



Illinois Emergency Management Agency
Division of Nuclear Safety

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

June 26, 2008

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

Attention: Mr. James McGhee

SUBJECT: IEMA - Bureau of Nuclear Facility Safety, Inspection Report
Quarterly Inspection Period: April 1 to June 30, 2008

Dear: Mr. McGhee,

On June 26, 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 Adverse Weather (R01), Equipment Alignments (R04), Fire Protection (R05), Flood Protection (R06), Maintenance Effectiveness (R12), Maintenance Risk Assessment and Emergent Work Evaluation (R13), Operability Evaluations (R15), Evaluations of Changes, Tests, or Experiments and Permanent Plant Modifications (R17), Post Maintenance Testing (R19), Surveillance Testing (R22), Drill Evaluation (EP6), 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.





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Based on the results of this inspection, the inspectors identified no IEMA-BNFS Open / Follow-up Items.

In addition, the following IEMA Inspector items that were being tracked by IEMA, are considered **Closed** to further review and are discussed within their respective report reference ():

1. Investigation into why the system engineer feels that out of normal range CRD pump oil levels are acceptable. (1R04.2)

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

Docket Nos. 50-254; 50-265
License Nos. DPR-29; DPR-30
Enclosure(s): Inspection Report: 08QC-2QIR
cc w/o encl: A.C. Settles, Chief Division of RICC
C.H. Mathews, IEMA-BNFS-RI



IEMA INSPECTION REPORT SUMMARY
08QC-2QIR

STATION: Quad Cities	UNIT 1 – DOCKET NO: 50-254 UNIT 2 – DOCKET NO: 50-265
IEMA INSPECTORS:	Charlie Mathews
INSPECTION DATES:	April 1 through June 30, 2008
DATE SUBMITTED TO NRC:	June 26, 2008
NRC REPORT NUMBER:	2008-003
INSPECTION HOURS:	100
INSPECTION SUBJECT:	Safety Inspection of the Quad Cities Nuclear Power Station
VIOLATIONS:	None
OPEN ITEMS:	None
UNRESOLVED ITEMS:	None
ITEMS CLOSED:	

Investigation into why the system engineer feels that out of normal range CRD pump oil levels are acceptable. [1R04.2]

Report Details

Plant Status

Unit 1

Unit 1 operated the entire inspection period at near 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 and condenser flow reversals. Additionally, power reductions were performed for the following reasons:

1. On April 12 to 14, reactor power was reduced to 260 MWe to repair the position indicator on main turbine control valve #1, and to add oil to the 1A Reactor Recirculation pump motor lower bearing.
2. On May 10 to 11, reactor power was lowered to 400 MWe to swap Steam Jet Air Ejectors (SJAE), shuffle control rods, and perform hot scram testing of control rods.
3. On May 24 to 25, reactor power was lowered to 730 MWe, for turbine testing.
4. On June 4 and 5 reactor was dropped to 730 MWe due to failure of the outer seal of the 1C reactor feedwater pump.

Unit 2

Unit 2 began the inspection period at 400 MWe in power ascension, returning to full power following Refuel Outage Q2R19 and reached full power on April 3, 2008. Small power reductions were performed as required to facilitate planned control rod maintenance activities and condenser flow reversals. One significant power reduction occurred on May 18, when power was dropped to 700 MWe to perform turbine testing and a control rod pattern adjustment.

1. REACTOR SAFETY

Initiating Events, Mitigating Systems, Barrier Integrity

1R01 Adverse Weather (IEMA Keystone: Reactor Safety) (71111.01)

a. Inspection Scope

The inspector focused on verifying that the plant design features and implementation of the licensee's procedures protect mitigating systems from adverse weather effects. Prior to adverse weather onsite, the inspector verified that mitigating strategies were in place and following seasonal

and/or storm-related adverse weather conditions, verified that the site response was as directed by their procedures.

