GPU Nuclear

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September 27, 1995
C321-95-2291

Document Control Desk
U. S. Nuclear Regulatory Commission
Region I
475 Allendale Road
King of Prussia, PA 19406-1415

Dear Sir:

SUBJECT: Oyster Creek Nuclear Generating Station
Docket 50-219
Response to SALP Evaluation

As requested by your correspondence of September 1, 1995, Attachment I provides the response to our recent SALP evaluation. We value your perspective in the identification of areas where further improvements can be made. In the following discussion we have addressed those areas in detail.

GPU Nuclear is in agreement with your assessment in all functional areas except the Plant Support area, specifically Radiological Controls. Although we are pleased that NRC has acknowledged steady improvement in exposure reduction our continued aggressive approach toward reducing the in-plant source term should also be recognized. We provide additional information on Radiological Controls programs and improvements herein as well. In addition, GPU Nuclear would welcome the opportunity to meet with the staff to present Oyster Creek's specific challenges and to detail our progress in reducing in-plant source term.
Additionally, as discussed at the meeting your assessment contained two areas which we would like to clarify for the record:

1) In the cover letter the statement, "... critical omissions in management oversight and control of the modifications of the Emergency Diesel Generators and the Station Blackout Combustion Turbines contributed to their subsequent inoperability," is in error. Although we did consider the **combustion turbines** to be inoperable at no time was either **diesel generator** inoperable when declared to be operable.

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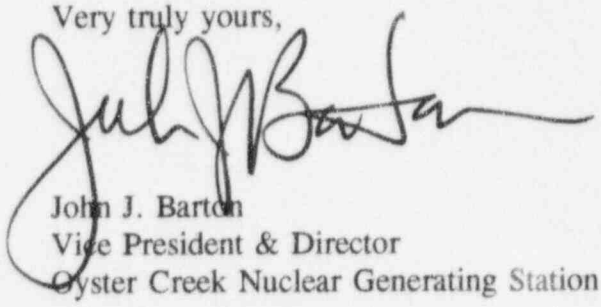
2) In the area of Maintenance the statement, "A second challenge was a plant shutdown and declaration of an Unusual Event that resulted from work performed outside the scope of the controlling job order," is in error. This challenge relates to excessive nitrogen leakage through V-27-1 and 2 which resulted in the initiation of a shutdown, however, the shutdown was not completed.

As expressed at the meeting held August 24, 1995, we appreciated your presentation and favorable comments held in a public forum and welcome the opportunity to meet with you in the near future. Should you have any questions or comments, please feel free to contact me directly.

Very truly yours,



John J. Barton
Vice President & Director
Oyster Creek Nuclear Generating Station

JJB/BDE/gl

cc: Administrator, Region I
OCNGS Senior Resident Inspector
OCNGS NRC Senior Project Manager

ATTACHMENT I

RESPONSE TO SALP EVALUATION

OPERATIONS

GPU Nuclear is in agreement with the assessment in this area. Much work has been done to improve performance in this area during the SALP period as recognized in the assessment. It is also recognized that several significant operator errors have occurred. In order to address these issues, several actions aimed at human performance improvement have been taken. These actions include:

* Renewed emphasis on self-checking (skill based errors) and the requirement for a visible delay/pause before completing the action step.

* In an effort to promote improvements in individual shift performance, each crew has revised their individual Shift Improvement Plan. These plans have been merged into an Operations-wide document.

Specifically with regard to weak management control of Station Blackout (SBO) Combustion Turbines (CT's), the following actions were taken:

1. A System Performance Team (SPT) has been formed. This team consists of a SBO system engineer, a Control Room Group Shift Supervisor, and a JCP&L site engineer who is responsible for the combustion turbine. The team meets quarterly to discuss ongoing system issues as well as all SBO system modifications affecting the operability of the CT's.

2. The responsibility of the GPU Nuclear System Engineer regarding the SBO equipment under JCP&L jurisdiction is included in the document known as "Clarification of Responsibilities between Jersey Central Power & Light and GPU Nuclear Corporation." The following agreements are included in the document which is periodically reviewed by all parties:

   - The GPU Nuclear SBO System Engineer will be notified of proposed design changes to the FRCTs which potentially affect operability.

   - The GPU Nuclear SBO System Engineer will provide concurrence for detailed design engineering for modifications to the FRCTs which affect operability.

   - Modifications which may affect the operability of the FRCTs shall be post-modification tested by JCP&L. GPU Nuclear Start-Up & Test engineers will review the procedure prior to implementation and will then review the results of the post-modification testing or will personally witness post-modification testing and provide written concurrence that SBO capability is unaffected.

- Additionally, the GPU Nuclear SBO System Engineer will review the results of post-modification testing or personally witness post-modification testing and provide written concurrence that the SBO capability is unaffected.

3. A Plant Support Engineering task Action Item is Generated per GPU Nuclear procedures to document the review and approval of the CT modifications. This task is closed only after approval by systems supervisor and the manager. A Safety/Environmental Determination and 50.59 review is completed per GPU Nuclear procedures, as necessary.

MAINTENANCE

GPU Nuclear is in agreement with the assessment in this area. As noted in the assessment, several instances where communication failures, breakdowns in the control of maintenance or weak supervisory oversight and technical support resulted in plant challenges that detracted from overall performance. These challenges and those actions taken to prevent recurrence are described below.

