

The Utility Radiological Safety Board of Ohio Annual Report

State Fiscal Year 2008



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# REPORT FROM THE CHAIRMAN





## Utility Radiological Safety Board of Ohio

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### REPORT TO THE GOVERNOR AND GENERAL ASSEMBLY

Governor Strickland and Members of the Ohio General Assembly:

The member agencies of the Utility Radiological Safety Board (URSB) of Ohio —the Departments of Agriculture, Health and Commerce, the Emergency Management and Environmental Protection Agencies, and the Public Utilities Commission are pleased to present the 2008 annual report of major Board activities.

The URSB was established in July 1989 (ORC Section 4937) to coordinate the nuclear power plant responsibilities of its member agencies. The Board is also charged with the responsibility of enhancing the quality of the State's response to nuclear power safety issues in the areas surrounding our nuclear power plants. This report delineates the actions of the Board toward the accomplishment of these goals.

One federally evaluated exercise, a partial participation exercise with the Beaver Valley Power Station, was conducted on June 24, 2008. This exercise received excellent evaluations from the Federal Emergency Management Agency. This was the first exercise that included the testing of a new technology, Teletrix Plume Tracker, used by the State's field monitoring teams. The technology permits data to be displayed on the teams' instruments simulating a radioactive plume which provides for more realistic training. Lessons learned from the exercise were documented and mitigated by an exercise After-Action Committee.

In addition to the above exercise, a non-evaluated security-based drill was conducted with the Perry Nuclear Power Plant on September 12, 2007. This drill was conducted to support the directives of National Infrastructure Protection Plan (NIPP), the Nuclear Regulatory Commission (NRC) and the Department of Homeland Security that nuclear power plants across the nation begin incorporating security-based scenarios into their current exercise cycles. These security-based drills are designed to integrate the concepts of Incident Command Structure and the National Incident Management System into roles of Emergency Response Organizations, both on and off-site, in the preparation and mitigation of radiological emergencies that include security threats. Additional drills will be conducted with the Davis-Besse Nuclear Power Station and the Beaver Valley Power Station in the fall of 2008 and early 2009 respectively.

A URSB special meeting was conducted on February 2, 2008 to review the Perry Nuclear Power Plant performance and determine a course of action for the Board. The Perry plant had been subjected to increased NRC inspections and evaluations due to less than favorable performance since 2004.

During 2007, Perry continued to experience performance problems. The URSB requested Perry provide information regarding actions or plans intended to improve performance. At the April Board meeting, the "Plan to Win: Seven for Success" was presented by FirstEnergy management. The Perry plant recently improved their performance and is currently receiving only NRC Reactor Oversight Process base-line inspections.

The URSB continues to closely monitor those nuclear power issues that could have a direct impact on Ohio's nuclear utilities and the safety of Ohio's citizens. I encourage your review of the many specific activities of the URSB and its member agencies contained in the enclosed overviews.

Sincerely,

A handwritten signature in black ink, appearing to read 'Nancy J. Dragani', with a long horizontal flourish extending to the right.

NANCY J. DRAGANI  
Chair

# DESCRIPTION OF THE URSB



## DESCRIPTION OF THE URSB

The Utility Radiological Safety Board (URSB) of Ohio was established by the Ohio General Assembly as part of Amended Substitute House Bill 111 in July of 1989 and later revised by Amended Substitute House Bill 215 in June 1997. The Board's purpose is to develop a comprehensive policy for the State regarding nuclear power safety. The Board's objectives are to promote safe, reliable, and economical power; establish a memorandum of understanding with the federal Nuclear Regulatory Commission and the State; and recommend policies and practices that promote safety, performance, emergency preparedness, and public health standards that are designed to meet the State's needs.

The URSB membership consists of six state agencies: the Ohio Departments of Agriculture, Commerce, and Health; the Ohio Emergency Management and Environmental Protection Agencies; and the Public Utilities Commission of Ohio.

The URSB has a Working Group comprised of member agencies' staff to support the Board and a Citizens Advisory Council (CAC), which provides the Board with citizen concerns. Board meetings are held quarterly at the offices of the Ohio Emergency Management Agency at 2855 West Dublin-Granville Road, Columbus, Ohio. The meetings are open to the public.

To find out more information concerning the Utility Radiological Safety Board and its members, please refer to the URSB homepage at <http://www.ursb.ohio.gov/> or contact the URSB Secretary at (614) 889-7160.

The Board members for SFY08 and their respective designees are listed below:

Ohio Department of Agriculture  
Mr. Robert Boggs, Director  
Mr. Anthony Mitchell, Designee

Ohio Emergency Management Agency  
Ms. Nancy Dragani, Executive Director  
Mr. Melvin House, Designee

Ohio Department of Commerce  
Ms. Kimberly A. Zurz, Director  
Mr. Dean Jagger, Designee

Ohio Environmental Protection Agency  
Mr. Chris Korleski, Director  
Ms. Cindy Hafner, Designee

Ohio Department of Health  
Alvin D. Jackson, M.D., Director  
Mr. Robert Owen, Designee

Public Utilities Commission of Ohio  
Dr. Alan Schriber, Chairman  
Mr. Shawn Smith, Designee

# URSB ACTIONS AND ACTIVITIES



# URSB ANNUAL REPORT FY08

## SUMMARY OF URSB MEETINGS:

### JULY 9, 2007

A full participation exercise was conducted with the Davis-Besse Nuclear Power Station and the counties of Ottawa and Lucas on May 15, 2007. The demonstration included a full activation of the State EOC and Ottawa and Lucas counties EOC's. The State's Field Monitoring Teams and Sampling Screening Point were demonstrated on May 14, out-of- sequence with the main EOC activities on May 15. Preliminary findings indicate no Deficiencies for the State or Counties. There were no Areas Requiring Corrective Action (ARCA's) identified for the State or Lucas County. There were two ARCA's identified for Ottawa County, one remains unresolved and one was successfully re-demonstrated during the exercise. The unresolved ARCA pertains to the out-of-date calibration of a survey meter used for monitoring of individuals.

The Department of Health informed the URSB that the 2007 expiration date for public KI has been extended for two years until 2009. The KI for emergency workers and institutionalized has been ordered and will be repackaged into the proper configuration as indicated in procedures during the week of Aug. 15.

The NRC informed the URSB that in February, the Commission was made aware of the Exponent Report on the Davis-Besse reactor head degradation. The timeline on the head degradation at Davis-Besse extrapolated in the Report varied from the timeline given by FirstEnergy to the NRC. Subsequently the NRC issued a Demand for Information to FirstEnergy regarding the information contained in the Report.

The NRC also informed the URSB that Perry Nuclear Power Plant that had been in Column 4 (significantly increased oversight) of the NRC Oversight Matrix had been returned to Column 1 (normal oversight). However, in January of 2007, Perry had a performance indicator that went from "Green" to "White" indicating a decline in performance. The indicator was in the area of "mitigating systems". The cause of the decline was the unavailability of the diesel generators. Subsequently, Perry was moved from Column 1 to Column 2. Due to their position in Column 2, Perry will undergo a supplemental inspection 95-001. Perry currently remains in Column 2.

FENOC informed the URSB that the 95-001 inspection to review the root cause and corrective actions for the "White" finding issued to Beaver Valley Power Station during the 2006 evaluated exercise has been conducted. The finding pertained to a portion of the dose assessment procedure and information flow between the Technical Support Center and the Emergency Operations Facility. The finding was considered closed at the inspection exit meeting on June 28, 2007.

FENOC provided the URSB with information regarding the Perry Nuclear Power Plant eleventh Refueling Outage (RFO) that was conducted from April 2 to May 13, 2007.

The activities conducted during the outage follows:

The eleventh Refueling Outage (RFO) commenced April 2 and was completed on May 13 at 0431.

#### Major work activities

- Vessel Disassembly Refuel and Fuel Shuffle
- In-vessel Inspections
- Inspect and re-channeled 50 bundles
- Replace 16 Control Rod Blades
- Replace 15 Control Rod Drive Mechanisms
- Replace 50 Low Power Range Monitors (in-vessel instrumentation)
- LP Turbine B and C Rotor Replacements
- Replace 3 Turbine Valve Actuators
- Feed Water Venturi Repair
- Cooling Tower Inspections

Other significant events included:

- May 13 at 0828 a turbine trip occurred. The reactor remained critical. Investigation identified that two electro-hydraulic control system cards providing the speed control function for the turbine were found not seated properly and were repaired. The generator was synchronized to the grid on May 14 at 1604.
- May 15, at 0058 a reactor SCRAM occurred due to reactor water reaching level 3, a scram set point, during digital feedwater tuning. The cause for the decreasing reactor water level was identified as a logic error in the software of the new digital control system. Corrections to the software were made and plant was in startup on May 17 at 0159 and the generator was on line at 2055.
- May 18 at 2002 the generator was taken off line to repair a electro-hydraulic control system leak. The leak repair was completed at the generator restored on line on May 19 at 0022.
- May 19 to May 23 – reactor power was held at 55 percent for continued digital feed water tuning.
- May 25 an iso-phase bus duct cooling glass cover for viewing the main generator disconnect switch has blown off allowing some air flow to be diverted from cooling the bus. Power reduced to 59 percent allowing self cooling mode. Later in the day, reactor power was lowered to 52 percent power to repair a main steam isolation valve position indication problem within the steam tunnel.
- June 10 at 0327 reactor recirculation flow control valve ‘A’ indicates position oscillation. Reactor power was maintained at 95 percent. Valve hydraulics to the ‘A’ valve was secured to prevent further oscillations.

- June 21 at 2030 Operations commenced plant shutdown to allow entry into the drywell to further troubleshoot for the cause of the flow control valve oscillations.
- June 22 at 0100 during power reduction, the reactor recirculation pump 'B' failed to transfer to slow speed while down shifting pumps. Operations conducted a reactor SCRAM at 0329 to complete the plant shutdown.
- June 23 Operations achieved hot shutdown and repairs were made to flow control valve 'A' control cable within the drywell and replaced the failed relay that had been the source of the problem of the 'B' pump to not downshift during plant shutdown.
- June 24 at 0400 - Operations commenced reactor startup.
- June 25 at 0150 - the generator was synchronized to the grid.
- June 27 at 2348 - reactor recirculation pump 'A' tripped and operations entered single loop operation with reactor power at 60 percent. Later, bad motor winding resistance readings were found on one phase of pump motor.
- June 29 at 1426- Perry Plant was shutdown by reactor SCRAM to replace reactor recirculation pump 'A' motor. Cold Shutdown conditions were established on June 30 at 1607.
- Forced Outage completion date is estimated in late July.

### October 9, 2007

The Department of Health informed the URSB that it has successfully completed repacking of potassium iodide (KI) for emergency workers and institutionalized population. ODH is finishing revision of the KI policy. The new policy will be put into the latest revision of the state REP plan.

There have been questions raised on the disposal of expired KI due to the quantity that would have to be discarded. ODH has been in contact with the NRC and the manufacturer (Ambex). Also, ODH has been in contact with the Board of Pharmacy regarding proper disposal.