Due to greater than normal seasonal river flooding, the inspector verified that the licensee's flooding mitigation plans and equipment were consistent with the licensee's design requirements and the risk analysis assumptions.

b. Observations and Findings

Over the quarter the site experienced eight Thunderstorm Warnings, four Tornado Watches, and three Tornado Warnings. During this time, the inspector reviewed Exelon procedures QCOA 0010-10 rev 18, TORNADO WATCH / WARNING, SEVERE THUNDERSTORM WARNING, OR SEVERE WINDS, and OP-AA-108-111-1001 rev 3, SEVERE WEATHER AND NATURAL DISASTER GUIDELINES, to determine what was expected at Quad Cities.

Due to expected high winds, on June 4 and June 6, the inspector toured outside areas of the plant looking for items that could be potential missiles during high winds. On June 4, the inspector identified several items that had the potential of becoming missiles during high winds and the volume of items was greater than could be stowed when QCOA 0010-10 was entered. A list of these items was turned over to the operations department. The operations department initiated IR 783795 to document the items identified. The June 6 follow-up walkdown found that only the "Versa Guards" (small expandable gates) were removed. All others were dispositioned as not a missile hazard or placed on the Plan of the Day (POD) Housekeeping report to be removed. After discussing the items found and the site response, the NRC Senior Resident Inspector talked with the plant manager about the volume of items found and the fact that the site had been in QCOA 0010-10 several times prior to June 4 and these items had not previously been identified.

On May 13, 2008, the inspector reviewed the May 8, 2008 letter titled "Quad Cities Generating Station Certification of 2008 Summer Readiness". The inspector upon review of the document, and procedure WC-AA-107, rev 5, Seasonal Readiness, concludes that Quad Cities Station is adequately prepared for operation during the 2008 summer season.

c. Conclusions

While licensee performance appeared below their standard of expectation, there were no significant issues identified during this inspection activity.

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
- 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
- Shutdown Makeup pump (SSMP) Room
- Unit 1, Unit 2, and Unit ½ Emergency Diesel Generator (EDG) Rooms
- Refuel Floor
- Unit 1 & 2 Station Blackout Diesel Generator rooms

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 May 28, 2008 the 1/2 Diesel Generator (DG) was designated as protected equipment due to the 1B Residual Heat Removal System (RHR) Heat Exchanger and the Unit 1B Residual Heat Removal Service Water (RHRSW) System being out of service for scheduled maintenance. At this time, the inspector performed a walkdown of the DG to verify is standby lineup per procedure QCOP 6600-04 rev 27, DIESEL GENERATOR ½ PREPARATION FOR STANDBY OPERATION. The inspector did not identify any issues with this verification of the ½ DG standby lineup.

On May 30, 2008, the 1A Residual Heat Removal System (RHR) was designated as protected equipment due to the 1B RHR system being out of

service for performance of surveillance QCOS 1000-04 rev 48, RHR SERVICE WATER PUMP OPERABILITY TEST, and QCOS 1000-06 rev 44, RHR PUMP/LOOP OPERABILITY TEST. At that time, the inspector performed a walkdown of the 1A RHR system to verify its standby lineup per procedure QCOP 1000-02 rev 24, RHR SYSTEM PREPARATION FOR STANDBY OPERATION. Due to similarities with the 1A RHR system, the inspector also verified the standby lineup of the 2A RHR system. The inspector did not identify any issues with this verification of the 1A or 2A RHR standby lineups.

On June 2, 2008 while touring the Unit 1 & 2 Torus and Reactor Building basement corner rooms, the inspector identified a water puddle just south of the 2A RHR Heat Exchanger (Hx). The inspector looked for but did not see an active leak, however the puddle was in a contaminated area and the inspector did not enter the area. The inspector relayed this information to the Radiation Protection (RP) shift Supervisor who had it investigated. The leak was determined to be approximately 2000 dpm/cm² contaminated, which was approximately the contamination level of that area. The RP Technician that investigated the puddle could not locate a leak and suspected that the leak was from ground water. Due to the contamination level of the water and the general area and since no leak was observed, the inspector concurred that the leak was probably ground water.