CHALLENGE:

During the process of draining 1-1 and 1-2 Containment Spray Heat Exchangers (tube side) in preparation for cleaning, it was noted that Maintenance Department individuals operated a system without proper operating instructions. The root cause was failure to follow the procedure and perform procedure steps correctly in completing the work. Specific actions taken as a result were as follows:

* The evolution was stopped, valve V-3-936 was verified closed and the hoses were disconnected. Secondary containment integrity was re-established.

* A tagout was issued for both System 1 and 2 drain modifications. This prevented the use of these systems without proper instructions.

* The turnover process was implemented for the remainder of System 1 and all of System 2. The lack of operating instructions was identified as a discrepancy. Operating Procedures were revised to include specific operating directions.

* Additional training was conducted for Maintenance personnel on the need to follow established Procedures for the control of plant equipment. This training emphasized that installed plant equipment is not to be operated by Maintenance Personnel without proper instruction and/or direction. Also, Maintenance Supervision was given training on the Plant Configuration Change Control Process.

* The event critique was required reading for all Operations Personnel to communicate the need to follow the requirements of Procedure 124 in controlling the use of plant equipment not turned over and the need to assure appropriate instructions are utilized to operate plant equipment.

CHALLENGE:

It was determined that leakage through V-27-1 and 2 was the cause for excessive make-up of nitrogen to the drywell. An immediate maintenance job order authorized the investigation and repair. The actuator arm adjustment on both valves was found to be incorrect. This resulted in the valves being partially open which degraded primary containment. The root cause was inappropriate actions resulting in a failure to comply with procedural requirements. Contributing factors to the event were inadequate work instructions and lack of communications. Corrective actions consisted of the following:

* The Plant Maintenance Director emphasized, in writing, to all Maintenance personnel and all Site Services personnel the administrative requirements concerning revisions of Job Orders. The Preventive Maintenance Job Orders for 15R were reviewed for adequacy of the post-maintenance tests.

* Plant Maintenance management interviewed Mechanical Maintenance supervisors and the bargaining unit personnel involved in the event to clarify their understanding of requirements related to the use of and adherence to PM job orders. A sampling of personnel other than those involved in the event were also interviewed to better understand the departmental position relating to changes and scope of work.

* Senior maintenance management met with all maintenance production supervisors to reaffirm management's expectations regarding procedural compliance and personal accountability.

* A letter was issued to all maintenance personnel highlighting the subject event and Lessons Learned. Additionally, management's expectations for procedure use/adherence and change in scope were re-emphasized.

* Use/adherence and change in scope training was given to all first line supervisors and job coordinators.

* Use/adherence and change in scope training was incorporated into cyclic training.

* PM Task 390M was revised to provide enhancements addressing preferred valve positions, tagout needs, and precautions/limitations concerning actuator arm adjustments.

CHALLENGE:

A third challenge was a reactor trip signal while shutdown during post-maintenance testing of the newly installed digital Reactor Recirculation Flow Control System, which was the result of weak supervisory oversight and technical support of the testing.
A recirculation flow transient was experienced during 15R when the I&C technicians were performing troubleshooting in the newly installed digital Feedwater Control System. As a result of this transient, it was identified that I&C technicians required additional training on the new control system and that a maintenance procedure was needed in order to control any troubleshooting performed on this system. Additionally, plant management imposed an administrative requirement that either the system engineer or maintenance trainer directly supervise all troubleshooting activities until this procedure was developed and issued.

As identified in the assessment, GPU Nuclear concurs that control over transient and loose maintenance equipment located near safety-related components was weak. The following actions were taken:

* All maintenance production supervision were sensitized as to the need to comply with the Rolling Stock requirements.

* The rolling stock issue was incorporated into the Management Off-Shift Tour Program and the Management Observation Tour Program in an effort to draw attention to and address this concern.

Finally, in the Maintenance area a concern was expressed regarding limited oversight of contractors specifically with regard to the core shroud inspections during 15R. It is agreed that oversight of contractor work is necessary to assure a quality job. In general, however, the level of oversight provided is proportional to the complexity of the job, the historical work quality of the vendor and the vendor's performance during the job. It is not appropriate or cost effective to assign staff to provide full-time oversight to watch vendors perform inspections unless serious problems exist or there is reason to believe there are problems with the vendor's ability to perform in accordance with requirements. However, it is necessary to keep close account of all vendors on a daily basis, to monitor the progress of the work, understand problems that have occurred and review their results for accuracy and completeness.

The lack of direct oversight provided to the vendor in performance of the automated Ultrasonic examination of the Reactor Vessel Nozzles was a decision made prior to the outage. This examination was fully automated and computer controlled. The procedure and critical parameters were reviewed prior to the outage and approved by GPU Nuclear, and in the case of these examinations, were modeled at EPRI to ensure the vendor's procedure was accurate. The data and scan coverage was reviewed by GPU Nuclear to ensure the analysis was complete. Therefore, it was not necessary to monitor the examination on a daily basis. GPU Nuclear continues to believe that our level of overview was appropriate for the activity being performed.

ENGINEERING

GPU Nuclear concurs with the assessment in this area. We acknowledge and share your concern regarding control of the modifications for the Emergency Diesel Generators (EDG). Specific actions taken to address this event were discussed during the subsequent enforcement conference as well as in GPU Nuclear's response to the Notice of Violation and will not be repeated here.

It should be noted, however, that at no time was either diesel generator inoperable when declared to be operable. The diesels were not considered operable until after they had completed all required operability testing. Furthermore, there have been no EDG operability issues during Cycle 15 related to the 15R modification work.