The Department of Health also informed the URSB Regarding the Midwestern Radioactive Material Transportation Committee regarding Section 180 (c) of the Nuclear Waste Policy Act. The U.S. Department of Energy (DOE) has published its revised proposed policy to set forth its revised plans for implementing Section 180 (c) of the Nuclear Waste Policy Act (NWPA) of 1982 in the Federal Register, dated July 23, 2007. This section requires DOE to provide technical and financial assistance for training public safety officials to stated and Indian tribes through whose jurisdictions the DOE plans to transport spent nuclear fuel or high level radioactive waste to a facility authorized under Section A or C of the NWPA. The training is to cover both safe routine transportation and emergency response procedures.

The committee's Section 180(c) Work Group finished its initial review of DOE's draft policy and procedures. Overall, the group was pleased with the published revised draft policy. The comments addressed the need for DOE to fund operational activities of states, eventual rulemaking for solidifying the system for funding, and that the policy and procedures address contingency re-routing.

Ohio supports the comments drafted by the committee. We also believe that it should be left for states to determine how 180(c) funding will be administered within each state. States also need additional information in order to make an adequate assessment of funding needs. In addition, funding to states should continue during off-years.

In addition to soliciting comments from the four regional groups, DOE has sent a letter to the governor of each affected state for the purpose of hearing from the states individually. Ohio EMA and PUCO will be conferencing on development of specific comments for forwarding by Governor Strickland. Comments are due to DOE by October 22, 2007.

The URSB FY07 Annual Report was approved by the URSB. The report will be sent to the Governor, the Speaker of the Ohio House and President of the Ohio Senate.

The NRC provided an update of the status of the Perry Nuclear Power Plant. The letter for Perry stated that the NRC issued a letter on May 2, 2007 informing FENOC that all actions had been completed for Perry to exit Column 4, Multiple, Repetitive Degraded cornerstone. Effective in the second quarter, the plant was put into the "Regulatory Response Column". This is based upon Perry having a "White" finding in the Mitigating Systems Performance Indicator. As a result, a supplemental inspection, called a 95-001, was performed during the week of August 20<sup>th</sup> to determine a root cause and implementation of corrective actions. The report has been issued and there were no findings.

The NRC also updated the URSB on the status of the Davis-Besse Nuclear Power Station. A Confirmatory Order was issued on August 15, 2007 to formalize commitments already made to the NRC by FENOC following the Demand for Information (DFI). The Demand for Information, issued May 14, 2007, has already been discussed at previous Board meetings. The DFI was issued in response to the information provided by FENOC relative to the analysis and reanalysis of the timeline and root cause of the 2002 RPVH degradation at Davis-Besse. The order requires that FENOC perform seven (7) different actions.

1. FENOC will conduct regulatory sensitivity training for select FENOC employees and non-employees to ensure that they communicate information that has potential for regulatory impact either at FENOC sites or the industry to the NRC.
2. They will conduct effectiveness reviews to determine if an appropriate level of regulatory sensitivity is evident among FirstEnergy employees, including those who receive sensitivity training. The effectiveness review shall be conducted in January 2008 by an independent consultant and follow up review shall also be conducted in January 2009.
3. FirstEnergy will develop a formal process to review technical reports prepared as part of a commercial matter. The process shall provide criteria for the licensee to determine whether a report has the potential for regulatory implications.
4. FirstEnergy will assess its regulatory communications policy.
5. They shall provide an operating experience document to the nuclear industry through the industry's established process which discusses the process surrounding the

NRC's DFI, including the review of technical reports prepared for a commercial matter.

6. They shall complete a root cause report of the events that culminated in the DFI. Root cause evaluation shall be made available for NRC review.
7. Corrective actions are implemented until procedural changes are made.

FENOC provided information regarding the Davis-Besse Nuclear Power Station Alert and Notification System self assessment that was completed the week of October 5, 2007. The assessment team included representatives from Ohio EMA (Mike White), Davis-Besse Emergency Response (ER), and FENOC Fleet ER personnel. This assessment reviewed the ANS process and procedures, a review of demographic or other 10 mile EPZ changes that could affect ambient sound levels, the public information program, siren system testing and an eyewitness validation of a three minute EPZ siren test.

Out of 54 sirens, 52 (96.3 percent) were successful during the test. Two sirens did not rotate as expected. The wiring error is thought to be associated with installation of the recent siren upgrade project. Visual verification identified only these two sirens failed to rotate during the test. The sirens were fixed by the end of the day.

FENOC also provided the URSB with its response to the Confirmatory Order (commitments are italicized):

*Conducting regulatory sensitivity training for selected FirstEnergy and FENOC employees.* Training material has been developed. Training will begin on October 23 and is scheduled to complete on November 16.

*Conducting effectiveness reviews to determine whether an appropriate level of regulatory sensitivity is evident among FirstEnergy employees.* The first of these reviews will be conducted by a qualified external consultant in January 2008, with a follow-up review in January 2009. The effectiveness assessment plan is currently under development and is expected to include observation and documentation review, but to focus on interviews to determine if the training was successful.

*Developing a formal process for reviewing technical reports prepared as part of a commercial matter, such as an insurance claim or litigation.* Process development and implementation is underway and is on schedule to be completed on time. This includes changes to policies and implementing procedures.

*Assessing FENOC's Regulatory Communications policy and improving its NRC correspondence procedure.* A procedure has been drafted and is in the review process. A benchmark survey was conducted and the results of the survey were reviewed for inclusion into the procedure.

*Providing an Operating Experience (OE) document.* The OE report has been issued to the industry already and has been provided to the NRC.

*Conducting a root cause evaluation of the events resulting in the May 14 DFI, assessing whether there is any need for any additional corrective actions.* The evaluation has been completed and approved. It will be made available for review by NRC inspectors and a summary will be provided to the NRC Office of Enforcement by mid-December

*Maintaining interim corrective actions already in place ensuring that FENOC communicates more effectively internally and more promptly with the NRC.* Interim

corrective actions were put in place in June and will remain in place until the procedural guidance discussed above is in place.

### January 7, 2008:

The Ingestion Zone Reentry and Recovery Advisory Group had a tabletop on December 17. The Working Group attempts to hold these every other year during years that only have one exercise.

Department of Agriculture reported that the Agriculture Brochure has been distributed in hard copy within the 10-mile EPZ and made available electronically within the 50-mile EPZ on December 14, 2007. It has also been made available to FSA, The Ohio State University county extension offices and county EMA offices.

Ohio Department of Health provided information regarding the Midwestern Radioactive Materials Transportation Committee meeting. As also previously reported, DOE also solicited comments from the governor of each affected state. ODH, OEMA, and PUCO developed specific comments for forwarding by Governor Strickland, who responded to DOE on November 30, 2007. Ohio's comments were in line with those of the Midwestern Committee. We did emphasize leaving funding distributions up to states, the need for additional information for funding assessments, and continuation of funding during years with no shipments.

With regard to Perry, the NRC's perception of overall performance differs dramatically from Davis-Besse. Recently, at the end of November, Perry had an automatic SCRAM caused by a failure of 2 power supplies in the digital feedwater control system. During this SCRAM, the Reactor Core Isolation cooling pump also failed twice. Also problems were identified with SCRAM vent valves, solenoids and with the motor driven feedwater pumps. The NRC dispatched a special inspection team to Perry to evaluate the SCRAM and the licensee response. The inspection report should be done later this month or early February. These equipment problems are indicative of problems that have occurred throughout the year. Perry has experience 6 forced outages and 4 SCRAM's. Some of these outages and SCRAM's were attributed to poor maintenance or engineering weaknesses. Clearly, these issues represent a decline in the quality of maintenance and engineering. While numerous equipment problems have occurred within the past 9 months, it should be noted that none of these issues have resulted in a "greater than green" finding. The NRC is aware that FirstEnergy has recently initiated additional oversight and improvement activities to turn around performance and the NRC is actively watching these activities and programs. The NRC expects that the details of these programs will be explained on Wednesday the 9<sup>th</sup> at a public meeting that the NRC is holding with FirstEnergy corporate at the Davis-Besse Administration Building at 9:30 a.m. to discuss fleet wide performance.

The next portion of the report given by the NRC was on the NRC survey. This is part of the NRC's effort to review and improve emergency response program areas; the NRC is conducting telephone surveys to assess public reaction to existing protection action strategies, some potential new protective action strategies that may be discussed and the effectiveness in which these strategies are conveyed to the public. The survey will produce a statistical description of likely public reaction and acceptance of protective action strategies. The targets of the survey are randomly selected members of the public that live within the 10 mile Emergency Planning Zones

around the U.S. This will be nationwide. The response to the survey will be used for enhancements to guidance for protective actions and the means by which that information is disseminated to the public that the NRC feels necessary. No exact start date for the survey has been set, but it is expected that it will start in February. It will take about 800 completed surveys to get statistically significant results. The contractor chosen is experienced in conducting this type of survey and estimates that it will take about 2,500 calls to be placed to get the 800 surveys. It is possible that no citizens around some of the sites will be called. It is expected that those sites with greater population, the odds are better that those citizens will be called. The NRC expects that it will take 3 to 4 weeks to be completed. The results should be available this spring. The survey will provide no data or reports for individual sites. It is not to gauge effectiveness of any local, state or tribal emergency management functions or to be used as an inspection tool for either licensees or off-site emergency responders. The NRC has generated conference calls and presentations to stakeholders to make sure off site officials are aware of this survey. Based on the feedback from emergency management officials and other stakeholders, the NRC asked the contractor to make substantial changes to the survey. They are planning to conduct an additional conference call with the states in this region prior to the start of the survey to answer any final questions and provide talking points. Ms. Dragani asked Ms. O'Claire to send out the survey to Board.

The Beaver Valley Power Station Unit 1 1R18 outage commenced on September 24th at 0001 hours and ended on October 24th, 2007 at 2213 hours. The outage was completed in 30 days and 22 hours. (second shortest duration for a Unit 1 refueling outage).

Failure of the spent fuel side up-ender cable and the subsequent fuel replacement for the impacted fuel assembly affected the schedule by 98 hours. The containment sump and weld overlay projects were completed as intended during the outage.

The replacement steam generators, atmospheric containment and integrated reactor head during the previous outage were significant beneficial factors in the dose reduction, duration and outage cost improvements noted during 1R18.

The outage exposure and PCEs (personnel contamination events) were the lowest in Unit 1 outage history at 85.8 rem and 33 PCEs respectively. This moved Unit 1 from the Industry 4th quartile to the 2nd quartile for collective radiation exposure.

The Davis-Besse 15 Refueling Outage (RFO) scheduled duration is planned for approximately 33 days. The outage commenced on December 30, 2007 with the main generator taken offline.

In addition to refueling and turbine/generator work during 1R15 the scope of activities includes performing repairs to sixteen Alloy 600 connections.

Internationally since the 1980's, there have been cases of Primary Water Stress Corrosion Cracking (PWSCC) of Alloy 600 nozzles and penetration in Pressurized Water Reactors (PWR) primary system pressure boundaries. Cases have been cited in Sweden, Japan, and the United States.

