



Indian Point 2
Outage Planning
2001 Business Plan

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OUTAGE PLANNING
2001 Business Plan

Table Of Contents

Section	Page
Introduction	3
2000 Outage Planning Business Plan Effectiveness Assessment	3
2001 Outage Planning Action Plan	8
2001 Outage Planning Business Plan Expected Results Summary	10
2001 Outage Planning Performance Metrics	11
Attachments:	
Attachment 1 - Typical Outage Planning Milestones	12
Attachment 2 - Pre-Outage Milestone Workoff Curves	29

OUTAGE PLANNING

2001 Business Plan

Introduction

The goal of the Outage Planning Department is to direct and support the development of accurate, detailed, and comprehensive outage plans and schedules. Achievement of these goals will result in achieving outage performance consistent with the industry.

2000 Outage Planning Business Plan Effectiveness Assessment

In 1999 as part of the 2000 business plan development it was determined that the existing staffing level of the Outage Planning organization was inadequate to support desired improvements in the effectiveness of outage planning and execution. Benchmarking comparisons demonstrated that additional personnel dedicated to outage preparations is required to develop the level of detail and station buy-in required to execute outages consistent with industry standards. In addition, it was determined that additional resources above what would be required to maintain an improved process will be required to implement a step change in station performance.

As a result of this assessment, significant increases in Outage Planning staffing were authorized for 2000. Two of the key positions authorized were filled during the 2nd quarter of 2000. An experienced individual with a proven track record at other utilities was hired as Section Manager for Refueling Outage Scheduling. This position is now responsible for the development and production of outage schedules. Creation of this position and injection of industry experience into the group has resulted in improved outage scheduling processes and performance. Schedule detail, contingency planning, and expectations for schedule discipline have been improved. However, the effect of these improvements were limited by the early entry into the 2000 refueling outage which cut short the available planning window to develop the desired level of detail and reinforce expectations for contingency planning and schedule discipline. Additional infrastructure changes in the outage scheduling this area are planned for 2001, such as the implementation of the Project View scheduling software. The Section Manager Refueling Outage will manage these changes.

The 2nd key position that was filled was the lead work window manager position which was filled with an experienced individual formerly licensed as a Senior Reactor Operator at Indian Point 2. This addition provided much needed operations experience and perspective. As a result of this change, we were able to effectively integrate the on-loan Operations personnel into the Outage Planning organization to fill the four Work Window Manager positions created as a part of 1999 benchmarking efforts and 2000 business plan initiatives. These work Window Managers consisting of Senior Reactor Operator and Reactor Operators, both union and management, became the backbone of the outage planning and execution team. These individuals were the key to the success of the One-Stop-Shop concept which was also implemented in accordance with our 2000 business plan objectives. Success was mixed, primarily due to the emergent nature of the outage. However, our experience in 2000 with implementing the work window manager and One-Stop-Shop concepts proved their potential

OUTAGE PLANNING

2001 Business Plan

for future outages. Operations ownership in the outage plan and schedule were significantly improved as a result of these efforts.

However, much more remains to be accomplished to improve operations ownership for development and execution of plant shutdown and start-up plans. Improvements made in 2000 in these areas provide the foundation to continue outage planning and execution process improvements in 2001 for the 2002 refueling outage.

It is noted that the Lead Work Window Manager has been reassigned as the Refueling Project Manager in an effort to make a step change in the planning and execution of the refueling project. As a result, this position will have to be refilled as part of the 2001 business plan. Outside hires and on-loan Operations personnel will be considered for this position.

The 2000 business plan increased Outage Planning scheduling positions from one to four. These scheduling positions were created consistent with information gained from benchmarking efforts completed in 1999. The new scheduling positions facilitate dedicated support of key station disciplines. These disciplines were defined in the 2000 business plan as: Operations/NSSS; I&C/Electrical; and Mechanical. The I&C/Electrical position has been filled with an outside hire. We continue to work to fill the remaining scheduling positions with permanent employees. Contractor personnel have been used in the interim to support response to the 2000 refueling outage early start and the steam generator replacement outage.

