection. On February 21 and 29, REMP samples were incomplete due to a door being frozen shut and not able to be opened, for sample Q-03. Failure to capture this sample, at this time is not significant and deviations are allowed by the Offsite Dose Calculation Manual (ODCM). With the warmer temperatures, samples from Q-03 have resumed. These events were documented in IRs 739290 and 747667.

The inspector reviewed IR 742303, that documented water found in the north manhole #3 and in the south manhole #4. The IR made no mention of Tritium sampling. The inspector verified that the ground water was sampled for Tritium prior to pumping out per work order 1088726.

On December 19, 2007, the licensee determined that following several months of sampling, that there was a leak of water with Tritium under the plant service building (IR 713762). In January, the decision was made to install a new well and pump in an attempt to pull the tritiated water from the ground. Approximately 500 – 1000 gpd of water will be pumped to the radwaste waste treatment system, which will necessitate approximately one effluent discharge per month from this system to the station cooling water discharge (IR 728660). On March 5, 2008, the temporary pump was started and began to remediate the tritiated groundwater. The license's intention is to operate the pump approximately 10 hours per day. On March 25, the pump failed and a new pump has been ordered.

On February 25, 2008, the Illinois Environmental Protection Agency (IEPA) visited the Quad Cities Station for their quarterly inspection. The following is an update of activities since the previous visit of November 14, 2007.

### Service Building Area:

- Six of the stations' eight underground pipes were guided wave tested and three were Helium gas tested.
- The 24" U-1 RHR pump suction pipeline was drained to determine if this action would alter groundwater Tritium concentrations. Concentrations dropped (Wells QC – GP – 2 & 5), but the river elevation was also high at the time of this action, which may have pushed the plume of contamination away from the service building area monitoring wells. This line will be drained again in June/July, capped and pressure tested. This line primarily provides a path to move contaminated condensate make-up water between systems during outages.

### Well Sampling Activity Outside Protected Area:

- The only change noted in groundwater sampling results was increased Tritium in the three monitoring wells located near the sanitary Waste Water Treatment Facility which is located on the southwest corner of the owner controlled area. The well samples appear to confirm the idea that the Tritium plume is moving in this direction. Off-site wells continue to show no contamination.
- No evidence of any leakage has been found around the radioactive waste treatment area and no off-site plume migration is occurring.

#### c. Conclusions

There were no significant issues associated with this inspection activity.

## 4 **ALL Cornerstones**

### 40A2 Identification and Resolution of Problems: (IEMA Keystone: ALL) (71152)

#### b. Inspection Scope

The inspector reviewed corrective action documents to determine if the licensee is in compliance with NRC regulations regarding corrective action programs. The inspector also verified that the licensee is identifying operator workarounds at an appropriate threshold and entering them in the corrective action program.

b. Observations and Findings

The inspector reviewed every Issue Report (IR) initiated during the quarter to assess whether the site was properly identifying issues. Additionally, the inspector selected several IRs for in-depth review. The sample IRs assessed were:

- IR 725297; Hi-Storm Vent Ducts Snow Covered,
- IR 744252; PSU Q2R19 LLRT of 203-1A Exceeds TS limit < 34 SCFH,
- IR 744257; PSU Q2R19 LLRT of 203-1D Exceeds TS limit < 34 SCFH,
- IR 744258; PSU Q2R19 LLRT of 203-1C Exceeds TS limit < 34 SCFH,
- IR 747103; Unusual Q2R19 LLRT Results Prompt MSIV Re-Test,
- IR 747067; U2 Inboard Loop MSIV Leakage Step Jump

The inspector also reviewed a sample of Engineering Changes (EC) documents:

- EC 369936; OP Eval For U1 HPCI Restricting Orifice Flanges
- EC 368965; GL 86-10 Evaluation – Justification for FME in Cable Tray Riser

The inspector reviewed a sample of Quick Human Performance Investigation Reports:

- From IR 724556; Inadequate C/O initiated to perform FC on U1 EDG CWP,
- From IR 723253; Inner Security Gate (South half) was damaged during movement of railcar with QC U2 Main Power Transformer through the gate.

The inspector reviewed each of the above documents in detail, discussed them with applicable site personnel, and reviewed the applicable governing documents, i.e. Technical Specifications, UFSAR, 10CFR. No issues were found.

c. Conclusions

There were no significant issues associated with this inspection activity.

## INSPECTION PROCEDURES USED

The following procedures were used to perform inspections during the report period. Documented findings are contained in the body of the report.

### Inspection Procedure

<u>Number</u>	<u>Title</u>	<u>Section</u>
IP 71111-04	Equipment Alignment	R04
IP 71111-05	Fire Protection	R05
IP 71111-13	Maintenance Risk Assessments and Emergent Work Evaluation	R13
IP 71111-19	Post Maintenance Testing	R19
IP 71111-20	Refuel and Outage Activities	R20
IP 71111-22	Surveillance Testing	R22
IP 71122-03	Environmental Monitoring Program (REMP) and Radioactive Material Control Program	PS3
IP 71152	Identification and Resolution of Problems	OA2

### LIST OF ACRONYMS AND INITIALISMS USED IN REPORT

10CFR	Title 10 Code of Federal Regulations
ATR	Administrative Technical Requirements
CRD	Control Rod Drive
DGCWP	Diesel Generator Cooling Water pump
ECCS	Emergency Core Cooling System
EDG	Emergency Diesel Generator
gpd	gallons per day
HPCI	High Pressure Coolant Injection
IEMA	Illinois Emergency Management Agency
IEPA	Illinois Environmental Protection Agency
IR	Incident Report
IRM	Intermediate Range Monitor
ISI	In-Service Inspection
MO	Motor Operated Valve
MSIV	Main Steam Isolation Valve
NRC	Nuclear Regulatory Commission
NW	Northwest
OCC	Outage Control Center
QCOS	Quad Cities Operating Surveillance

ODCM	Offsite Dose Calculation Manual
OPS	Operations Department
PMT	Post Maintenance Testing
PORC	Plant Operating Review Committee
REMP	Radiological Effluent Monitoring Program
RHR	Residual Heat Removal System
RHRSW	Residual Heat Removal Service Water
RP	Radiation Protection
SBLC	Standby Liquid Control System
SRI	Senior Resident inspector
SSMP	Safe Shutdown Make-Up Pump
SSC	Structures, Systems, and Components
SW	Southwest
TB	Turbine Building
TS	Technical Specifications
UFSAR	Updated Final Safety Analysis Report