The industry Materials Reliability Program (MRP) -139, Primary System Piping Weld Inspection and Evaluation Guideline was issued in 2005. Inspection has become a Mandatory program under Nuclear Energy Institute (NEI) 03-08, Guideline for the Management of Materials Issues.

The program provides guidance for volumetric and visual inspection of specific configuration alloy welds in PWR reactor coolant systems.

The program established Pressurizer weld locations as the first priority followed by Hot Leg and then Cold Leg welds. Davis-Besse's inspection/mitigation timeline is as follows:

December 31, 2007 – Pressurizer

December 31, 2008 – Hot Legs

December 31, 2010 – Cold legs

In early 2007 FENOC had developed a plan to perform inspections and weld overlays during this refueling outage. One of the actions was to advance start of the current refueling outage from February 2008 to December 2007.

Early on the morning of January 4, welding technicians were conducting robotic welding on the decay heat removal system suction connection to the reactor coolant system. While applying a weld overlay, technicians noticed water seeping from a freshly applied weld on the 12 inch diameter, 1.5 inch thick pipe. The pipe carries heated water from the reactor vessel through the decay heat removal coolers while the reactor is shutdown. There was not indication of seepage during plant operations or during the boric acid control walk downs.

The team is conducting ultrasonic testing of the pipe to characterize the indication and has contacted industry experts from the Electric Power Research Institute (EPRI) and Institute of Nuclear Power Operations (INPO).

Repair options are under review for the decay heat removal suction line weld and a determination of changes to the inspection scope based upon the information gathered from the decay heat drop line weld.

The Davis Besse Prompt Notification System (sirens) Final Design Report was approved on October 17, 2007 by Department of Homeland Security (DHS)/ Federal Emergency Management Agency (FEMA). This Final Design Report included the upgrade (replacement of older to current model) of the 54 sirens located in the Davis-Besse 10-mile Emergency Planning Zone (EPZ), their associated control stations, and the relocation of two sirens. DHS/FEMA stated the Davis Besse Prompt Notification System meets the applicable guidance of FEMA-REP-10 and NUREG-0654/FEMA-REP-1, as applied to fixed sirens used for primary alerting.

Additionally, the 54 sirens within the Davis Besse EPZ have been upgraded to include back-up battery operation.

## February 2, 2008:

The purpose of the Special Meeting was to review Perry Nuclear Power Plant past performance and determine a path forward.

An overview of Perry's past performance was summarized by Ohio EMA:

Perry entered column 4 of the Nuclear Regulatory Commission (NRC) Reactor Oversight Program, which is the multiple, repetitive degraded cornerstone in March 2004 indicating increased NRC inspections and performance evaluations on a quarterly basis due to multiple "White" findings over a prolonged period of time, i.e., 5 consecutive quarters. Between October 2002 and September 2003, 3 "White" findings were identified. The findings were due to high pressure core spray pump failure; emergency service water pump failure; residual heat removal and low pressure core spray water leg pump failure. Perry exited Column 4 in March of 2007 and entered Column 2 (Regulatory Response Column -- indicating inspections greater than baseline) in March 2007 due to diesel generator problems. Since March 2007, Perry has experienced with 4 reactor SCRAM's; 2 manual, 2 automatic and 6 forced outages. The SCRAM's occurred on May 15, June 21, June 29 and November 28, 2007 primarily due to equipment problems. The most recent SCRAM was on November 28 as a result of feedwater control problems. Coincident with the shutdown, Perry experienced the loss of both turbine driven feedwater pumps; the motor driven feedwater pumps and the Reactor Core Isolation Coolant System (RCIC) failed to function as designed twice. Proper water levels were maintained using the high pressure core spray; which is a safety system, and subsequently, the RCIC system. Currently, Perry remains in Column 2.

After considering the input from each URSB member, a consolidation of the concerns was grouped as follows:

1. Root Causes
2. Performance Plan
3. Corrective action plan for communication in the future.

A draft letter, based on a letter developed by the Working Group, was provided to the Board that invited Mr. Allen, Site Vice President and any appropriate members of his staff to attend the April 2008 meeting and prepare a presentation that contains information to address the following issues noting that some issues might take more time to give an adequate answer:

1. Identify root cause(s) of the equipment problems and address concerns that occurrences are indicative of a larger, systemic problem;
2. Identify course of action for correction of root cause(s) identified and attendant timeline;
3. Compare Perry's performance with other Boiling Water Reactors (BWR);
4. Identify processes to improve communication.

The Board reviewed the draft letter reference above and it was determined that EMA will finalize the letter, mail it to Perry and copy members of the Board. The Board's legal advisor will assist with the final version. It will be mailed as soon as possible to ensure Perry officials have adequate time to prepare.

Mr. Fred Cayia, Director of Performance Improvement at Perry, made a statement for FirstEnergy. He thanked the Board for the opportunity to speak. He noted that he heard the message pretty clear that the Board had concerns about the Perry plant performance and communications that the plant had with the State after the November 28 SCRAM. FirstEnergy feels privileged to generate electricity with nuclear power in the state of Ohio and values the relationship they have with both Lake County and the State. Based on the feedback Perry continues to receive from the NRC, the plant is operating safely; however, there are aspects of performance that all the employees at Perry are unhappy with. He stated that they do know the root cause of the SCRAM on November 28; however, the recovery was somewhat protracted. They took the extra time to clearly identify the root cause and correct the problem. It was a new system installed in the early 2005 timeframe. One of the things the employees at the plant have been doing during the past few outages is improving the condition of the plant and installing new systems. This follows the trend in the rest of the industry. The nuclear industry is an industry that is never satisfied with performance and they are constantly raising expectations for performance of people and equipment. In this particular case, the SCRAM that started was due to the digital feedwater system which has an industry standard system with a digital control system. The November SCRAM was first of a kind failure. The vendor has never seen that type of failure. Perry has added additional features to the system that go way beyond the original design. Perry will be prepared at the April meeting to go over the specifics of the causes of the SCRAM's; how they fixed the problems that they had and how they improved the reliability and safety of the plant. He observed that with the exception of the one system noted, everything performed as designed. The performance of the operating crew was commended by the NRC.

The management team at Perry has been as a result of SCRAM'S and forced outages are working on a recovery plan that is very detailed and ranges from behaviors to equipment. They have the full support of FENOC and FirstEnergy to make sure they are focused on safety and reliability. Mr. Cayia feels confident that they have the right resources and that there will be a steady improvement in performance.

#### April 11, 2008:

At the beginning of each calendar year, the NRC performs an assessment for all power plants for the prior calendar year. They were concluded in February. Davis-Besse results were a technical review of indicators for the most recent quarter and inspection results for the entire year. The meeting was held March 3<sup>rd</sup> and Davis-Besse was informed of the results. Overall, Davis-Besse operated safely and preserved public health and safety. All inspection findings were within the Licensee Response Category (column 1), meaning they were of very low safety significance and requires no additional level of oversight.

The annual review of Perry was also completed in February. The NRC concluded that Perry operated in a manner that protected health and safety and fully met all of the NRC cornerstone objectives. They are still in Regulatory Response (Column 2) of the Reactor Oversight Program. The plant received a "white" performance indicator in the area of emergency AC power. The NRC staff identified that the improvement in human performance noted in 2006 has not been sustained. The performance declined in the area of human performance, with cross-cutting issues identified in the area of work control and planning. In 2007, there were 12 "green findings" with a documented cross cutting aspect in human performance and work control and planning. These findings were for more than one of the cornerstones. This will remain until the

plant has addressed and reversed the trend in this area or when the NRC feels the actions taken have addressed the issue.

Since the review letter issued on March 3, another performance indicator had been identified as “white” in the area of unplanned SCRAM’s. This was under review for quite a while, but it was determined that that performance indicator is in the “white” area also. This doesn’t have any affect on the Reactor Oversight Matrix; they are still in Column 2 (Regulatory Response). This will result in an additional inspection (95-001) which will be conducted in next few months.

FENOC updated the URSB regarding the activities for Davis-Besse Nuclear Power Station. Davis-Besse started up from their 15<sup>th</sup> refueling outage on February 14 and has operated at or near full power during the past 57 days. During the refueling outage the staff replaced 76 of 177 fuel assemblies, rewound the 150 ton turbine generator and completed more than 2,000 outage maintenance tasks. They completed inspection of the reactor head and vessel as well as the steam generators.

FirstEnergy management provided the URSB with their response to the letter sent to Mr. Allen on February 8, 2008 requested information regarding the URSB concerns with the decline in Perry Nuclear Power Plant performance:

FirstEnergy is committed to continued safe and reliable operations. Reliability starts with equipment. They are taking proactive, preemptive measures to go after equipment issues in a predictable fashion rather than waiting until more serious problems develop. One of the examples is the planned, 9 day shutdown. It is as a result of a component not performing correctly. That alone did not affect plant performance, but however, that left only 1 similar train of components for reliable generation. That is not an acceptable situation. The plants are built with a level of redundancy for a reason. Perry employees are doing a thorough review of the plant to identify any other issues that have come up since the refueling outage that could threaten future generation. All those that were identified, they are addressing, so when the unit does come back online, it will perform in a safe and reliable manner. Since the first of the year, Perry implemented the “Plan to Win: Seven for Success”. This is a program to address the top 7 areas that Perry has identified where there needs to be significant improvement. Mr. Harden has been assigned the officer of that program.

The 7 areas are:

- Leadership, Alignment and Engagement
- Equipment Reliability Improvement
- Radiation Protection fundamentals
- Outage improvement
- Operation fundamentals
- Maintenance fundamentals and human performance
- Problem identification and resolution

FirstEnergy explained to the Board some of the details and challenges that Perry has gone through in the past year and the steps that Perry staff has taken to improve performance; specifically addressing the issues that were in the letter from the Board. The following is a summary of the information regarding the decline in performance specifically for 2007:

### **Startup from Refueling Outage – May 13**

- Turbine tripped during low power operation
- Reactor remained stable
- Control Circuit card issue resolved question: There was a circuit card that was not fully inserted. Mr. Cayia stated that they instituted a verification process to correct the problem.

### **Reactor Trip – May 17**

There was new Digital Feedwater Control System tuning in progress. The plant systems responded as designed, no safety system actuations occurred. The software compatibility issue was resolved – they have downloaded software patches, vendor had error in software code that was revealed by this trip. Even though the software had extensive testing before installation at the vendor and on-site, Perry staff have improved both the design process; how they work with vendors and put in more rigorous testing procedures before installation of future software. Ms. Dragani asked if this software has been installed at other two plants and if so, had the patches been sent to the other plants. The reply was that it was specific to the Perry plant.

It was noted that there is an “operating experience process”. This is done daily within the FENOC fleet and there is a process that if something happens at one FENOC site, the other two sites are given items to check out and verify that they don’t have a similar problem. The information is also shared with the nuclear industry, not just FENOC facilities, so there is also a learning process that comes from what happened at other plants.