In summary, progress on improving the Outage Planning Department scheduling infrastructure did not meet expectations in 2000. Contributors to this deficiency included early entry and extension of the 2000 Refueling Outage. Filling the approved scheduling slots with permanent personnel will be an important aspect of the 2001 business plan. No reductions to the approved 2000 staffing levels are warranted at this time, however we will continue to evaluate the benefit of staffing these positions on a go forward basis. Divestiture and potential resource sharing opportunities with Indian Point 3 may affect current staffing plans.

The full time Outage Coordinator position funded as part of the 2000 business plan also remains open. This position was filled with on-loan plant personnel for the outage period.

The Administrative Assistant position created as part of the 2000 business plan was filled ahead of schedule in March of this year. This position has significantly improved our ability to support departmental clerical needs and meet station administrative requirements. This position was used to administrate the outage lessons learned program.

In addition to staffing changes, two key projects to enhance outage performance were included in the 2000 business plan. The project undertaken to optimize our integrated safeguards testing methodology proved to be very successful. The affected surveillance test population was streamlined, consolidated, and improved. This effort resulted in a significant reduction in critical plant resources required to set up and conduct the tests, reduced cycling of

OUTAGE PLANNING

2001 Business Plan

critical equipment, and significantly reduced the outage time required to conduct the testing. The project team received a 2000 Con Edison Team Award as a result of its efforts.

The project to develop a new Outage Risk Assessment Management (ORAM) model capable of being interfaced with scheduling software was also completed during the 1st quarter of 2000. Real benefits of this effort in 2000 were not realized as the model was not completed until after the outage 2000 refueling outage started. Lessons learned with implementing the outage schedule reinforced the need to develop safety functional equipment groups (SFEGs) to enhance the interface between the scheduling system and the ORAM risk assessment software. Development of SFEGs will support real time risk assessment of the live outage network without requiring extensive input of special interfacing activities. The SFEG development will commence in the 4th quarter of 2000 and continue through the 1st quarter of 2001.

The 2000 Outage Planning business plan was developed to deliver improved performance in the following specific areas:

1. Improve work group ownership in the refueling outage process.

Status: In Progress - Limited progress was made in this area in 2000. Reinforcement of the pre-planning culture change that is required was inhibited by late issuance of pre-outage milestones (T-6 months) and early entry into the 2000 refueling Outage. Plans to augment the Outage Planning scheduling staff to improve the interface between Outage Planning and the discipline groups will continue as part of the 2001 business plan.

2. Improve Operations ownership in the refueling outage planning process.

Status: In Progress - Significant improvements in this area were realized with implementation of the Work Window Manager and One-Stop-Shop concepts. Licensed Operations personnel on-loan to Outage Planning were utilized to staff these positions. Operations ownership in the development and execution of the schedule for plant shut down and start-up requires significant improvement. Long term rotational assignments for Senior Reactor Operators/Reactor Operators will continue to be pursued to establish a single point-of-contact and continuity for the development of Operations ownership in the refueling outage scheduling and planning process.

3. Improve scheduling technical expertise.

Status: Completed - A new section manager position with responsibility for refueling outage scheduling was created as part of the 2000 business plan. This position was filled with a seasoned individual with experience at numerous other nuclear utilities. As a result, the outage scheduling process has been restructured to emulate processes successfully used at other nuclear facilities. Addition of this position resolved the previous department weaknesses that required the Outage Manager to be involved in the details of scheduling work activities. The 2001 business plan will continue process changes initiated in 2000. Examples include implementation of the Project View scheduling system.

OUTAGE PLANNING

2001 Business Plan

4. Increase depth of knowledge of the existing scheduling system.

Status: Completed - In accordance with the 2000 business plan contract technical expertise was brought on board to improve the interface between the work management system and the scheduling systems. As a result, manual data entry needs were reduced and additional station databases were integrated to support more comprehensive reporting capabilities. Examples of progress made in this area include the new capability to link the PPMIS, P3, Tagout/Work Permit system databases together to produce one integrated management report. In 2001, continued improvement of the outage scheduling infrastructure will eliminate the need for a separate initiative in this area.