On June 8, 2008, the inspector while reviewing the operations logs read that the Unit 2 Phase Bus Duct temperatures, read locally, for June 7 and 8, were roughly 13 °F above those on the plant process computer that are read in the control room. The inspector discussed this with the operations Unit Supervisor and it was explained by operations that the computer points and the local temperatures on the Phase Bus Duct System are from different locations on the Phase Bus Duct and that this temperature difference was not unusual. Unit Supervisor also explained that the annunciator is at a higher temperature than the computer points and those that are read locally. The inspector reviewed QCAN 901(2) -8 G-11 rev 14, ISOLATED PHASE BUS TEMPERATURE HIGH, and concurred with Unit Supervisor that there was no issue.

c. Conclusions

There were no significant issues identified during this inspection activity.

1R04.2 Equipment Alignment (IEMA Keystone: Reactor Safety) (MC 2515D)

a. Inspection Scope

(Closed) Open Item 08QC-1QIR-002: Investigation into why the system engineer feels that out of normal range CRD pump oil levels are acceptable.

b. Observations and Findings

On March 6, the inspector, while 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 their 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 as acceptable.

The inspector discussed this condition with engineering, reviewed the vendor manual, and from that research determined that a high oil level is not good, but if were to become a problem, the bearings would begin to heat up. The inspector was satisfied with the licensee’s explanation for this issue. This open item is therefore considered closed.

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 while on tour, verified compliance with the licensee’s fire protection program per procedures OP-AA-201-004 rev 7, Fire Prevention for Hot Work, and OP-AA-201-009 rev 6, Control of Transient Combustible Material. Because the licensee had in the past identified issues with equipment or scaffolds that blocked access to fire protection equipment, the inspector paid particular attention to that potential, however no additional deficiencies were identified.

c. Conclusions

There were no significant issues identified during this inspection activity.

1R06 Flood Protection Measures (IEMA Keystone: Reactor Safety) (71111.06)

a. Inspection Scope

Due to high river levels on the Mississippi River, the inspector reviewed the licensee's flooding mitigation plans and supporting documentation.

b. Observations and Findings

With Mississippi River levels above normal the entire quarter and exceeding 580' for 21 days of the quarter, the inspector reviewed the plant flood procedure QCOA 0010-16 rev 12, FLOOD EMERGENCY PROCEDURE. Entry into QCOA 0010-16 occurs when river level exceeds 586' as measured at the plant intake bay. QCOA 0010-16 step D.10.j, states that "When the water level is within a foot of grade level, then open all plant doors to allow water to fill plant areas and equalize pressure on building walls."

The inspector did not believe that flooding all of the plant emergency system pump rooms was what was intended by the procedure. The inspector therefore reviewed UFSAR section 2.4, HYDROLOGIC ENGINEERING; UFSAR section 3.4 WATER LEVEL (FLOOD) DESIGN; UFSAR section 3.6, PROTECTION AGAINST DYNAMIC EFFECTS ASSOCIATED WITH THE POSTULATED RUPTURE OF PIPING; and Quad Cities Station Units 1 and 2, Special Report No. 12, Revision 1, February 1975 (including Appendix E to the Report which was submitted on November 1977) titled "Analysis of Effects of Pipe Break Outside the Primary Containment" for additional information.

From the inspector's research, the inspector determined that the Quad Cities plan on plant flooding due to high river level was to shutdown the reactor 72 hours prior to the flood, remove the reactor vessel head, flood the reactor head cavity, and remove the gates between the fuel pools. By those previous actions, the licensee felt that they could loose the Emergency Core Cooling System (ECCS) pumps and rely solely upon the pool volume and portable pumps to maintain adequate core cooling.

c. Conclusions

There were no significant issues identified during this inspection activity.