With regard to the biofouling of the Service Water System, modifications were made to the Emergency Service Water systems during the 14R outage to reroute the chlorination point closer to the intake. This modification was not effective in preventing biofouling due to poor performance of the chlorination system. Following the biofouling events in the summer of 1994, additional modifications and changes were implemented to prevent future recurrences. These changes included the installation of a more reliable chlorination injection system, installation of inspection ports to allow early detection of mussel growth, environmental permit changes to allow continuous chlorination in order to improve chlorination effectiveness, and adjustment to the surveillance program to monitor pipe differential pressure. As a result of these initiatives, there have been no observations of ESW system biofouling during the summer of 1995.

PLANT SUPPORT

GPU Nuclear agrees with the assessment in the area of Emergency Planning and Security; however, in the area of Radiological Controls our assessment differs from that presented in the SALP report. In the Security section of Plant Support, we have taken the following actions to address training and repetitive lighting weaknesses.

* The Security training lesson plan has been revised to add more detail in the area of physical "Pat Down" searches.

* Annual security officer proficiency tests have been revised to include enhancements made to lesson plans.

* The use of "Pat Down" searches have been minimized through the use of hand held metal detectors.

* New "Walk-Through" metal detectors have been purchased and are installed.

* Periodic monitoring indicates that corrective actions have been successful.

Extensive actions have been taken to resolve the repetitive lighting discrepancies. These actions should assure lighting levels are continuously maintained.

* "Relamping" has been added to weekly maintenance schedule.

* Twenty-eight (28) trailers and one (1) building have been removed from the protected area.

* Extensive trimming has been accomplished on shrubbery inside the protected area.

* Five (5) modifications have been installed to eliminate temporary lighting with at least three (3) more planned for 1995.

* Specific accountability for lighting of the protected area has been given to three (3) additional Security Department personnel.

* A System Performance Team conducts a bi-monthly protected area lighting walk downs.

In the area of Radiological Controls GPU Nuclear was pleased that the Nuclear Regulatory Commission has noted steady improvement in exposure reduction. It is recognized that Oyster Creek continues to be challenged by a high in-plant source term. This has, in fact, been the topic of several discussions with the NRC staff. GPU Nuclear has and will continue to reduce the source term, through a variety of reduction efforts, to as low as reasonably achievable. Through a continuous long term effort, the three year rolling average has decreased dramatically. This continuous improvement since 1988 is shown in Figure 1.

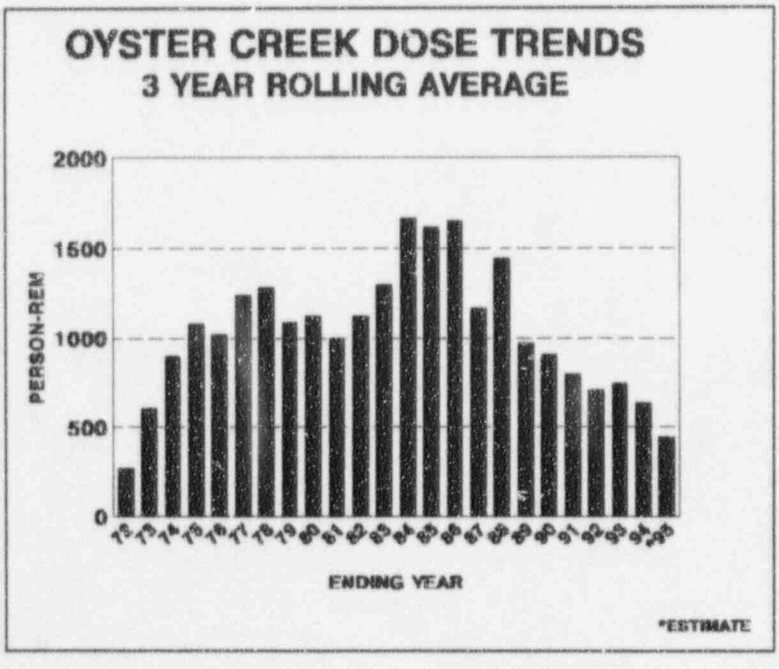


Figure 1: Three Year Rolling Average

The dose performance in 1995 is expected to be the lowest dose since 1970, the first full year of operation. Figure 2 shows the Annual Dose Trends. The expected 1995 dose of 95 rem or less is similar to many, newer BWR plants for operating periods.