### **Manual Reactor Shut down – June 22**

- Shutdown to repair flow control valve
- Recirculation pump breaker issue
- Conservative decision to shut down made
- Repaired valve and breaker

This shutdown caused a new “white” finding for unplanned SCRAM under the NRC Reactor Oversight Program.

Ms. Dragani asked if there was a planned replacement time schedule for replacing aging equipment or if there needed to be indications that a piece of equipment was failing. Mr. Cayia replied that there is now a maintenance strategy. That is a strategy to go after replacing/renewing large components and they rely on surveillance testing and preventative maintenance that is done during a refueling outage for the smaller components. In this case, the testing did not reveal that it was about to fail.

She then asked if this manual reactor shutdown was related to the recirculation pump problem in December of 2004. Mr. Cayia replied no, that in December of 2004 it was a design issue with the circuit. The problem with the breaker had to do with the relays replaced during the outage.

Mr. Smith of the PUCO asked for a summary of the changes resulting from the manual shutdown and how they would better catch these kinds of connector failures?

Mr. Cayia replied that they go back to look to see if there were clues missed and provide feedback to the technician group that performed this type of maintenance (cause analysis) and analyze the procedures for weaknesses and what is needed for enhancement. They also do an analysis to check where the same problem might exist in other areas and check those areas also (called extent of condition).

Mr. Helmer of ODH asked about how the verification processes work. Mr. Cayia replied that in some cases, there are two types of higher level verifications, one is called concurrent (2 people checking the work) and independent. They pre-designate in the procedures which verification practices are expected and in all cases, supervisors review the paperwork and sign off that it was done correctly. This was a change in that it might have been a practice prior to, it is now in the procedures.

Mr. Mitchell of Agriculture asked that when a problem does occur, how does FENOC communicate to the other plants and what is the timeline to assure that the same problem doesn't occur at another plant.

The FENOC organization has what is called a newflash. The goal is when there is a significant equipment or human performance problem, they have a 24 hour clock to develop the specifics and share with the industry.

Also, FENOC has the morning fleet call that was mentioned previously. If they are in a refueling outage, that will happen more often.

When there is an external operating experience, the goal within the industry is to get something out within 60 days that has details on what happened.

### **Reactor Recirculation Pump– June 27**

- Plant was stabilized at 60 percent power with one of the recirc pumps not operating
- Immediate investigation was performed that showed that there was a problem with electrical wiring that was overlooked
- Conservative decision to shut down plant and replace motor was made. Another refurbished motor was put in place. The removed motor was sent off-site and will be refurbished. The newly refurbished motor will replace the “Bravo” motor, in the 2009 Refueling Outage. There is a plan in place to purchase a new motor in 2009.

### **Reactor Trip – November 28**

- Problem with power supplies in the new Digital Feedwater System; has redundant power supply, changed basic design, improved monitoring; added 3<sup>rd</sup> power supply
- Manufacturing defect internal to the power supplies discovered. This was a first of a kind failure; the vendor had never seen this type of problem before. The manufacturer

discovered that others manufactured during a 6 week time frame had the same problem and they are in the process of replacing.

- Improved Digital Feedwater Power Supplies
- High Pressure Core Spray system was activated to restore reactor water levels

### **Reactor Core Isolation Cooling System (RCIC) – November 28**

- Automatically started then tripped
- Improper flow controller adjustments
- Upgrading to a new model
- Would perform on Manual
- Performed root cause analysis and found that they made process changes several years ago that led to the error in January of 2006 that they made
- Settings were set back to the setting established during initial plant startup
- December 12 settings were improved, but not optimum; however the vendor also believed that these were the proper settings. The plant has ordered 3 of a newer version of these controllers to improve performance and reliability.

### **Annulus Exhaust Gas Treatment System – December 21**

- A low flow condition occurred in the ventilation system
- Discharge Damper issue
- Redundant equipment restored
- Damper actuators repaired

Summary: They are improving plant performance and reliability by proactively addressing equipment issues, improving preventative maintenance strategy and feedback from that strategy, and strong commitment for plant upgrades from FirstEnergy (\$20 million above what would have been budgeted).

**THE FOLLOWING IS A SUMMARY OF THE STATUS OF THE URSB WORKING GROUP INITIATIVES AT THE END OF SFY08:**

1. BVPS PARTIAL PARTICIPATION EXERCISE (EMA/ODH/EPA/ODA)

In preparation for the June 24, 2008 Beaver Valley partial participation exercise, the extent of play meeting was conducted on February 6, 2008. The Dry Run was conducted on June 3, 2008.

2. PNPP FULL PARTICIPATION EXERCISE (EMA/ODH/EPA/ODA)

The full participation exercise will be conducted on October 7, 2008 with a dry run on September 17, 2008. The extent of play meeting will be held on July 9, in the Lake County EOC.

3. REACTOR OVERSIGHT PROGRAM (EMA/ODH)

This is an NRC program used to provide continuous oversight of nuclear power plants to verify that each plant is operated in accordance with NRC rules and regulations. Key features of the program are a risk-informed regulatory framework, risk-informed inspections, a significance determination process to evaluate inspection findings, performance indicators, a streamlined assessment process, and more clearly defined actions the NRC will take for plants based on their performance. The URSB will continue to monitor this program especially as it relates to emergency preparedness.

4. AFTER ACTION PLAN ACTIVITIES (EMA/ODA/ODH/EPA)

The after action activities include an annual review of the State REP plan. Individual agencies continue to address issues noted from the two previous nuclear power plant exercises. Items pertaining to the Davis-Besse exercise have been included in the After Action Matrix.

5. IZRRAG PLANNING (EMA/ODH)

A table-top exercise was held on December 17, 2007 for the Ingestion Zone Recovery/Reentry Advisory Group (IZRRAG). Annual IZRRAG training will continue to be conducted with a table-top exercise being conducted every odd year. The next evaluated ingestion exercise for the State will be in 2012.

6. PLANT OVERSIGHT (EMA/ODH)

a. DAVIS-BESSE NUCLEAR POWER STATION (DBNPS):

First Energy is required to complete four independent assessments as part of the authorization to resume operations at Davis-Besse. The plant is in year 5 of a 5 year commitment which includes operational performance, corrective action program, engineering program effectiveness, and organizational safety culture.

On August 15, 2007 the NRC issued a Confirmatory Order to FENOC to formalize commitments made following the NRC Demand for Information (DFI) of May 14, 2007. The DFI was regarding the Exponent Report and subsequent related reports referencing the Davis-Besse head degradation. Davis-Besse has committed to comply with the components of the Confirmatory Order. An effectiveness review was conducted in January, 2008 with positive results. An additional effectiveness review will be conducted in January, 2009. Upon successful completion of the 2009 review, it is anticipated that the Confirmatory Order will be closed.

b. BEAVER VALLEY NUCLEAR POWER STATION

Beaver Valley continues to be in column one.

c. PERRY NUCLEAR POWER PLANT

As of May 2007 the Perry plant was placed in column 2 of the NRC Reactor Oversight Matrix due to emergency diesel generator performance issues. An NRC supplemental inspection has been conducted. A special NRC inspection team was dispatched to the site to oversee issues related to the Perry November 28, 2007 automatic reactor shut down. Inspection results indicate one green finding of very low safety significance regarding the power supplies for the digital feedwater control system. Also indicated were several unresolved issues regarding the Reactor Core Isolation Cooling System (RCIC) that failed to operate twice during the November 28, 2007 event and the quality of two immediate investigations unrelated to RCIC (motor driven feedwater pump operation and the control rod drive hydraulic unit scram valve operation). Perry resumed operation achieving full power on December 13, 2007.

A special meeting of the URSB was conducted on February 7 to discuss possible Board actions regarding Perry's performance. As a result of the February 7 meeting, the Board sent a letter to PNPP requesting their attendance at the April 11 meeting to answer a set of questions regarding PNPP performance. The Director of Performance Improvement for PNPP attended the April 11 URSB meeting to address the aforementioned questions and did so to the satisfaction of the URSB.

7. **TECHNOLOGY (EMA/ODH/EPA)**

The Working Group has assessed the need for consistent plant data in the Assessment Room. FENOC attended the Beaver Valley 2006 exercise to evaluate state dose assessment needs. Currently there is no plant data link from Beaver Valley to the state EOC. Ohio is currently pursuing resolution of this issue with West Virginia and Pennsylvania. FENOC is currently developing a web-based system to provide plant data for all FENOC sites to the State EOC. Perry is scheduled to be the first plant to implement the new system.

Teletrix equipment has been purchased for training of field monitoring teams. The Teletrix Plume Tracker systems were used successfully in conjunction with the BVPS dry run conducted on June 3, 2008. One additional unit is scheduled for purchase in FY2009.

Ludlum Model 3 portable survey meters have been purchased to replace CDV-700RP meters. The Ludlum Model 3s are currently being calibrated. 2500 pocket ion chambers, model 730, have been received to replenish dosimetry available for emergency workers. EMA will provide FENOC with a 5-year plan to upgrade CDV equipment.

ODH has received Canberra Ultra-Radiac electronic dosimeters for emergency response.

8. **NATIONAL INCIDENT MANAGEMENT SYSTEM (NIMS) (EMA)**

Efforts continue with the improvement of the Ohio Plan for Response to Radiation Emergencies at Commercial Nuclear Power Plants with regard to NIMS compliance. Ohio EMA will continue to revise the plan in accordance with NIMS requirements as inconsistencies are discovered. No formal Federal guidance has been provided to aid in this task. The 2008 revision has been approved by FEMA.

9. **DHS COMPREHENSIVE REVIEW (EMA/ODH)**

The comprehensive reviews for Perry, Beaver Valley, and Davis-Besse were completed. The URSB Working Group is awaiting the final report.

10. **STATE DOSE ASSESSMENT (ODH/EMA)**

The working group, along with FENOC, has undertaken an evaluation of available software. A conference call took place on July 11, 2007 to discuss a common dose assessment program. Discussions were also held with FENOC during the January 17, 2008 NEPAC meeting. URSB is currently awaiting further input from FENOC.

11. **JIOP UNESCORTED ACCESS (ODH)**

An agreement between FENOC and the State of Ohio has been finalized that includes details of the requirements for unescorted site access for the Joint Inspection Observation Program (JIOP). ODH and EMA have identified participants and have obtained unescorted access for those participants.

12. **KI (ODH/EMA)**

ODH has revised the KI policy and it has been approved by the Director of Health. The new KI policy is available on the ODH website and was included in the 2008 revision of the REP Plan. Following the May 9, 2009 expiration date of public supplies, KI will no longer be pre-distributed to the public.

13. **OHIO AGRICULTURE BROCHURE (ODA)**

The Ohio Agriculture Brochure will be reviewed in June of 2008 by the IZRRAG and updated by ODA. The brochure will be published and distributed in July 2008.

14. **GROUND WATER CONTAMINATION (EPA/ODH/EMA/PUCO)**

All FENOC plants have installed ground water monitoring wells and have provided preliminary results. The URSB is awaiting the finalization of the ground water reporting protocol by FENOC. This protocol has been included in the EPPI procedure which has yet to be finalized by FENOC.