1R07 Heat Sink Performance (IEMA Keystone: Reactor Safety) (71111.07)

a. Inspection Scope

The inspector reviewed the latest safety related heat exchanger (directly connected to the ultimate heat sink (UHS)) performance surveillance to verify heat exchanger performance and to identify any potential heat exchanger deficiencies which could mask degraded performance were identified.

b. Observations and Findings

On June 10, 2008, the inspector reviewed completed work order #837654 which directed the performance of surveillance QCOS 1000-29 rev 10, RHR HEAT EXCHANGER THERMAL PERFORMANCE TEST. The inspector reviewed the test results and no deficiencies were identified

c. Conclusions

There were no significant issues identified during this inspection activity.

1R12 Maintenance Effectiveness (IEMA Keystone: Reactor Safety) (71111.12)

a. Inspection Scope

The inspector monitored the licensee's maintenance effectiveness including Maintenance Rule activities, work practices, extent of condition, common cause issues, and corrective actions to verify that the site appropriately addressed SSC performance and condition problems.

b. Observations and Findings

Through out the quarter, the inspector performed equipment configuration alignment and general area inspections in the following plant areas:

- Both Unit HPCI Rooms
- Unit 1&2 ECCS Pump Rooms

- Unit 1, Unit 2, and Unit ½ EDG Rooms

During these walk down inspections of maintenance rule 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 May 19, 2008, the inspector performed a tour of the Unit 1 & 2 Torus basements and corner rooms. On this tour, the inspector identified a puddle of oil under the 1B Core Spray (CS) pump motor. The inspector brought this observation of the oil leak to the operations Shift Forman. The Shift Forman walked down the area and verified the oil leak, determined that the leak was undocumented and initiated IR 777382. Oil levels in the 1B CS motor bearings were determined to be within specification and the leak was added to an earlier work order to repair another oil leak on the 1B CS pump motor.

On May 21, 2008, the inspector toured the U1, U2, & ½ DG rooms. In the Unit 1 DG room, the inspector identified 2 old deficiency tags. The first deficiency tag was 17 months old and was initiated to describe a scavenging pump oil leak that appeared to be corrected. The IR referenced on this tag was 536826. The second deficiency tag was 7 months old and was initiated regarding a concern with the fast charge light being on, for an Appendix R Emergency Light Pack. The deficiency tag stated "TBD" for the IR number.

These concerns were turned over to the operations Shift Forman. The operations Shift Forman investigated these two issues and determined that while there was no clear paper trail, that the oil leak had been repaired 15 months prior.

The operations Shift Forman also informed the inspector that the IR associated with the Appendix R Emergency Light Pack deficiency tag had been closed and that the fast charge normally comes on, at times, and that he would monitor it.

The inspector reviewed Exelon procedures MA-AA-723-350 rev 7, EMERGENCY LIGHTING BATTERY PACK QUARTERLY

INSPECTION, and QCEPM 0300-01 rev 21, SEMI-ANNUAL INSPECTION OF NON 8-HOUR EMERGENCY LIGHTING PACK (WET CELL TYPE) to determine the proper operation of the emergency light packs and if it was normal for the fast charge light to illuminate in the standby condition. The inspector determined that this condition was normal on the day of the inspection observation and on May 22, 2008, the inspector verified that the fast charge light was off.

c. Conclusions

There were no significant issues identified during 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.

c. Conclusions

There were no significant issues identified during this inspection activity.

1R15 Operability Evaluation (IEMA Keystone: Reactor Safety) (71111.15)

a. Inspection Scope

The inspector reviewed the operability evaluations for the 0 Diesel Generator Cooling Water (DGCW) pump and for the derate all three Diesel Generators, to ensure that operability is properly justified and the component remained available, such that no unrecognized increase in risk had occurred.

b. Observations and Findings

On April 14, 2008 the inspector reviewed operability evaluation #759807 on the 0 DGCW pump. The issue of concern was the failure of the 0 DGCW pump from successfully completing surveillance QCOS 1000-47, due to the suction pressure being too high. Through review of the operability evaluation and discussions with the system engineer, the inspector learned that the pump impellers for all DGCW pumps had been previously replaced and that the new surveillance procedure acceptance criteria had not been revised into QCOS 1000-47 prior to the current surveillance performance. The procedure had not been revised in time because this performance was not the scheduled interval surveillance, but instead was being performed as a post maintenance test (PMT).