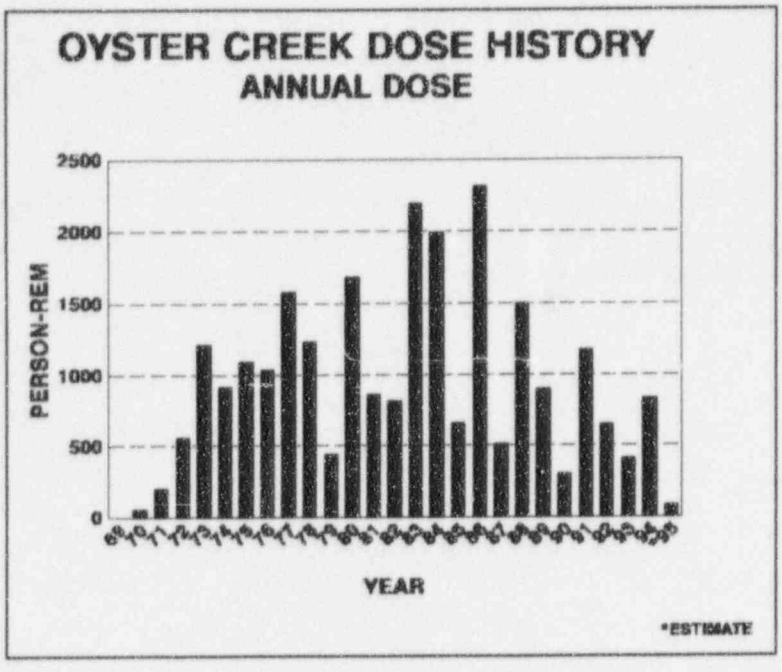


Figure 2 Dose by Year

The continuous dose reduction results achieved are reflected in monthly dose totals as well. Dose per month in the operating cycle, as well as dose and duration of outages, has shown a continuous improvement during the last several years as shown in Figures 3 and 4.

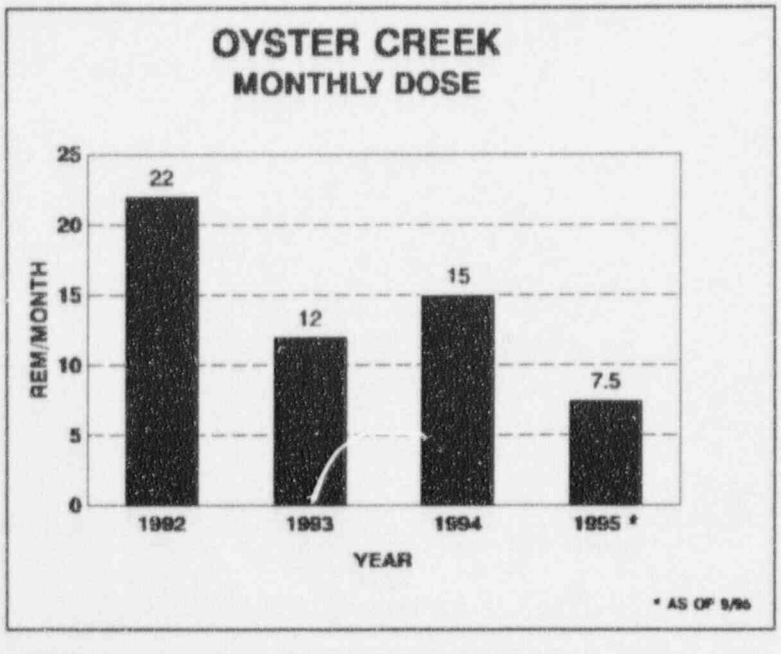


Figure 3: Monthly Dose by Year

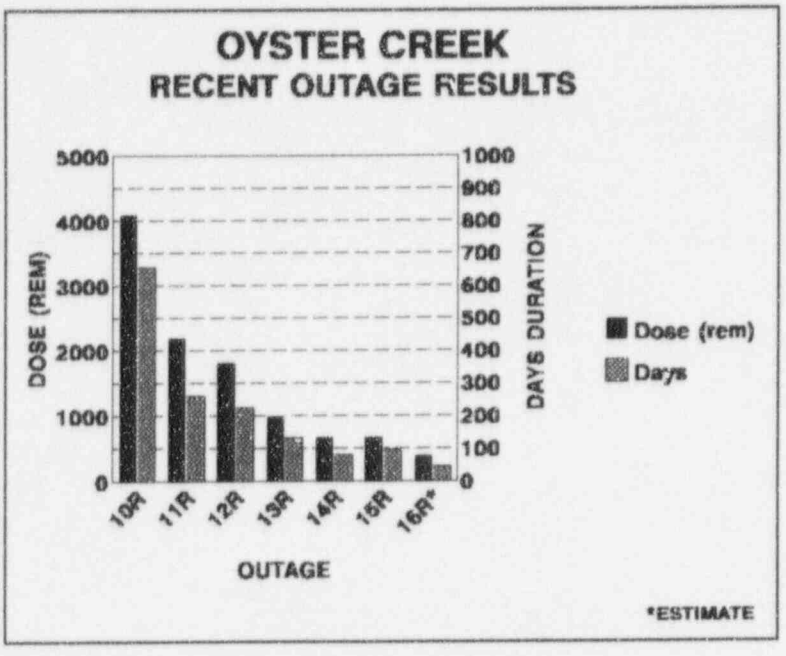


Figure 4: Outage Dose/Duration

These dramatic reductions in exposure are attributable to both exposure control programs and significant reduction in the source term. Over the last few years, we have conducted two chemical decontaminations of the major recirculation piping and approximately 45% of the total Co59 input into the reactor water system has been eliminated. Efforts have included plant design modifications, operational changes, target of opportunity stellite removal, and special maintenance activities specifically to remove stellite. Particular attention has been paid to the control of Hydrogen Water Chemistry (HWC) to minimize recontamination of the reactor recirculation system piping by reducing relocation of the Co60 that is present. Due to this effort, there has been no major increase in recirculation piping dose rates attributable to hydrogen chemistry. Based on the most recent data available, from the 15R outage, drywell dose rates are stable and may in fact be decreasing, which can be attributed to Co59 reduction efforts and HWC control.

Some of the major Co59 and Co60 removal efforts to date and those expected in the near future are enumerated in Table 1. The Co60 reduction results are illustrated in Figure 5. During the time period between Cycle 11 and Cycle 15 there has been a 30% reduction due to component replacement and a 16% reduction due to condensate polisher improvements. Dose avoidance and Co60 removal is a continuing process. Numerous projects have involved major shielding efforts, decontamination, source removal, and source avoidance as delineated in Table 2.