5. Maintain support of core refueling outage projects.

Status: In Progress - Significant changes in the staffing and leadership of the projects considered to be "core outage projects" is required based on 2000 refueling outage performance. These projects are refueling, steam generator inspections/maintenance, main turbine/generator and reactor coolant pumps and outage coordination. Lack of site ownership for these projects is a major station weakness that needs to be addressed in 2001 in preparation for the 2002 refueling outage. Project manager leadership changes and better utilization of site resources, including expanded use of volunteers, are needed. The level of performance achieved during execution of these core projects will continue to increase in importance as we strive to meet industry standards for outage durations of 35 days or less.

6. Increase programmatic support of shut down safety defense-in-depth analysis.

Status: In Progress - A new Outage Risk Assessment Model (ORAM) was developed and completed the 1st quarter of 2000 as planned. The model produced provides the capability to directly interface the P3 or Project View scheduling systems with the ORAM risk assessment software. As discussed above, the model was completed after the 2000 refueling outage began and consequently was not used to supplement outage risk assessment during the outage. Lessons learned with the schedule development and execution reinforced the need to proceed with phase 2 of this project which is the development of Safety Functional equipment Groups (SFEGs). Completing SFEG phase of the ORAM project by will further enhance our ability to support real time analysis of shut down safety defense-in-depth consistent with industry standards and with recent NRC Maintenance Rule changes that codify risk assessment requirements. This effort commenced the 4th quarter of 2000 and will complete in the 1st quarter of 2001.

7. Improve Administrative Support for Outage Planning Department.

Status: Completed - Addition of an administrative assistant resolved issues with key personnel being tasked with non-mission related administrative duties.

OUTAGE PLANNING

2001 Business Plan

8. Optimize safety injection actuation and diesel loading refueling interval surveillance tests.

Status: Completed - Optimization effort completed successfully as discussed above. The affected surveillance test population was streamlined, consolidated, and improved. This effort resulted in a significant reduction in critical plant resources required to set up and conduct the tests, reduced cycling of critical equipment, and significantly reduced the outage time required to conduct the testing. The project team received a 2000 Con Edison Team Award as a result of its efforts.

OUTAGE PLANNING

2001 Business Plan

2001 Outage Planning Action Plan

The Outage Planning 2001 business plan is intended to continue actions assessed to be effective but not completed in 2000. In addition, new initiatives are included in the 2001 plan to address lessons learned from the year 2000 experience.

1. Improve work group ownership in the outage planning and scheduling process.

- Hire personnel to permanently fill Operations/NSSS lead discipline scheduling position
Due Date: 3/31/01
- Hire personnel to permanently fill mechanical lead discipline scheduling position
Due Date: 3/31/01
- Continue to assess need to fill core projects scheduling position and fill as required to support work groups.
Due Date: 9/30/01
- Review, assign and distribute 2000 refueling outage lessons learned.
Due Date: 1/31/01
- Establish specific outage planning milestones for the 2002 Refueling Outage. Assign and track progress at periodic Outage Management Team meetings.
Due Date: 1/31/01

2. Assign licensed on-loan Operations personnel to Outage Planning to fill Lead Work Window Manager position and thereby provide expertise and continuity required to improve operations ownership in the refueling outage planning and scheduling process.

- Assign licensed operator to Outage Planning.
Due Date: 1/31/01

3. Increase station ownership of refueling evolutions.

- Develop core expertise to maintain refueling equipment by training, qualifying and assigning permanent station maintenance personnel as owners of the refueling equipment.
Due Date: 9/30/01
- Expand use of station volunteers to displace contract personnel used to conduct reactor disassembly and fuel handling evolutions. Solicit and qualify volunteers necessary to take over fuel handling operations in the fuel storage building and upender operation in the containment building.