On April 15, 2008, the inspector reviewed operability evaluation #762327 concerning the vendor notification of a potential generator output derate for the all three emergency Diesel Generators, at Quad Cities, when ambient air inlet temperatures exceed 90°F. The operability evaluation goes on to state that with outside air temperatures above 90°F, and upon the automatic-start of the diesel generator on a loss of normal offsite power to the emergency bus, that for a short time, the diesel generator would be loaded to beyond its capability.

The inspector discussed this with the system engineer on May 7, 2008, and was assured that while the diesel generator would be overloaded for a short time, the vendor was satisfied that there would be no long term damage to the DGs and that the voltage and frequency would settle into specification after the last of the sequenced loads loaded onto the diesel generator powered bus.

c. Conclusions

There were no significant issues identified during this inspection activity.

1R17 Evaluations of Changes, Tests, or Experiments and Permanent Plant Modifications (IEMA Keystone: Reactor Safety) (71111.17)

a. Inspection Scope

The inspector performed a review of the outstanding open plant temporary modifications. This review verified that the evaluations were performed in accordance with 10CFR50.59, that the design bases, licensing bases, and

performance capability of System Structures and Components (SSC) have not been degraded through modifications, that procedures and design and license basis documentation affected by changes have been adequately updated, and that design and license basis documentation was used to support changes.

b. Observations and Findings

On June 10, 2008 the inspector reviewed the open plant modification log looking for the most risk significant modifications from each unit to review further. On June 12, the inspector reviewed three open plant modifications:

EC 369747 – For U0, Jumper bad battery cells on computer uninterruptable power supply (UPS)

EC 365882 – For U1, Install main steam line accelerometers

EC 370100 – For U2, remove control rod over travel alarm

c. Conclusions

There were no significant issues identified during 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 of components that were removed from service for repair or maintenance.

b. Observations and Findings

On May 20, 2008, the inspector reviewed QCOS 6620-11 rev 15, “SBO DG 1(2) Semi-Annual Remote/Local/PLC Bypass Emergency Start Test”, and QCOS 6620-01 rev 31, “SBO DG Quarterly Load Test”, both performed on May 17, 2008, to verify the performance of the Unit 1 Station Blackout (SBO) diesel generator following the engine/generator speed control circuit governor replacement and other preventative maintenance work.

c. Conclusions

There were no significant issues identified during this inspection activity.

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.

b. Observations and Findings

On June 2, 2008, the inspector observed the shutdown portion of the Unit 2 Diesel Generator surveillance QCOS 6600-42 rev 27; "Unit 2 Emergency Diesel Generator Load Test", beginning with step H.5.a.

While attempting to monitor progress with the Unit 2 Diesel Generator surveillance, the inspector encountered several hindrances. The computer point for the Unit 2 Diesel Generator on the computerized engineering workstation was incorrectly coded using the Unit 1 Diesel Generator computer point for output wattage. The inspector was informed that engineering had no money to correct the computer screen and since the engineering workstation is not used for surveillance or safety related work, it did not need to be fixed. The control room entries for the starting and running of the diesel generator, under the surveillance, were not logged into the control room log until the completion of the diesel generator surveillance run. This has been a point of disagreement between IEMA/NRC and the site, with the site sticking to their proceduralized statement that the logs are not official until they have been approved.

The results of the surveillance test was considered satisfactory by the inspector.

c. Conclusions

There were no significant issues identified during this inspection activity.