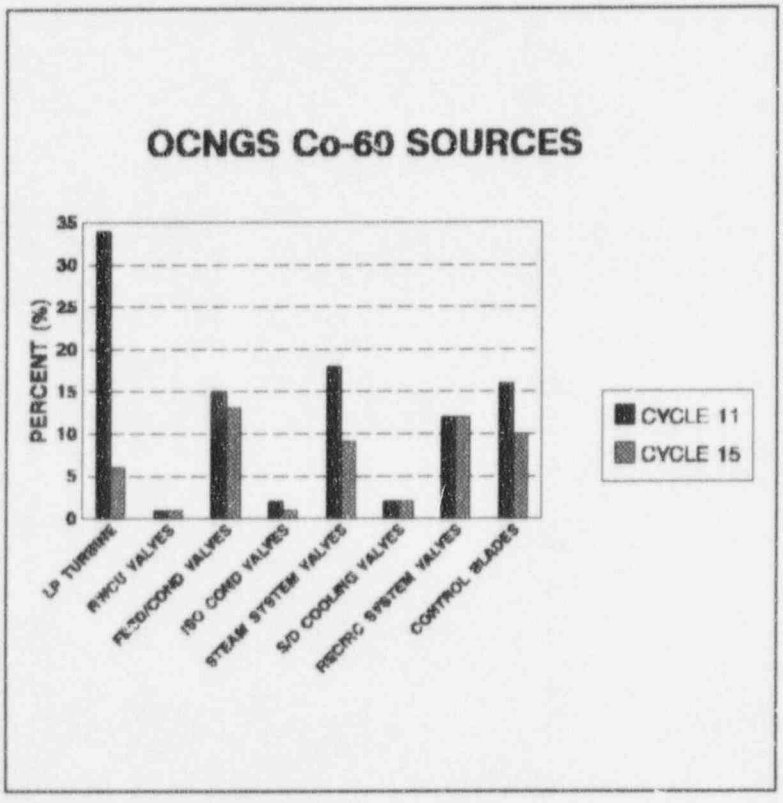


Figure 5: Co60 Source Reduction

TABLE 1

Source Term Reduction

OUTAGE/CYCLE	MAJOR Co59 AND Co60 REMOVAL EFFORTS
10R	Stainless Steel Feedwater Regulator Valve Plugs Were Installed
11R	Chemical Decontamination of Recirculation System was performed Cleaned Main Condensers (Reduces Feedwater Iron)
12R	16 Non-Stellite Control Cell Blades Were Installed Stainless Steel Feedwater Minimum Flow Valve Was Installed
Cycle 12	Modified 16 Spare Control Blades to Remove Stellite Modified 4 Spare Recirculation Isolation Valves to Remove Stellite
13R	Performed Reactor Water Cleanup System & Recirculation System Chemical Decontamination 9 Non-Stellite Control Cell Blades Were Installed Temporary Cavity Filtration System Was Utilized Replaced Isolation Condenser Valves with Lower Stellite Valves Non-Stellite Last Stage Blades Installed on "B" Low Pressure Turbine Non-Stellite Feedwater Regulator Block Valves Were Installed
Cycle 13	Condensate Air Drag Valve Installed
14R	"JO Backwash" Modification to Improve Condensate Polisher Cleaning Last Stage Blades On "A" Low Pressure Turbine Replaced with Non-Stellite Materials Performed Modified "Soft Shutdown" Used Temp Cavity Filtration
Cycle 14	Evaluated Higher Flow Operation on RWCU - Determined It to Be Valuable to Maximize Cleanup Flow During Power or HWC Changes Low Cross Link Resins in Condensate Polishers (One of the First Plants to Do So, Feedwater Iron Reduced to ~1ppb) Implemented HWC Control Process to Minimize Recirculation System Co60 Buildup
15R	Temporary Cavity Filtration Augmented with Skimmer Maximized RWCU During Shutdown 8 Non-Stellite Non-Control Cell Blades Were Installed Stainless Steel Internals in RWCU Pressure Control Valves Cleaned Hotwells Retained 'Aged' Resins in Condensate Demineralizers
Cycle 15	Joint Radiological Controls/Maintenance Valve Repair Training Including Co59 Input Minimization/Foreign Material Exclusion New Replacement Low Pressure Turbine to be Procured - No Stellite on Erosion Shields
16R	Evaluating 'NOREM' for MSIVs (Not Yet Used in Industry) 28 Non-Stellite Control Blades to be Installed Evaluating Accelerated Control Blade Replacement Replacement of Last Stage Blades on "C" Low Pressure Turbine Planned Evaluating In-Vessel Vacuuming to remove silt/fines during fuel movement