15. **HOSTILE ACTION BASED DRILLS (ALL)**

A hostile action drill was conducted on September 12, 2007 at the Perry Nuclear Power Plant. A hostile action drill for the Davis-Besse plant is expected to be conducted in November 13, 2008.

16. **URSB COMMUNICATIONS PROCEDURE (ALL)**

The Working Group will develop a procedure to provide instructions to communicate non-emergency plant events or issues which have potential public interest to the board members.

## URSB RESOLUTIONS LOG

Resolution Number	Description of Action	Date Signed
07-01	Resolution for the Utility Radiological Safety Board Requesting FENOC Consider Comments as appropriate revisions to NORM-LP-5002, FENOC Position on Release In Progress.	April 9, 2007
05-02	Resolution for the Utility Radiological Safety Board Requesting FENOC Provide Unescorted Access for the State of Ohio Observation Program.	July 11, 2005
05-01	Resolution Thanking Dale W. Shipley for His Service as Chair of the Utility Radiological Safety Board of Ohio	January 10, 2005
03-04	Resolution for Utility Radiological Safety Board Removal of Inactive Member from the Citizen Advisory Council	July 7, 2003
03-03	Resolution Appointing Citizens to Serve on the URSB Citizen Advisory Council on Nuclear Safety	July 7, 2003
03-02	Resolution Issuing Utility Radiological Safety Board Proclamations to Members of the URSB Citizen Advisory Council on Nuclear Safety	July 7, 2003
03-01	Resolution for Utility Radiological Safety Board Appointments Commencing January 6, 2003 for Medical Expert on the URSB Citizen Advisory Council on Nuclear Power Safety	January 6, 2003
02-03	Resolution for Utility Radiological Safety Board Appointments Commencing July 1, 2002 for Student Membership on the URSB Citizen Advisory Council on Nuclear Power Safety	October 7, 2002
02-02	Resolution for Utility Radiological Safety Board Appointments Commencing July 1, 2002 to Membership on the URSB Citizen Advisory Council on Nuclear Power Safety	July 8, 2002
02-01	Resolution Issuing Utility Radiological Safety Board Proclamations to Members of the URSB Citizen Advisory Council on Nuclear Safety	July 8, 2002

# URSB JOINT INSPECTION OBSERVATION PROGRAM



## **URSB JOINT INSPECTION OBSERVATION PROGRAM**

The Joint Inspection Observation Program (JIOP) was implemented by the Board in April 1991 by adopting URSB Resolution 91-002, "Resolution Adopting General Agreement Between the U.S. Nuclear Regulatory Commission and Ohio's State Liaison Officer for State Observations of NRC Inspections of Nuclear Power Plants". The agreement allows URSB JIOP members to observe NRC inspections of the Perry and Davis-Besse nuclear power plants. Under "adjacent state observation" status, a second agreement with NRC Region I allows JIOP participants to observe NRC inspections at the Beaver Valley Power Station. A "guidelines document" has been developed setting the conditions and procedures for member agencies' participation in the program. This document includes the goals and objectives of the Joint Inspection Observation Program. The URSB JIOP Goals and Objectives are delineated below.

In SFY08 the URSB JIOP participants observed thirteen NRC inspections. For each observation a report is generated and forwarded to the NRC for its review and comment. The table at the end of this section lists these reports for the past five years. All JIOP reports are available to the public by request to the URSB Secretary. Requests may be made by telephone at (614) 889-7160 or in writing to:

URSB Secretary  
The Utility Radiological Safety Board  
2855 West Dublin Granville Road  
Columbus, Ohio 43235-2206

### **URSB JIOP Goals and Objectives**

To observe Nuclear Regulatory Commission inspections at Ohio nuclear power facilities and the Beaver Valley Power Station...

- To participate with the NRC to observe inspections.
- To communicate to the public, URSB member agencies, and interested parties first-hand information obtained by observing inspections, in accordance with NRC protocol.
- To communicate with the NRC resident, regional, and national inspectors.

To raise issues of health, safety, and economic concerns with the Board...

- To observe NRC inspections and obtain timely, first-hand information which will assist in formulating state positions on public health, safety, performance, and/or cost issues.
- To maintain a historical database to monitor the economical production and safe operation of nuclear energy.

To provide the URSB with reports that identify the number of inspections observed during the quarter, summarize observation results and recommendation, and address comments made by the NRC and the public.

## JOINT INSPECTION OBSERVATION PROGRAM REPORTS

<b>JIOP REPORT NO.</b>	<b>DATE(S) OF INSPECTION</b>	<b>PLANT</b>	<b>AREA(S) OF INSPECTION</b>	<b>OBSERVING AGENCY</b>
08-PNPP-02	5/13-5/16/2008	PNPP	Inspection for One or Two White Inputs in a Strategic Performance Area	EMA
08-PNPP-01	5/19-5/23/2008	PNPP	Radiological Environmental Monitoring Program, Radioactive Material Control Program, and Radiological Effluents	ODH
08-DBNPS-01	5/19-5/23/2008	DBNPS	Radiological Environmental Monitoring Program, Radioactive Material Control Program, and Radiological Effluents	ODH
08-01	1/07-1/11/2008	DBNPS	Access Controls to Radiologically Significant Areas and ALARA Planning Controls	ODH
07-13	12/10-12/14/2007	PNPP	Radioactive Gaseous and Liquid Effluent Treatment and Monitoring	ODH
07-12	12/10-10/14/2007	DBNPS	Radioactive Materials Processing and Transportation	ODH
07-11	10/16-10/20/2007	PNPP	EP Routine Inspection/PI Verification	EMA
07-10	10/22-10/26/2007	PNPP	Access Controls to Radiologically Significant Areas and ALARA Planning Controls	ODH
07-09	8/6-8/10/2007	DBNPS	Access Controls to Radiologically Significant Areas	ODH
07-08	8/20-8/24/2007	PNPP	Radiation Monitoring Instrumentation and Protective Equipment	ODH
07-07	6/9-8/6/2007	DBNPS	Reactor Vessel Head Replacement Inspection	EMA
07-06	7/9-7/13/2007	BVPS	Radiation Emergency Monitoring Program	EMA
07-05	6/18-6/22/2007	DBNPS	Radiation Monitoring Instrumentation and Protective Equipment	ODH

07-04	7/16-7/20/2007	PNPP	Radioactive Materials Processing and Transportation	ODH
07-03	4/09-4/13/2007	PNPP	Access Controls to Radiologically Significant Areas	ODH
07-02	1/22-1/26/2007	DBNPS	Effluents	ODH
07-01	2/05-2/09/2007	BVPS	NRC Emergency Preparedness	EMA
06-10	11/1-12/15/2006	BVPS	Mitigating Systems Performance Index Verification	EMA
06-09	11/06-11/10/2006	PNPP	Access Controls to Radiologically Significant Areas	ODH
06-08	10/23-11/03/2006	PNPP	Human Performance Action Item	ODH
06-07	7/17-7/28/2006	PNPP	Action Item Review	EMA
06-06	6/5-9/06	PNPP	Access Control to RAD Areas	EMA
06-05	6/12-16/06	PNPP	Human Performance & Action Items	EMA
06-04	3/9-16/06	PNPP	Access Control & ALARA	EMA
06-03	2/13-17/06	DBNPS	Corrective Action Item Review	EMA
06-02	2/3-17/06	PNPP	EP Program	EMA
06-01	1/19-13 1/17-20/06	PNPP	Action Item Review	EMA
05-03	Jan-May 2005	PNPP	Supplemental Inspection 95003	EMA
05-02	1/10/05	PNPP	Special Inspection 93812	EMA
05-01	2/7/05	BVPS	Emergency Preparedness Program	EMA

Note: Reports will not be made public until after the NRC has released their report, per NRC protocol

# FINANCIAL REPORT



DESCRIPTION	SFY04	SFY05	SFY06	SFY07	SFY08
Appropriations					
Emergency Management	\$1,020,068	\$1,020,068	\$1,110,459	\$1,198,319	\$1,434,242
Health	\$799,267	\$793,000	\$793,000	\$793,000	\$815,000
Environmental Protection	\$232,000	\$232,000	\$263,449	\$276,352	\$279,927
Agriculture	\$66,550	\$66,550	\$70,286	\$73,059	\$128,723
Commerce					
Public Utilities Commission					
<b>Total Appropriation</b>	<b>\$2,117,885</b>	<b>\$2,111,618</b>	<b>\$2,237,194</b>	<b>\$2,340,730</b>	<b>\$2,657,892</b>
Expenditures					
Emergency Management	\$1,020,068	\$1,020,068	\$1,110,459	\$1,202,035	\$1,492,342
Health	\$799,267	\$541,294	\$551,674	\$721,320	\$789,884
Environmental Protection	\$182,752	\$215,137	\$204,842	\$249,540	\$248,002
Agriculture	\$66,550	\$66,550	\$70,286	\$73,016	\$128,723
Commerce					
Public Utilities Commission					
<b>Total Expense (Year-end Balance)</b>	<b>\$2,068,637</b>	<b>\$1,843,049</b>	<b>1,937,261</b>	<b>\$2,245,911</b>	<b>\$2,658,951</b>

# AGENCY OVERVIEWS



## **OHIO EMERGENCY MANAGEMENT AGENCY**

The Ohio Emergency Management Agency (Ohio EMA) was established under Ohio Revised Code Chapter 5502.22 as a division of the Department of Public Safety. The mission of the Ohio EMA is to coordinate state emergency preparedness and civil defense activities. Phases of mitigation, preparedness, response and recovery are designed to minimize effects upon the population caused by all hazards. The agency maintains the State Emergency Operation Center, the data links to nuclear power plants, and communications to subdivisions. The Ohio EMA implements federal and state policies and programs, and supports county emergency management agencies.

The Executive Director of Ohio EMA supervises the day-to-day operations of the agency's professional and technical support personnel and serves as the chair of the URSB.

The Ohio EMA is organized into three groups each consisting of several branches. The Operations Division is comprised of the Radiological; Readiness and Response; Plans; Field Operations, Training & Exercise Branches. The Mitigation, Recovery, and Preparedness Grants Division is comprised of the Mitigation; Recovery and; Grants Branches. The Technical Support Division is comprised of the Communication; Data Management; and Facilities, Logistics and Calibration Branches. The Ohio EMA is responsible for Nuclear Power Plant incident response, accident assessment, instrument maintenance, training, planning, exercises and drills, utility, federal, and public interfacing and facilitation of the URSB. In addition, Ohio EMA continues to monitor activities relating to high level waste, and is coordinating the transport of spent fuel and high level radioactive materials across Ohio in the areas of training and equipping of county emergency responders.

### **Nuclear Power Plant Exercises and Drills**

Ohio EMA is responsible for the coordination of State Agency participation in nuclear power plant exercises. These exercises can take the form of small communications tests involving only State and County EMAs to major federally evaluated exercises. In SFY08, there was one federally evaluated exercise, and one Hostile Action based exercise.