1EP6 Drill Evaluation (IEMA Keystone: Emergency Preparedness & Planning) (71114.06)

a. Inspection Scope

The inspector evaluated the drill performance of the Technical Support Center (TSC) and the critique.

b. Observations and Findings

On April 15, 2008, the inspector observed the Team "A" TSC drill. The drill went well and the post-exercise critique captured most of the issues from the drill. One weakness noted was a lack of timely and effective communication of plant status to the entire TSC from the TSC Manager. This weakness was identified by the inspector and put forth during the drill critique as a potential shortcoming that could adversely impact the performance of the TSC if management makes a decision when another individual in the TSC has information that could result in a differing conclusion.

c. Conclusions

There were no significant issues identified during 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 performed a verification of the Radiological Environmental Monitoring Program (REMP) analyses with respect to its impact of radioactive effluent releases to the environment. The inspection was performed to validate the integrity of the radioactive gaseous and liquid effluent release program and to ensure 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

On April 10, 2008, the Illinois Environmental Protection Agency (IEPA) issued a Violation notice to the Quad Cities station due to the ongoing Tritium leak from a breach in an underground process pipe within the

licensee protected area. Exelon's response on May 22, 2008, basically stated that IEPA had no jurisdiction over the matter:

On June 10, 2008, the Illinois Environmental Protection Agency (IEPA) visited the Quad Cities Station for their quarterly joint inspection with IEMA. The following is an update of activities since the previous IEPA visit of November 14, 2007.

A Tritium leak was located on the Unit 1 Residual Heat Removal (RHR) underground suction line from the Contaminated Condensate Storage Tank (CCST). This leak appeared to be large enough to have generated the underground Tritium release into the surrounding soil. Radiological readings of the soil around the leak were:

- Soil samples read ~200,000 dpm/cm²
- Isotopically the soil contained Cs-137, Co-60, Mn-54 and Zn-65.
- Tritium contamination was 6.2 million pCi/L

The RHR pipe was completely drained by June 6 to stop the leak. The licensee is still developing a repair plan that will probably include a repair patch over the existing piping.

A review of IRs for the quarter regarding tritium activity from leaking systems showed nothing noteworthy.

c. Conclusions

There were no significant issues identified during this inspection activity.

4 ALL Cornerstones

4OA2 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.

c. Observations and Findings

The inspector reviewed every Issue Reports (IRs) 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 769792; GE part 21 on required Containment Differential Pressure (DP),
- IR 782324; Unit 2 Refuel Bridge Interlock Bypass Switch not in bypass,
- IR 770097; Unit 2 Drywell to Torus Vacuum Breaker 32A Division 1 indicated not closed,
- IR 769270; Improperly Controlled Contingency Weapon in the Protected Area,
- IR 7768382; Unit 1 Control Rod A-10 inserted from position 48 to position 46 when selected,

The inspector also reviewed a sample of an Engineering Change (EC) document:

- EC 370997; Main Steam Line Break Calculation 3C2-0181-001.

The inspector reviewed an Apparent Cause Report:

- From IR 757378; Reactor Recirculation Loop 50 degree Delta-T Limit Exceeded.

The inspector reviewed each of the above documents in detail, discussed the documents 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 identified during this inspection activity.

40A3 Follow-up of Events & NOEDs: (IEMA Keystone: ALL) (71153)

c. Inspection Scope

The inspector followed up on the licensee's response due to a 5.4 magnitude earthquake in southern Illinois and its potential impact upon the station.

b. Observations and Findings

On April 18, 2008 at approximately 4:30 am, a 5.4 magnitude earthquake struck southern Illinois. The United States Geologic Survey (USGS) stated that the epicenter was approximately six miles south east of West Salem, Illinois. The earthquake was felt onsite at approximately 4:36 am in the guard towers on the perimeter of the station, but not in the power block or control room.