TABLE 2
Dose Reduction Initiatives

LOCATION	PROJECT	OUTAGE 14R Began 11/92 15R Began 09/94
Turbine Building	Combined Intercept/Reheat Valve Shields	15R
	Evaluating Similar High Pressure Turbine Shields	Cycle 15
	Front Standard Shadow Shielding	15R
	Heat Resistant Pan/Tilt/Zoom Cameras in the Condenser Bay	15R
	Evaluating Additional Cameras for Condenser Bay	16R
	Locked the Turbine Floor to Minimize Dose	Cycle 15
	Moved Plant Staff Out of an Office With Higher Than Normal Background	Cycle 15
	Flushed Radwaste Return to Condensate Pipe	Cycle 14
	Shield is Designed and Approved for Radwaste Return Pipe	Cycle 15
	Shielding Planned on Condensate Transfer Piping	Cycle 15
	Water Usage Tracking by Plant Analysis Helps Eliminate Condenser Bay Tours	Cycle 15
	Eliminated Routine Condenser Bay Tours	Cycle 15
	Added Permanent Scaffold to Reduce Scaffold Construction Dose	Ongoing
	A Specialized Portable Man-Lift was Obtained Which Eliminates Some Need for Dose-Intensive Scaffold Construction in the Condenser Bay	Cycle 15
Reactor Building	Hydrolased Floor Drains, Underway Again	Cycle 14/15
	Decontaminated the Reactor Bldg. Equipment Drain Tank (RBEDT)	Cycle 14
	Shielded Portions of Drains Systems	Cycle 14
	Performed Robotic Inspection of Filter Sludge Tank Cubicle	Cycle 15
	Hydrolased Fuel Pool Coolers	Cycle 14
	Flushed RWCU Filter/Demineralizers Drains	Cycle 15
	Decontaminated the RWCU Valve Gallery	Cycle 15
	Flushed RWCU Pipe in Valve Gallery	15R
	Eliminated Reactor Cavity Coating in 15R and Future Outages	15R
	Removed the Reactor Cavity Grating Which Was a High Radiation Source	14R
	Added Second Temporary Cavity Filtration System	15R
	Wet Lift Equipment & Detensioning Carousel	14R
	Cut Out & Replaced Hot Spot in Drains Systems	Cycle 14
	Cut Out of HCU Drain Headers Approved/Planned/Scheduled	Cycle 15
	Evaluated Operator Tour Dose Sources - Actions Planned	Cycle 15
	Shielding Under Reactor Bldg. Equipment Drain Tank	Cycle 15
	Replaced Reactor Water Cleanup (RWCU) Valve Nest Plug With a Plug Easier to Handle	15R
Radwaste Building	Desludged Three (3) Tanks & Several Feet of Pipe & Shielded Pipe to Support HPT-1B Relining	Cycle 14
	Filter Sludge/Waste Chemical Filter Bypass Modification	Cycle 14
	Rebuilt/Rescreened Waste Chemical Filters	Cycle 14/Cycle 15
	Waste Chemical Demineralizers Repiped to Be in Series	Cycle 15
	Desludged Four (4) Sumps	Cycle 14/Cycle 15
	Hydrolased Floor Drain Systems	Cycle 14/Cycle 15
	Decontaminated Pump Rooms, Valve Galleries, & Floor Drains	Cycle 14/Cycle 15
	Replaced/Upgraded Motors on Filter Sludge Pumps	Cycle 15
	Changed Filter Pre-Coat Material	Cycle 15
	Hydrolasing of Tanks & Pumps Allowed Removal of LHRA Controls from Portions of Old Radwaste	Cycle 14
	Radwaste Dismantlement Removed Unused Components	Cycle 14
	Extensive Use of Hydrolasing & Shielding for Fuel Pool Filter Septa Replacement	Cycle 14
	Shielded Liner Fill Batch Tank	Cycle 14
	Remote Liner Capping Tool	Cycle 14
	Waste Chemical Tank Side Mixer Modification	Cycle 14

TABLE 2
Dose Reduction Initiatives

LOCATION	PROJECT	OUTAGE 14R Began 11/92 15R Began 09/94
Drywell	Used Encapsulant on Contaminated Insulation	15R
	Modified Recirculation Fans to Direct Drive	15R
	Used Remote/Automated Tooling for Weld Inspections	15R
	Used Remote/Automated Equipment for Mechanical Stress Improvement	15R
	Reduced Scope for Safety Valve Exchange by Changing the Testing Protocol	15R
	Added to Thickness of Lead in Shadow Shields on Recirculation Pipe	15R
	Added Multiple Shields for Recirculation Pump Repairs	15R
	Improved Surface Decontamination	15R
	Modified 1-8 Sump Cover to Provide More Shielding & Support Additional Shielding	15R
	Installed Modification to Support Shadow Shielding on Bottom Head Drain	15R
	Installed Long-Term Neutron Monitors to Evaluate Elimination of the BioShield Doors	15R
	Installed Quick Disconnect Modification on 1-8 Sump Pumps	15R
	Additional Shielding on Head Drain Pipe	15R
	Cameras Installed to Monitor Work	15R
	Permanent Scaffolding has been Added to Reduce Construction Dose with More Being Evaluated	Ongoing
	Evaluating Use of Special Portable Man-Lift to Reduce Scaffolding Dose	Cycle 15
General Actions	Implemented a Dose Reduction Tracking System	Cycle 15
	Implemented the Automated Access Control System with Electronic Dosimetry	Cycle 14
	Integrated the RWP Into the Maintenance Job Order	Cycle 15
	Operations Department Implemented a Condenser Bay Performance Team to Improve Equipment Performance & Thereby Reduce On-Line Maintenance	Cycle 15
	HWC Control Optimization	Cycle 14
	Continued Contaminated Area Reductions	On-Going
	Significant Reduction in Radwaste Volume	15R/Cycle 15
	Used CO_2 Decontaminate System - Very Cost & Dose Effective Radwaste Volume Reduction	15R
	An EPRI Waste Minimization Study was Performed	Cycle 14
	Operations Department Initiated Condenser Bay Performance Team	Cycle 15
	Engineering Department Developed Several Modifications That Significantly Improved Radwaste Processing & Reduced Dose Rates in the Radwaste System	Cycle 14/Cycle 15
	The Source Term Reduction Committee has Identified & is Tracking the Overall Source Term Reduction Process at the Plant	Ongoing
	The Radiological Improvement Committee Includes Management & Labor in a Single Group Which Meets Monthly to Exchange Ideas & Implement Actions	Ongoing
	Maintenance has Implemented a Long Term On-Line Maintenance Window Approach to Scheduling Which has Greatly Improved the Ability of the Radiological Controls Department to Interface with Maintenance and be Pro-Active in Support	Cycle 15
	Actively Reviewing Zn Injection	Cycle 15
	RCFO Manager is Chairman of the BWROG ALARA Committee	
	Over the Last Two Years Improvements in the Coordination Effort for Work in Steam Affected Areas has Reduced the Dose from N16 Significantly. Work is Effectively Prioritized and Diverted to Power Reductions, Unscheduled Outages, or HWC OOS Windows	Ongoing
	The Collective Dose Overview Group Includes Senior GPU Nuclear Management and Meets Annually to Review and Provide Guidance On the Overall ALARA Program	
	A Site Visit by EPRI to Review and Discuss the Source Term Reduction Program has been Requested	Cycle 15