OUTAGE PLANNING

2001 Business Plan

Due Date: 12/31/01

4. **Realign core outage projects to reflect desired changes in the planning and execution of the refueling, steam generators, and reactor coolant pump projects.**

- Expand scope of the refueling project to include development and qualification of a site wide volunteer based refueling team.
Due Date: 1/31/01
- Realign responsibilities of the steam generator project to reflect installation of the replacement steam generators.
Due Date: 1/31/01
- Transition responsibility for planning and execution of reactor coolant pump seal and motor maintenance to the Maintenance Department to facilitate use of mixed house and contract crews.
Due Date: 3/31/01
- Enhance long-term core outage project planning by providing funding to staff a year-round refueling outage consultant shared between the Indian Point 2 and 3 sites.
Due Date: 7/01/01
- Upgrade outage project manager training to address human performance related lessons learned during the 2000 refueling outage.
Due Date: 3/31/01

5. **Conduct benchmarking activities during the Spring and Fall 2001 outage seasons to continue focus on optimizing station outage processes in preparation for the 2002 Refueling Outage.**

- Fill permanent outage coordinator position to provide stronger focus on benchmarking, optimization and process change initiatives.
Due Date: 3/31/01
- Assign Indian Point 2 core outage project managers to support the Indian Point 3 Spring 2001 Refueling Outage.
Due Date: 1/31/01
- Conduct additional benchmarking trips as appropriate during the Fall and Spring outage seasons.
Due Dates: Spring & Fall Outage Seasons
- Attend available INPO/OEM Outage Optimization workshops

OUTAGE PLANNING

2001 Business Plan

Due Date: July /August 2001

6. Enhance outage risk assessment capabilities.

- Develop and implement Safety Functional Equipment Groups (SFEG's) to support dynamic risk assessment of the outage schedule.
Due Date: 3/31/00
- Upgrade Operations Administrative Directive 38, "Outage Risk Assessment."
Due Date: 3/31/01

7. Enhance outage scheduling tool capabilities.

- Complete the transition to the Project View Scheduling System from the Primavera system to improve schedule development efficiency and enhance the quality of schedule products produced for the station. Project View provides a more robust database architecture appropriate for multiple users and much improved coding and reporting capabilities compared to Primavera. In addition, project View more completely supports integration of the ORAM and SFEG models.
Due Date: 6/30/01

2001 Outage Planning Business Plan Expected Results Summary

1. 2002 Refueling Outage will be conducted within budget and for 35 days or less.
2. Subsequent refueling outages will be planned and executed consistent with industry standards for duration and cost.
3. Outage planning preparation milestones will be established, monitored, and completed in accordance with industry standards.
4. Shutdown Safety Defense-in-Depth assessment capabilities will be enhanced.
5. Improvement in the pre-planning process will result in a more comprehensive planning and therefore reduced emergent activities during the outage. Expected improvement will reduce incidence of emergent work from historical levels of 800 – 1000 to less than 250.

OUTAGE PLANNING

2001 Business Plan

2001 Outage Planning Business Plan Performance Metrics

1. Monthly pre-outage planning milestones will be published to maintain site-wide focus on refueling outage pre-planning efforts. Completion of assigned milestone actions will be monitored and used to hold station organizations accountable for outage preparations. The specific milestones for the 2002 refueling outage will be established by 1/31/01.

See Attachment 1 for generic milestones established as part of the 2000 SAO-136, "Outage Planning" upgrade.

2. Department Administrative metrics will be developed to track training schedules and adherence and vacation schedules.

OUTAGE PLANNING

2001 Business Plan

Attachment 1 - Typical Outage Preparation Milestones

- 01 Develop Approved Outage Planning Milestones
Definition: Develop and approve outage specific planning milestones.
Documented by: Issuance of Outage Planning Milestone schedule by Outage Planning Manager
Responsibility: Outage Management Team
Due: T-20 months
- 02 Identify Outage Modification Scope
Definition: Develop required modification outage scope with estimated release dates for issuing the approved outage modifications to Records Management.
Documented by: Email with attached schedule with the approved issue dates for modification to the Outage Planning and Scheduling Manager
Responsibility: Manager Design Engineering
Due: T-18 months
- 03 Distribute Previous Outage Lessons Learned
Definition: Lessons Learned from previous outages have been distributed to the applicable departments for inclusion into their planning process for the upcoming outage.
Documented by: Email distribution from the Outage Manager to the owners
Responsibility: Outage Manager
Due: T-18 months
- 04 Recommend Scope Reduction for Containment Isolation Valve B&C Type Testing
Definition: Review past performance of Containment Isolation Valves and recommend required testing scope. Based on results of review using Appendix J criteria define Outage scope
Documented by: Email with attached scope list for the outage to the Outage Planning and Scheduling Manager
Responsibility: Manager Test & Performance
Due: T-14 Months
- 05 Approve the Outage Implementation Organization
Definition: Key Positions Identified by the Outage Management Team have been filled
Documented by: Organization chart review and acceptance by OMT members
Responsibility: Outage Manager
Due: T-12 months