#### Beaver Valley Power Station

The 2008 Beaver Valley Power Station exercise was conducted on June 24, with the dry run taking place on June 3. Due to 2008 being a multi-exercise year, the emergency (early) phase was conducted as a partial participation exercise for the State of Ohio. The exercise required full participation from Columbiana County in accordance with the 6-year exercise schedule.

The Final Report includes the following for the State of Ohio: of the 13 criteria selected for demonstration, 13 were met; no Deficiencies; no Area Requiring Corrective Action (ARCA); no Planning Issues. Strengths for the State include: excellent technical knowledge and teamwork in the State Assessment Room and a knowledgeable and enthusiastic State Executive Group.

The Final Report includes the following for Columbiana County: Of the 21 criteria selected for demonstration, 19 were met; no Deficiencies, three ARCA's, and no planning issues.

One ARCA was received for Criterion 3.a.1 – Emergency Worker Exposure Control, whereby the West Point Fire Department monitoring teams were incorrectly briefed in regards to the use of KI. This ARCA was successfully re-demonstrated.

The second ARCA for Columbiana County was identified under Criterion 6.b.1 – Monitoring & Decontamination of Emergency Worker Equipment, whereby the West Point Fire Department vehicle monitoring team did not demonstrate sufficient knowledge regarding the use of the CDV-700 RP survey instrument.

The third ARCA, which was unresolved from the 2006 exercise, was identified under Criterion 5.b.1 – Emergency Information and Instructions for the Public and the Media, whereby during the 2008 exercise, press releases continued to provide confusing and inconsistent information to the public.

Strengths for Columbiana County include: an excellent dosimetry briefing conducted at the Negley Fire Department and good coordination on behalf of Columbiana County while implementing protective actions.

Overall, the 2008 Beaver Valley Power Station exercise was successful for the State of Ohio and Columbiana County.

#### Perry Nuclear Power Plant – Hostile Action Drill

On September 12, 2007, a hostile action initiated drill was conducted at the Perry Nuclear Power Plant. This exercise was conducted as a component of phase three of the NEI / Industry initiative to develop plans, procedures, and key criteria for the incorporation of exercises initiated by hostile action events into the REP exercise cycle. In addition to Ohio EMA personnel, the exercise involved several key state agencies, local fire departments, state and local law enforcement, FBI resources, and extensive plant personnel.

The drill was not evaluated, but was observed by FEMA officials as well as NRC Commissioner Peter B. Lyons. Information and lessons learned from the drill were recorded and were provided to FEMA and the NRC for consideration during policymaking efforts. All nuclear utilities are scheduled to complete a hostile action drill by the end of 2009.

#### **Nuclear Power Plant Incidents**

There were no classified events in FY08 for FENOC plants.

#### **Emergency Planning**

Ohio EMA completed the annual revision of The Ohio Plan for Response to Radiation Emergencies at Commercial Nuclear Power Plants in February 2008. Revisions included the removal of all forms and MOU's from the plan to enable more efficient revisions and the addition of language to address hostile action based events being incorporated into the Emergency Classification Levels.

## **OHIO DEPARTMENT OF HEALTH**

The Ohio Department of Health (ODH) provides support to the URSB through its statutory functions in matters of radiation protection. ODH is designated the Ohio radiation control agency in accordance with Ohio Revised Code 3748.02. ODH serves as the lead state agency on all health physics issues within Ohio, monitors the radiological performance of the nuclear power plants, provides emergency response personnel and dose assessment team leadership in the event of a radiological emergency, evaluates the ability of hospitals to treat contaminated injured people, ensures radiological environmental monitoring outside of commercial nuclear power plant boundaries and provides input on URSB Working Group initiatives.

### **Nuclear Power Plant Emergency Response Exercises**

ODH staff fully participates in nuclear power plant exercises. ODH successfully completed the June 2008 Beaver Valley Nuclear Power Plant (BVNPP) partial participation graded exercise, providing key personnel to the Executive Room and Dose Assessment Room, as well as liaison positions with the county, the utility, and the Joint Information Center. Field Monitoring Teams and Sample Screeners were not scheduled for evaluation during this exercise, but ODH took the opportunity to exercise them during the exercise dry run. In preparation for this exercise, ODH staff attended several training sessions, including: in-house procedure reviews, BVNPP Systems Training, Tabletop Training, and Field Monitoring Team Training, MARCS Radio Training, Controller Training, and Dosimetry Training.

A Hostile-based Action Exercise was held on September 12, 2008. Four ODH staff participated in roles at the Assessment Room, Executive Room, county, and JIC. Significant lessons regarding ICS interface and non-radiological impacts on protective actions were learned using these developing concepts as a basis for an exercise.

Ingestion Zone Recovery and Reentry Group (IZRRAG) Training was conducted and followed by an IZRRAG Tabletop in December 2007. ODH participated as the IZRRAG lead agency and worked with OEMA and ODA on reviewing applicable plans and procedures.

MS-1 medical drills at designated hospitals inside the 10-mile Emergency Planning Zone are also evaluated by ODH staff. These drills are designed to ensure medical facility capabilities in a radiological emergency and satisfy the requirements identified in the Federal Emergency Management Agency's Guidance Memorandum MS-1, "Medical Services". In this past year ODH participated in an MS-1 drill at Salem Hospital in support of the Beaver Valley partial participation exercise.

### **Utility Radiological Safety Board (URSB) Working Group Activities**

ODH attended URSB Working Group monthly meetings and worked with other member agencies on working group initiatives. Some of these initiatives are also being addressed through the Nuclear Emergency Planning Advisory Committee (NEPAC) meetings which ODH attends quarterly. ODH continues to have a role in URSB After-Action Group meetings where corrective actions that were documented from end-of-drill critiques and dose assessment room activities from previous drills are addressed and tracked.

Along with other State Agencies, ODH reviewed the *Ohio Plan for Response to Radiation Emergencies at Commercial Nuclear Power Plants* (REP Plan) and made appropriate revisions. ODH staff collaborated with OEMA staff in both the formulation and delivery of revised Field Monitoring Team training in May 2008, using a new modular format.

ODH participated in the teleconferences concerning the November 2007 Perry Plant reactor “scram”, during which questions were identified regarding multiple equipment failures at the plant. These questions were forwarded to the Board for consideration and approval. The Board subsequently directed some of these questions to the Perry plant via letter and at the Special Meeting of the Board.

ODH staff revised in-house procedures for assessment room, liaison, and field team activities. A significant feature of this revision was that all three power plants were combined into single, task-based procedures, with specific direction for variations between facilities.

### **Nuclear Power Plant Inspections**

ODH Bureau of Radiation Protection staff participates with the U.S. NRC (NRC) in Joint Inspection Observation Program (JIOP) inspections. The ability for ODH staff to participate in these activities has been significantly enhanced over the last year; three ODH personnel have been granted unescorted access to First Energy Nuclear Operating Company (FENOC) facilities. This has reduced the effort required by both NRC and FENOC in supporting JIOP's and has allowed ODH personnel to have greater latitude while participating. JIOP inspections have included: Access Control to Radiologically Significant Areas, ALARA Planning and Controls, Radiological Gas and Liquid Effluent Treatment and Monitoring Systems, Radiological Monitoring Instruments and Personnel Protective Equipment, Radioactive Material Processing and Transportation, Environmental Monitoring, and Radioactive Materials Access Controls. Since the last annual report, ODH participated in a total of nine JIOP's; five at Davis-Besse and four at Perry.

### **Midwestern Radioactive Material Transportation Committee**

Robert Owen, Chief of the Bureau of Radiation Protection, Ohio Department of Health, is the gubernatorial appointee to the committee. Each state has both a gubernatorial and legislative appointee to the committee, which acts as a forum for the states with DOE in developing policies and procedures for the safe transportation of radioactive material, including spent nuclear fuel, transuranic waste, low-level radioactive waste, and highway route controlled quantities (HRCQ) of radioactive material. ODH works with OEMA and PUCO in presenting Ohio's position on transportation issues. Rep. Michael Skindell is the legislative appointee for Ohio.

### **Potassium Iodide (KI)**

The ODH policy for the *Distribution and Use of Potassium Iodide for the 10-Mile Emergency Planning Zone Population* was revised and signed by the Director of Health in January 2008. The KI policy does include appropriate amounts of KI for the entire populations inside the 10-mile Emergency Planning Zones in Ohio. The policy no longer includes pre-distribution of KI to each residence in the 10-mile EPZ due to logistical and cost challenges involved. KI is currently stockpiled at reception centers and is available in sufficient quantities to the general public,

emergency workers and institutionalized populations. A copy of the policy is available on the ODH web site: <http://www.odh.ohio.gov/odhPrograms/rp/techs/techs1.aspx>

### **ODH Director Tour at Davis-Besse**

The Director of the Ohio Department of Health and Fremont native Dr. Alvin Jackson, members of his staff, and Nancy Osborn, Commissioner of the Ottawa County Department of Health, visited Davis-Besse on May 8, 2008. They met with members of the Senior Leadership Team and toured the plant. In addition to visiting the Turbine Deck and the Control Room, the group was led through the Radiologically Restricted Area (RRA) by Vito Kaminsakas, Director of Performance Improvement and by Lynn Harder, Manager of Radiation Protection. Plant staff provided a presentation regarding plant and county emergency planning interaction – as well as how Ohio is involved in planning and executing emergency functions.

### **Radiological Environmental Monitoring Activities**

ODH staff oversees offsite radiological environmental monitoring activities at Davis-Besse Nuclear Power Station, Perry Nuclear Power Plant, and Beaver Valley Power Station. Groundwater, lake water, potable water, bottom sediment, milk, fish, fruit, vegetable and air samples are collected by local health departments (under contract with ODH) and analyzed by the ODH Laboratory. All sample results indicated that radioactivity levels are at or near the Lower Limit of Detection (LLD) and well below the NRC release criteria.

In 2008 the three nuclear power plants instituted enhanced groundwater sampling programs. They have mapped and modeled groundwater flows and installed additional monitoring wells based on those results. FENOC will use an outside laboratory for sample analysis and will include the results in the annual environmental report for each site. This groundwater sampling initiative includes appropriate communications protocol to ensure notification to local and state agencies.

The ODH Annual Environmental Monitoring Report for 2007 is currently in print production with distribution of the report anticipated by mid-September.

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## **OHIO ENVIRONMENTAL PROTECTION AGENCY**

The Ohio Environmental Protection Agency is responsible for protecting the public health, safety and environment by ensuring compliance with environmental regulations. Ohio EPA provides environmental expertise to the Ohio Utility Radiological Safety Board in its development of comprehensive policy for the State regarding nuclear power. The Agency has one full time staff member and thirty other employees who devote between 2 and 15% of their time to support the objectives of the Board. Ohio EPA response personnel train and prepare for deployment in state and county operations centers and the impacted area in an emergency, and Ohio EPA routinely monitors compliance of the Ohio nuclear plants with environmental regulations for discharges, waste generation, and disposal as well.