Oyster Creek implemented the revised 10CFR20 as required January 1, 1994. Subsequent inspections indicated that implementation was complete and appropriate. Oyster Creek's implementation philosophy was conservative and thorough and has been recognized as a strength.

Inspections by NRC staff, both by residents and regional specialists have not resulted in any cited violations of regulatory requirements during the SALP period. Other areas of improvement include:

Labor and Management are meeting periodically to improve Radiological Controls/Maintenance interface;

Only 2 Radiological Incidence Reports (RIRs) in 1995, only 4 in 15R, both significant decreases;

Locked High Radiation Area (LHRA) control among industry best, one in each of last two SALP periods, 26 months between events;

ALARA coordination process continues to improve working relationship between Planning and Radiological Controls;

Numerous reinforcements on cobalt control: Tech Functions conducted Co59 Reduction training, Spare Parts Engineering issued a Standing Order on Cobalt reduction, conducted combined Radiological Controls/Maintenance training, included stellite information in GMS2 component database;

RWP has been simplified to include standardized protective clothing sets.

Two weaknesses were identified in inspection reports during the period. One was related to a procedural weakness where a task which was not expected to exceed the ALARA review criteria did, in fact, exceed the criteria as the task progressed. The task did not subsequently have a complete, documented Radiological Engineering Review, although the engineer was maintaining day to day contact and awareness of the task and implemented additional dose reduction actions during the course of the task. Procedural requirements have been changed to explicitly describe the documentation expectations in such situations.

The second weakness was related to moving installed lead shielding in the drywell. During the last outage, a new method of shielding control was implemented in order to allow shielding to be more efficiently used and to reduce the dose required for shielding relocation. It was known in advance that shielding installations would interfere with required pipe inspections. The shielding was designed for and intended to be moved by the inspection crews as needed, however, on several occasions when the shielding was moved the required notification to the Radiological Controls Department was overlooked. This problem was self-identified and corrected as the outage progressed. As we continue to place shielding in more locations within the drywell, interference with work and increased need for efficient control will continue. A primary lesson learned from this experience is to develop a more effective control method while still providing some flexibility for the inspection requirements during the next outage.

The following four graphs depict the improving trends Oyster Creek has achieved in the areas of contaminated area recovery (Figure 6), skin contamination rate (figure 7), clothing contamination rate (figure 8), and reduction of radwaste volume (Figure 9). Skin and clothing contamination rate results for 1995 are significantly lower and are the lowest rates achieved since such data has been trended starting in 1988.