OUTAGE PLANNING

2001 Business Plan

- 06 Outage Scope Review Meetings Completed
Definition: Review of outage coded Preventive Maintenance items for on-line work
Documented by: Final list of items to be removed from the outage with Work Controls acceptance and approval for at power work
Responsibility: Work Control Manager
Due: T-12 months
- 07 Issue Conceptual Level II Schedule
Definition: Distribution of the Level II schedule issued for review and comment.
Documented by: Sitewide distribution of the Level II Schedule.
Responsibility: Manager of Outage Planning and Scheduling
Due: T-12 months
- 08 Design Change Modification Major Parts Identified
Definition: Significant equipment and hardware required for completion of scoped modifications has been identified to the Manager of Material Procurement.
Documented by: Email from the Department Manager, Nuclear Projects to the Outage Manager
Responsibility: Manager Nuclear Projects
Due: T-12 months
- 09 Initial Shut Down Risk Assessment for A Planned Outage Schedule
Definition: Conduct meeting to review appropriate material to obtain understanding of the preliminary outage plan for shutdown risk. Conducted following issuance of the preliminary Level II outage schedule to site.
Documented by: Scheduled meeting with minutes documenting discussions or areas that will require additional action or clarification.
Responsibility: Outage Manager
Due: T-11 months
- 10 Scope Freeze
Definition: All activities to be performed during scheduled outage have been identified to the Outage Planning & Scheduling Department. Changes in scope will follow formal add/delete process.
Documented by: Email from Outage Manager distributed sitewide after confirmation from the Department Managers that all known scope has been submitted to Outage for incorporation into the outage plan.
Responsibility: Outage Manager
Due: T-10 months

OUTAGE PLANNING

2001 Business Plan

- 11 Identify Resource Sharing Support Positions
Definition: Managers review work scope for the Planned outage and develop positions and matrix for the number of resources, including the type and required service dates for the duration of the outage. Resource share positions identified should include North East Alliance (NEA), Indian Point 3, and Con Edison Assistant Engineer positions.
Documented by: Email with attached matrix of manpower to the Outage Manager
Responsibility: Outage Manager
Due: T-9 months
- 12 Outage Surveillance Tests Revised or Developed
Definition: Surveillance tests have been revised if required or developed as a result of various program reviews and lessons learned.
Documented by: Email with an attachment listing the test that have been revised since last performance and will be performed as part of the Planned outage scope.
Responsibility: Manager of Test & Performance and Manager of Generation Support
Due: T-9 months
- 13 Finalize Motor Operated Valve (MOV) Scope
Definition: Final determination of MOV scope to be performed based on the initial MOV scope and subsequent review of other maintenance activities that may require additional testing.
Documented by: Email to the Outage Planning and Scheduling Manager that the outage scope has been reviewed with the NSSS Work Window Manager for additional as-found and as-left testing.
Responsibility: MOV Program Manager
Due: T-8 months
- 14 Finalized LLRT Scope
Definition: Final determination of LLRTs to be performed based on the initial LLRT scope and subsequent review of other maintenance activities that may require additional testing.
Documented by: Email to the Outage Planning and Scheduling Manager that the outage scope has been reviewed with the NSSS Work Window Manager for additional as found and as left testing.
Responsibility: IST Engineer
Due: T-8 months