## **Board Activities**

Ohio EPA personnel participate in the URSB Working Group, assisting in development and resolution of the its initiatives, and the URSB After-Action Group, helping to incorporate lessons learned from past exercises into the State's plans and procedures to be better prepared for a real emergency. Ohio EPA personnel attend quarterly meetings of the Nuclear Emergency Planning Advisory Committee (NEPAC), and in cooperation with other URSB member agencies, they devote significant effort into reviewing and revising the Ohio Plan for Response to Radiation Emergencies at Commercial Nuclear Power Plants.

## **Response Activities**

While there has never been an accident involving a release of radiation from one of the nuclear power plants in or adjacent to our State, Ohio EPA maintains a high state of readiness to respond to such an event. The Division of Emergency and Remedial Response, Emergency Response Unit has experienced personnel assigned to act as environmental liaisons in the host counties, to direct and coordinate the Agency's activities from the State Emergency Operations Center (EOC), and to assist in dose assessment and direct sampling teams in the EOC Assessment Room.

Ohio EPA's Radiological Assessment Team (RAT) consists of environmental specialist from many disciplines such as geology and ground water, water quality and treatment, emergency response and remediation, waste disposal, and air pollution monitoring and control. The RAT can deploy within 24 hours of a release of radiological material from a nuclear power plant to take field measurements for radiation in the area contaminated by deposition of radiological material and collect environmental samples of soil, surface water, vegetation, or snow for laboratory analysis. The RAT can field up to six sampling teams to assist in the State's efforts to delineate the area of contamination, characterize the impact from a release, and evaluate the risk to human health over time.

Ohio EPA personnel participate in the State's Ingestion Zone Recovery and Re-entry Advisory Group (IZRRAG). If an area became contaminated from a release of radiological material, the IZRRAG would meet periodically to evaluate the results of the analysis of samples collected from the contaminated area by the RAT and other sampling teams. As the health risk from contamination diminishes through radioactive decay, the IZRRAG continues to develop recommendations on the safety for people to return to and repopulate the area.

Ohio EPA response personnel participate in the exercises and drills run by the State or the plants as part of their regular, federally evaluated exercise schedule. Ohio EPA also conducts its own sampling exercises for the RAT. Ohio EPA personnel attend mandatory training to maintain their qualifications for the RAT and support roles, and twice annually, the Agency conducts multiple-day training for RAT members, associated support staff, and liaisons. To improve coordination and readiness, Ohio EPA often involves staff from other State Agencies with which it works closely to participate in this training or provide instruction in their area of expertise.

## **Other Related Activities**

Nuclear plants have permits for stationary combustion sources such as auxiliary boilers and the emergency diesels. There were no air permit violations reported for either of the two nuclear plants located in Ohio for in SFY08. The Nuclear Regulatory Commission regulates other routine air emissions associated with the operation of a nuclear power plant.

Ohio EPA receives and evaluates monthly wastewater discharge reports submitted under National Pollutant Discharge Elimination System (NPDES) permits. These permits establish limits on discharges of; hydrocarbons, metals, treatment chemicals, dissolved oxygen, and waste heat from the plant sewer and process effluent outfalls.

On September 19, 2007, Perry reported a discharge from a storm drain of cloudy water with a high pH into Red Run, a drainage stream on the plant property. There was no radioactive contamination in this discharge, but it did exceed the NPDES limits for this discharge path.

There were no other reports of NPDES violations in SFY08 for either Ohio plant.

Any facility generating more than 200 pounds of hazardous waste, as defined in ORC 3745 Sections 50 and 51, a month must register with Ohio EPA and obtain a generator's identification number. This registration allows the plant to store and manifest hazardous waste for shipment off-site. The plants must make an annual report each calendar year and submit the report to Ohio EPA, Division of Hazardous Waste Management. These reports detail the types of waste generated and the quantities involved. These reports also list where each waste is sent for treatment, storage, or disposal. There were no known discrepancies or violations of either of the Ohio plant's permits in SFY08.

National drinking water standards have been established to ensure that our drinking water does not contain unhealthy levels of contaminants. Contamination standards for inorganic chemicals, volatile organic chemicals, pesticides, and herbicides are expressed as Maximum Contamination Limits. Public water providers must test their water regularly, and submit the results to Ohio EPA. Public water providers have to test their raw and finished water for 83 substances. There were no known radiological excursions at either Ohio plant for SFY08.

The plants have established a protocol for sampling groundwater around the facilities and monitoring the regional flow through the plant areas. For the Davis Besse and Perry plants, this groundwater movement is toward Lake Erie. For Beaver Valley Units 1 and 2 this movement is toward the Ohio River. None of the plants detected any abnormality in the chemical elements of the groundwater across the plant property through this monitoring program.

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## **OHIO DEPARTMENT OF AGRICULTURE**

The Ohio Revised Code directs the Ohio Department of Agriculture (ODA) to protect the food supply as it relates to Food Safety and Animal Health. Additionally, the Code of Federal Regulations directs ODA to promote public safety involving nuclear power plant operations. ODA, in coordination with the United States Department of Agriculture (USDA) and the Ohio State University Cooperative Extension Service, estimates damage to crops and livestock from radiation incidents.

ODA maintains emergency response plans and monitoring programs in order to respond to and mitigate the effects of nuclear incidents. ODA coordinates procedures for the protection and recovery of livestock, poultry, forage and browse plants from radiation effects. ODA reviews and maintains embargo and quarantine procedures for all affected food, agricultural commodities, and livestock within an affected area and for possible outlets for contaminated products.

If an incident occurs, ODA assesses and deals with problems impacting agriculture and its related industries. ODA, in coordination with the Ingestion Zone Recovery and Re-entry Advisory Group (IZRRAG) and the counties involved, determines affected target groups including farmers, food producers, distributors and processors in the ingestion exposure pathway and gives them emergency response information.

### **Nuclear Power Plant Emergency Planning**

ODA attends monthly Utility Radiological Safety Board (URSB) Working Group meetings, quarterly Nuclear Emergency Planning Advisory Committee (NEPAC) meetings and After Action Group meetings.

ODA continues to devote significant time and effort to participate in the scheduled IZRRAG meetings to review and revise the Ohio plan for “Response to Radiation Emergencies at Commercial Nuclear Power Plants” procedures and advisories in preparation for nuclear power plant training, exercises or all hazards related emergencies.

### **Other Related Items**

The Ohio Agriculture Brochure was reviewed and updated by IZRRAG team members and will be distributed by ODA in September of 2008. There are approximately 200 brochures to be distributed to Ohio food producers, processors and distributors located within a ten mile radius of a nuclear power plant, and the brochure will be made available to counties within a fifty mile radius.

ODA participated in the Beaver Valley Power Plant partial participation and evaluated exercise on June 24, with the dry run taking place on June 3<sup>rd</sup>. ODA included EOC agency representatives.

Several members of the Ohio Department of Agriculture’s EOC representatives attended Nuclear Power Plant systems training held on March 26, 2008, and attended multiple sessions of the EOC OpsCenter Training, conducted in 2008 at the Ohio Emergency Management Agency.

Training for field monitoring and sampling teams was conducted for ODA team members in spring of 2008. This training included; inspecting and updating response team equipment kits, overview of response procedures and checklists. Dates to continue this training will be announced in the fall of 2008 and will be available for other URSB agencies to attend.

ODA continues to instruct and attend ICS courses to prepare field team members to meet and integrate the federal NIMS requirements and the ability to operate in a supervisory role, within an ICS organization, during nuclear or all hazard emergencies or disasters.

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## **OHIO DEPARTMENT OF COMMERCE DIVISION OF INDUSTRIAL COMPLIANCE**

The overall mission of the Ohio Department of Commerce (ODC), Division of Industrial Compliance is to serve Ohio by promoting the safety and soundness of our customer industries through an innovative and effective team of highly motivated employees. The Ohio Department of Commerce is one of the state's chief regulatory agencies. Commerce is different from most state agencies, since it must operate like a private business enterprise as opposed to being funded primarily by Ohio's General Revenue Fund dollars. The agency exists on the fees and assessments from the industries that it regulates.

### **URSB Involvement**

ODC is a member of the Ohio Utility Radiological Safety Board (URSB). ODC is committed to help ensure nuclear safety for the citizens of Ohio by monitoring the Davis-Besse and Perry Nuclear Power Plants quality assurance programs.

### **Agency Specific Activities**

During SFY08, ODC continually monitored the Davis-Besse and Perry Nuclear Power Plants In-service Inspection Program of Nuclear Power Plant Components. Chapter 4101:4-5 of the Ohio Administrative Code mandates this monitoring. In this chapter it refers to Section XI, Rules for In-service Inspection of Nuclear Power Plant Components, of the ASME Boiler and Pressure Vessel Code. This Section provides rules for the examination, testing, and inspection of components and systems in a nuclear power plant.

The rules of this Section constitute requirements to maintain the nuclear power plant and to return the plant to service, following plant outages, in a safe and expeditious manner. The rules require a mandatory program of examinations, testing, and inspections to evidence adequate safety. The rules also stipulate duties of the Authorized Nuclear In-service Inspector to verify that the mandatory program has been completed, permitting the plant to return to service in an expeditious manner.

The Owner of the nuclear power plant is assigned the responsibilities to develop a program, which will demonstrate conformance to the requirements of this Section. These responsibilities include: (a) Provision of access in the design and arrangement of the plant to conduct the examination and tests; (b) development of plans and schedules, including detailed examination

and testing procedures for filing with the enforcement and regulatory authorities having jurisdiction at the plant site; (c) conduct of the program of examination and tests, system leakage and hydrostatic pressure tests, as well as in-service tests of pumps and valves; (d) recording of the results of the examinations and tests, including corrective actions required and the actions taken.

Duties of the Authorized Nuclear In-service Inspector are assigned by Section XI to verify that the responsibilities of the Owner and the mandatory requirements of this Section are met. Duties performed this past fiscal year by the Authorized Nuclear In-service Inspectors included: (a) witnessing of pressure tests; (b) reviewed nondestructive examination procedures and repair programs; (c) verified that the visual examinations and tests on pumps and valves had been completed and the results recorded.

### **Future Activities**

The Department Staff will continue to monitor the In-service Inspection Programs of Davis-Besse and Perry Nuclear Power Plants, and will provide technical assistance to the URSB when questions arise regarding the requirements of ASME Section XI.

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## **PUBLIC UTILITIES COMMISSION OF OHIO**

### **The Public Utilities Commission of Ohio**

The Public Utilities Commission of Ohio (PUCO) works to assure all residential and business consumers access to adequate, safe and reliable utility services at fair prices, while facilitating an environment that provides competitive choices. The PUCO regulates electric, natural gas, telecommunications, water/wastewater and transportation companies operating in the State of Ohio.

### **The PUCO Transportation Department**

The PUCO Transportation Department works to facilitate safe and secure commercial transportation on public highways, railroads, and at transportation facilities as well as promote quality and equitable service in a proactive manner for the public and commercial carriers in the household goods, bus, and ferryboat industries.

The PUCO Transportation Department is responsible for enforcing state and federal motor carrier and rail safety requirements within the state of Ohio.