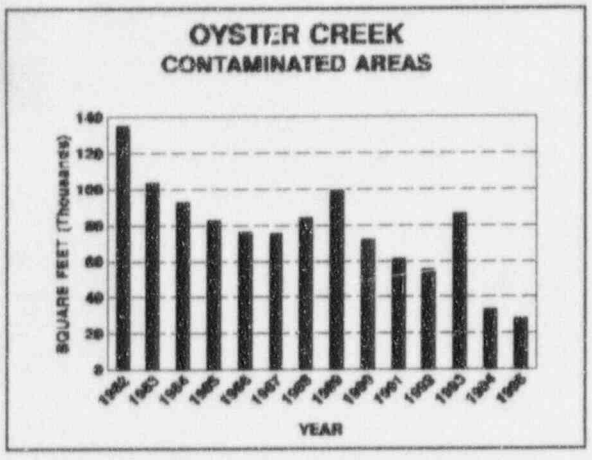


Figure 6: Contaminated Area

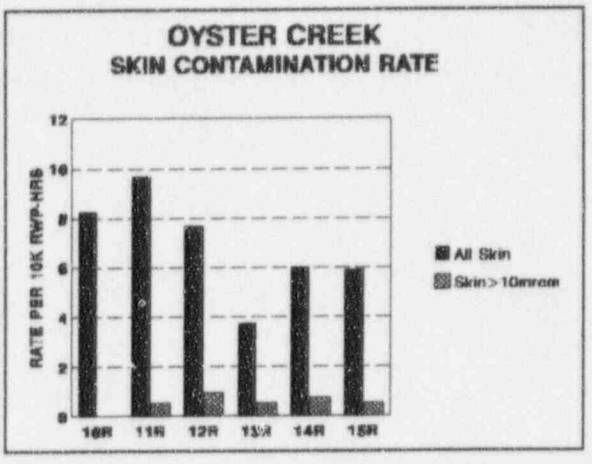


Figure 7: Skin Contaminations

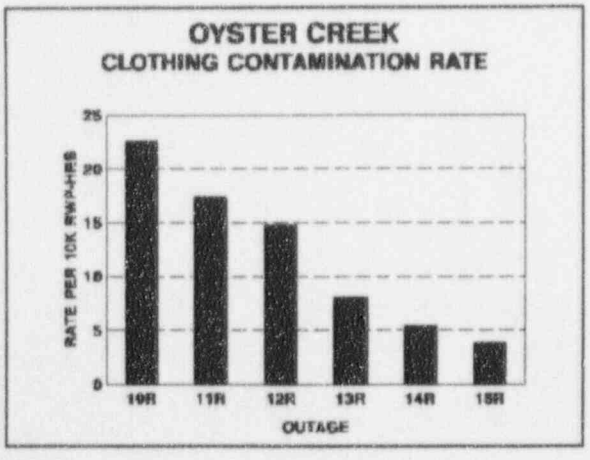


Figure 8: Clothing Contaminations

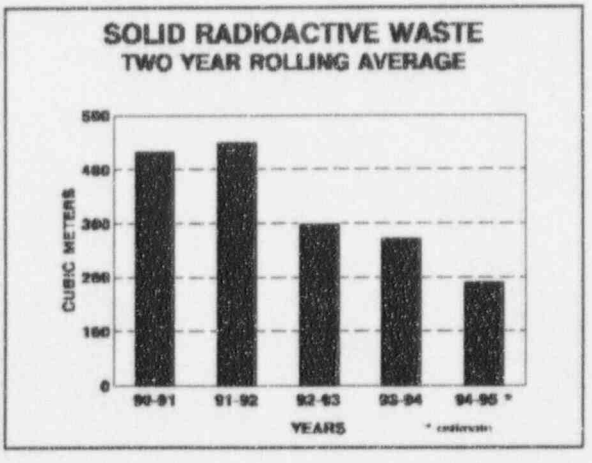


Figure 9: Radioactive Waste Volume

Use of the emerging computer and remote technologies can reduce dose and improve efficiency and performance. Oyster Creek is implementing automation where appropriate to again reduce dose and improve worker performance. Examples of this technology initiated during this SALP period include:

* The Radiological Work Permit (RWP) has been incorporated into the maintenance job order;

* Automated Access Control simplifies access while providing an Electronic Self-Reading Dosimeter (ESRD) with RWP specific setpoints to each individual;

* Dose reduction tracking system provides a means to catalog, track and record effectively dose reduction innovations;

* Expanded use of permanent video cameras in the Condenser Bay and Drywell planned for fuel pool cooling;

* Company owns remote surveillance and decontamination capable robots which were used for "Exclusion Area" inspection of Filter Sludge Tank Room;

* Use of digital images provides rapid exchange of information between engineering groups to assess shielding applications;

* The GPU Nuclear Robotics Committee reviews robotics and remote technology applications for in-plant use and maintains industry contact to remain current with applications of the technology;

* New On-Line Maintenance Window Process provides significant improvement in lead time for Radiological Controls' input.

SUMMARY

GPU Nuclear is committed to continuous improvement in all aspects of operation. The SALP report identifies a number of areas for improvement and initiatives have been taken to address these specific areas as well as the broader implications involving programmatic improvements. For example, in the Maintenance area procedural improvements were made in response to the containment integrity issue as well as providing additional training to personnel at various levels regarding overall work performance standards. In the current SALP period, we are focusing our attention in the areas of human performance related errors, first-line supervisor development, management oversight and communication. In Engineering, as a result of process reengineering efforts, the modification process has been substantially improved to be more effective and more timely in affecting plant improvements. Operations has made significant progress in improving

personnel performance. All departments have made personnel performance improvement a high priority for continued attention.

As part of the continuous improvement in radiological protection at Oyster Creek, attention has focused on a number of areas which contribute to increasing effectiveness of the program. In addition to the reductions in total dose commitment through effective internal and external dose control, improving individual radiological worker practices/performance reduces the challenge to the program and saves dose. Preventing release of radioactive material from the plant is a focus of the program, with a very low incidence rate of finding radioactive material outside of the Radiologically Controlled Area (RCA), and no recent events outside the plant protected area. Using an INPO accredited training and qualification processes, use of industry events for lessons learned, and self-identification of problems with timely followup have all contributed to program improvement.

GPU Nuclear is aware, as discussed during several prior meetings with NRC staff members, that Oyster Creek presents a number of unique source term challenges as a result of the plant design. Among the more formidable of these challenges are: one drywell hatch where other plants have two or three, three main drywell levels where other plants have four or five, five recirculation loops with lower flow rates, an unenclosed/unshielded drywell equipment drain tank, and a weld inspection scope about double that of other plants. Despite these challenges sustained, continuous performance in reducing radiation exposure demonstrates the effectiveness of the source term reduction efforts as well as dose minimization to keep exposures ALARA. The information provided with regard to source reduction, dose reduction, and radiological controls cover a five year period during which these indicators have continuously trended downward.