Quad Cities Procedure QCOA-0010-09 rev 9, "Earthquake", was entered and licensee personnel were asked to perform plant walkdowns and evaluations. Because there was no apparent indication of an earthquake within the power block, the licensee did not declare an "Unusual Event", as was the case with some neighboring states (Michigan) nuclear sites.

At approximately 10:22 am, guard towers and the service building personnel felt an after shock. Personnel in the power block and the control room again did not feel any motion. Due to the aftershock, the plant walkdowns, which had just completed from the first tremor, were started again. No damage was found during any of the walkdowns.

There is still an issue between the NRC and the licensee as to whether an Unusual Event should have been declared. The licensee has reviewed the event and feels that the operators responded as trained and per their procedure(s). The licensee plans to talk with Nuclear Energy Institute (NEI) to determine if a generic change to the Emergency Action Level (EAL) basis document is necessary.

The inspector reviewed QCOA-0010-09 and EP-AA-1006 rev 26, RADIOLOGICAL EMERGENCY PLAN ANNEX FOR QUAD CITIES STATION, and had no issues other than those discussed above.

c. Conclusions

There were no significant issues identified during 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.

<u>Inspection Procedure Number</u>	<u>Title</u>	<u>Section</u>
IP 71111-01	Adverse Weather	R01
IP 71111-04	Equipment Alignment	R04
IP 71111-05	Fire Protection	R05
IP 71111-06	Flood Protection	R06
IP 71111-12	Maintenance Effectiveness	R12
IP 71111-13	Maintenance Risk Assessments and Emergent Work Evaluation	R13
IP 71111-15	Operability Evaluations	R15
IP 71111-17	Evaluations of Changes, Tests, or Experiments and Permanent Plant Modifications	R17
IP 71111-19	Post Maintenance Testing	R19
IP 71111-22	Surveillance Testing	R22
IP 71114-06	Drill Evaluation	EP6
IP 71122-03	Environmental Monitoring Program (REMP) and Radioactive Material Control Program	PS3
IP 71152	Identification and Resolution of Problems	OA2
IP 71153	Follow-up of Events & NOEDs	OA3

LIST OF ACRONYMS AND INITIALISMS USED IN REPORT

10CFR	Title 10 Code of Federal Regulations
CCST	Contaminated Condensate Storage Tank
Co-60	Cobalt 60
Cs-137	Cesium 137
CS	Core Spray
Delta-T	Differential temperature
DGCW	Diesel Generator Cooling Water System
DP	Differential Pressure
dpm/cm ²	disintegrations per minute per square centimeter
EAL	Emergency Action Level
EC	Engineering Changes
ECCS	Emergency Core Cooling System

EDG	Emergency Diesel Generator
GE	General Electric
HPCI	High Pressure Coolant Injection
Hx	Heat Exchanger
IEMA	Illinois Emergency Management Agency
IEPA	Illinois Environmental Protection Agency
IR	Incident Report
KV	Kilo-volts
LVDT	Linear Variable differential transmitter
Mn-54	Manganese 54
MSIV	Main Steam Isolation Valve
MWe	Mega-Watt Electric
NEI	Nuclear Energy Institute
NOED	Notice Of Enforcement Discretion
NRC	Nuclear Regulatory Commission
QCOS	Quad Cities Operating Surveillance
OPS	Operations Department
PMT	Post Maintenance Testing
POD	Plan of Day
REMP	Radiological Effluent Monitoring Program
RHR	Residual Heat Removal System
RHRSW	Residual Heat Removal Service Water
RP	Radiation Protection
SBO	Station Black Out
SJAE	Steam Jet Air Ejector
SSC	Structures, Systems, and Components
SSMP	Safe Shutdown Makeup pump
TS	Technical Specifications
TSC	Technical Support Center
U1, U2	Unit 1, Unit 2
UFSAR	Updated Final Safety Analysis Report
UHS	ultimate heat sink
UPS	uninterruptable power supply
USGS	United States Geologic Survey
Zn-65	Zinc 65