### **Transport of Radioactive Materials – PUCO Regulatory Responsibilities & Capabilities**

The Governor has designated the PUCO as the state's routing agency for radioactive materials and spent nuclear fuel. The PUCO Transportation Department is responsible for the enforcement of federal and state regulations governing the highway and rail road transport of hazardous materials, including radioactive materials. The Transportation Department staff includes 15 Hazardous Materials Specialists and 1 supervisor trained to standards prescribed by the United States Department of Transportation (US DOT), the Federal Motor Carrier Safety Administration (FMCSA) and the Commercial Vehicle Safety Alliance (CVSA). These personnel are certified to

conduct inspections of highway radioactive materials shipments using the CVSA Level VI, Enhanced North American Standard (NAS) Inspection for Radioactive Shipments. The Level VI inspection procedure is limited to radiological shipments and includes inspection procedures of the US DOT/CVSA NAS Level I inspection. The Level VI inspection procedures include US DOT radiological requirements and stringent “out-of-service criteria” for trucks transporting the materials. CVSA Level VI inspections include close examination of the driver, the vehicle, and the radioactive materials packaging and cargo. Radioactive materials shipments that are not examined under the Level VI process are inspected using the North American Standard Level I procedures. Also, several PUCO Transportation Department personnel are certified by the US DOT Federal Railroad Administration (FRA) to inspect rail shipments of radioactive materials. Along with checking for compliance with the US DOT Hazardous Materials Regulations, these PUCO personnel are also FRA certified to inspect rail equipment, track, and operating practices.

When encountered in transportation, PUCO HM Specialists regularly inspect packaging of Class 7 materials that are not subject to the CVSA Level VI inspection criteria. These inspections include a radiological survey. These personnel are also trained in radiological decontamination and control procedures found in 49 CFR 173.443.

PUCO personnel often work very closely with the staffs of the Ohio Emergency Management Agency and Ohio Department of Health to coordinate and conduct inspections of high level and special interest radioactive materials shipments. This includes radioactive industrial sources, shipments of radioactive waste from the de-commissioning of the US DOE Fernald and Mound facilities as well as containers of depleted Uranium Hexafluoride (UF<sup>6</sup>) in transit from Oak Ridge, KY to the US DOE Piketon, OH facility. PUCO personnel inspect and escort all Highway Route Controlled Quantities (HRCQ) and Quantities of Concern (QC) shipments that enter or travel through Ohio.

During the previous year PUCO personnel inspected highway route controlled quantity (HRCQ) shipments and non-HRCQ shipments of Cobalt <sup>60</sup> originating in Canada. PUCO personnel took part in the Beaver Valley Exercise conducted on June 24, 2008.

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# NUCLEAR POWER PLANT ACTIVITIES



## NUCLEAR POWER PLANT ACTIVITIES

Two nuclear power plants are located in Ohio, the Davis-Besse Nuclear Power Station and the Perry Nuclear Power Plant. A third nuclear power plant, the Beaver Valley Power Station, is located in Pennsylvania within 5 miles of the Ohio border. The following three sections describe the plants in more detail and activities of SFY08.

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### DAVIS-BESSE NUCLEAR POWER STATION



First Energy Nuclear Operating Company's Davis-Besse Nuclear Power Station, is near Oak Harbor in Ottawa County. The plant is owned by First Energy Nuclear Operating Company and operated by the First Energy Nuclear Operating Company (FENOC).

The station operated safely and reliably during the year. Several activities to highlight from the past year include the 15<sup>th</sup> refueling outage in February 2008, two plant power reductions, independent assessments in key programs completed in accordance with commitments made to the Nuclear Regulatory Commission and an assessment of the Davis-Besse Alert Notification System.

#### 15<sup>th</sup> Refueling Outage

Davis-Besse completed its 15<sup>th</sup> Refueling Outage on February 14, 2008. The original outage schedule had the outage completed on February 2<sup>nd</sup>. The 12 day delay was due to the rebuilt rotor being out of balance resulting in turbine vibrations during plant start-up. The rotor was rebalanced and the plant was subsequently restarted without further delays.

Over 2,000 maintenance activities were completed during the refueling outage in addition to replacing 76 of 177 fuel assemblies, rewinding the 150-ton turbine-generator and completing thousands of visual and ultrasonic inspections of piping and equipment.

Other significant work completed during the outage included the following:

- Reinforcing some welds associated with the pressurizer
- Replacement of feedwater piping,
- Inspection of the reactor head and vessel,
- Maintenance on the cooling tower,
- Replacement of the condenser steam bellows,
- Installation of new digital control room recorders,
- Upgrade of the diesel generator governor system, and
- Inspection of the steam generators.

Steam generator inspections included over 95,000 examinations on more than 30,000 individual steam generator tubes. 81 tubes were plugged and no significant issues were identified.

#### April 25 Power Reduction

The April 25 through 27 power reduction was conducted to repair a control oil leak on the #1 Main Feedwater Pump (MFP). The power reduction was completed safely and event free. The plant staff took the opportunity during the downpower to perform predictive and preventive maintenance on other plant equipment including the following:

- Alignment check and vibration testing of the #2 circulating water pump,
- Preventive maintenance on the #3 condensate pump motor breaker,
- Electrical preventive maintenance on the #1 condensate pump motor
- Turbine valve testing
- Control rod drive exercising, and
- Local Leak Rate Testing of the personnel airlock

The power reduction and maintenance activities were completed as planned and the plant returned to full power ahead of schedule.

#### June 6 Power Reduction

The power reduction was conducted from June 6 through June 8, 2008 was completed safely and event-free. The team closed a number of equipment issues. The primary reason for the downpower was to resolve control system oscillations associated with a servo valve for the #1 Main Feedwater Pump. Minor control system oscillation remains following the planned work. A plan is being developed to further address this issue. Several other work activities were performed during the downpower to improve plant reliability. Additionally, turbine valve and control rod drive testing were conducted.

#### Independent Assessments

As part of the NRC confirmatory order related to the Davis-Besse reactor vessel head degradation event, Davis-Besse is committed to performing independent assessments of four key programs for a period of five years (2004-2008).

The four key areas include the following:

- Operations Performance
- Corrective Action Program
- Engineering Program
- Safety Conscious Work Environment

The operations performance and corrective action program assessments have been completed year to date in 2008 with both areas were rated Effective.

Note 2008 is the fifth and final year that DB is committed to performing these assessments.

#### Alert and Notification System (ANS) Self Assessment

The six-year self-assessment of the Davis-Besse Alert and Notification System was completed the week of October 5, 2007. The assessment team included representatives from Ohio EMA, Davis-Besse Emergency Response, and FENOC Fleet Emergency Response personnel. This assessment reviewed the ANS process and procedures, a review of demographic or other 10-mile Emergency Planning Zone (EPZ) changes that could affect ambient sound levels, the public information program, siren system testing and an eyewitness validation siren performance during the three minute EPZ siren test. There were no significant issues identified during this self-assessment.

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## PERRY NUCLEAR POWER PLANT



The Perry Nuclear Power Plant (PNPP) located on the shores of Lake Erie in Lake County, approximately 35 miles northeast of Cleveland, began commercial operation in November 1987. The plant is owned by First Energy Nuclear Operating Company and operated by the First Energy Nuclear Operating Company (FENOC).

PNPP is a single unit General Electric boiling water reactor (BWR). A BWR is designed to use the steam that is produced inside the reactor to drive the turbine generators. Under ideal conditions, PNPP is capable of producing enough electricity to power 1,220,360 homes in an average month.

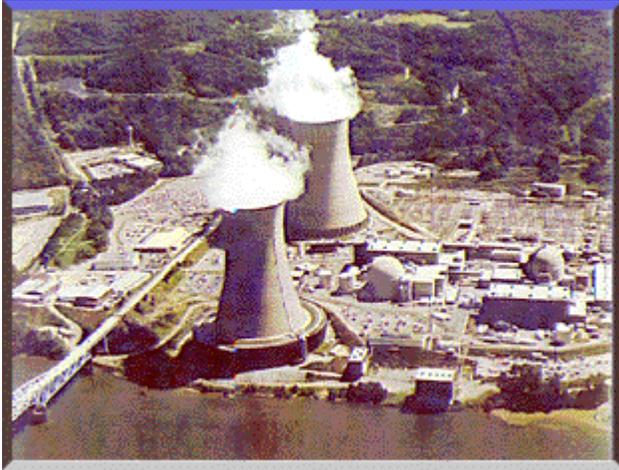
The plant operated safely and reliably during the year.

On September 12, 2007 a Security Threat drill was held following the Nuclear Energy Institute's "Guideline for the Development of EP Drill and Exercise Threat Based Scenarios." The crux of the drill was to integrate the response of the National Incident Management System (NIMS) with the plant's emergency plan. The results of the drill were well received by the Nuclear Regulatory Commission. Good practices and areas for improvement have been identified and shared with agencies involved in the drill.

Plant operation was affected by equipment issues requiring power reduction to facilitate repairs in October 2007. A plant shutdown led to a forced outage in November 2007 due to a digital feedwater power supply failure. The shutdown was complicated by a loss of feedwater and the High Pressure Core Spray system was used to maintain reactor water level. The plant staff investigated each equipment related issue to determine the cause and to ensure steps are being taken to minimize possibility of recurrence. Following this shutdown, plant management developed an Improvement Plan to improve overall performance and reliability, to proactively address equipment issues, and to improve the preventative maintenance strategy. A planned maintenance outage in April 2008 substantially improved the condition of the Perry Plant. The plant has provided safe and reliable service following this outage.

Perry Plant remained in the Regulatory Response Column of Reactor Oversight Process during this period and transitioned to the Licensee Response Column in July 2008.

## BEAVER VALLEY POWER STATION



The Beaver Valley Power Station (BVPS) is located in Shippingport, Pennsylvania on the Ohio River approximately 5 miles from the Ohio border. The plant is a two-reactor site, with Unit 1 commencing operation in October 1976 and Unit 2 in November 1987. Beaver Valley Unit 1 and Unit 2 are owned by First Energy Nuclear Operating Company and operated by First Energy Nuclear Operating Company.

The plant operated safely and reliably during the year.

The 18<sup>th</sup> refueling outage was conducted for Unit 1 from September 24, 2007 through October 24, 2007. Major tasks other than refueling the reactor included the following activities:

- Structural weld overlays of five pressurizer nozzles
- 10 year reactor vessel in-service inspection
- Replacement of upper reactor internals split pins
- Containment sump modifications
- Containment cleaning to support sump modifications

The 13<sup>th</sup> refueling outage was conducted for Unit 2 from April 14 through May 22, 2008. A complete core off-load and re-load was conducted during the outage. Major tasks completed during the outage included the following:

- Repair of several reactor head control rod drive shaft penetrations
- Reactor vessel in-service inspections
- Replacement of upper reactor internals split pins
- Installation of a new high pressure turbine

Two federally evaluated exercises were conducted during the past year. The MS-1 medical exercise was successfully completed at the Salem Hospital on October 31, 2007 and the plant and offsite agency evaluated exercise with NRC and FEMA evaluation was successfully completed on June 24, 2008.