OUTAGE PLANNING

2001 Business Plan

- 15 Engineering Design Modifications Issued
Definition: All outage approved design modifications are issued and working copies are available for planning and implementation.
Documented by: Email to Outage Manager stating completion
Responsibility: Department Manager Design Engineering
Due: T-8 months
- 16 Group I Baseline Package Planning Complete
Definition: All baseline scoped work documents identified by system designator as Group I are planned and statused accordingly in PPMIS (This Milestone does not include contingency packages).
Documented by: Status indicated in PPMIS. A 95% completion of packages planned will be considered complete. Outstanding packages will be tracked by exception.
Responsibility: Maintenance Manager
Due: T-7 months
- 17 Contracts Identified and Requisitions Submitted
Definition: Requisitions for contracted services have been prepared by the users and submitted to material procurement for processing
Documented by: Email to the Outage Manager with documentation attached with the details for services requested
Responsibility: Material Procurement Manager
Due: T-7 months
- 18 Work Orders Initiated For Temporary Facility Change (TFC) Development
Definition: Develop an Action Request with proper information for engineering to develop and issue a TFC for implementation.
Documented by: Email from the Work Window Managers to the Outage Planning and Scheduling Manager
Responsibility: Manager Outage Planning and Scheduling
Due: T-7 months
- 19 Vendor Turbine Schedule Issued to Site
Definition: Turbine vendor lead provides a Level 3 schedule of turbine activities that is acceptable for incorporation into the integrated outage schedule.
Documented by: Schedule provided to Outage Scheduling via email attachment or floppy disk that is compatible with the plants scheduling system.
Responsibility: Turbine Generator Project Manager

OUTAGE PLANNING

2001 Business Plan

Due: T-6 months

20 Outage Goals Identified

Definition: Prepare a set of outage goals, performance based on the station goals and the vision and mission statements of the outage

Documented by: Written set of goals approved by the OMT

Responsibility: Outage Manager

Due: T-6 months

21 Group II Baseline Package Planning Complete

Definition: All baseline scoped work documents identified by system designator, as Group II are planned and statused accordingly in PPMIS (This Milestone does not include contingency packages).

Documented by: Status indicated in PPMIS. A 95% completion of packages planned will be considered complete. Outstanding packages will be tracked by exception.

Responsibility: Maintenance Manager

Due: T-6 months

22 Ops Releases SRO's/RO's For System Work Window Managers

Definition: Operations provide four (4) Senior Reactor Operator (SRO's) and four (4) Reactor Operators (RO's) to Outage for preparation of the Outage plan

Documented by: Matrix of personnel to Outage

Responsibility: Manager Operations

Due: T-6 months

23 Group I Baseline Package Walkdowns Complete by Maintenance Supervisors

Definition: All baseline scoped work documents identified by system designator as Group I have been walked down and statused accordingly in PPMIS (This Milestone does not include packages inside the crane wall or contingency packages).

Documented by: Status indicated in PPMIS. Packages inside the crane wall will be considered complete.

Responsibility: Maintenance Manager

Due: T-6 months

24 ALARA Goals and Plans Complete

Definition: Provide preliminary ALARA projections and plan of action to reduce dose based on the planned outage scope review. Department Managers will utilize this information to enhance planning and implementation processes.

OUTAGE PLANNING

2001 Business Plan

Documented by: Meeting with Department Managers to discuss ALARA goals and dose reduction methods to be employed during the outage.

Responsibility: Radiation Protection Manager

Due: T-6 months

25 Technical Specification & Commitment Changes Incorporated

Definition: Changes submitted and approved have been incorporated into Technical Specifications and Commitment letters.

Documented by: Email from the Licensing Manager to the Outage Manager.

Responsibility: NS&L Manager

Due: T-6 months

26 Review Valve Stroke Times For Marginal Performance

Definition: Review of previous test data for negative trends minimum margin

Documented by: Email to the Manager of Outage Planning and Scheduling

Responsibility: Manager of Test and Performance

Due: T-6 months

27 Contractor In-Processing Training Identified

Definition: Obtain preliminary information from the identified vendors for staffing and training required to be incorporated into the mobilization plan.

Documented by: Email to the Outage Manager with status

Responsibility: Mobilization Coordinator

Due: T-5 months

28 Incorporate Vendor Level III Turbine Schedule

Definition: Inclusion of Vendor Turbine schedule into the integrated outage schedule

Documented by: Ability to produce integrated schedule information from P3

Responsibility: Manager of Outage Planning and Scheduling

Due: T-5 months

29 Group III Baseline Package Planning Complete

Definition: All baseline scoped work documents identified by system designator, as Group III are planned and statused accordingly in PPMIS (This Milestone does not include contingency packages).

Documented by: Status indicated in PPMIS. A 95% completion of packages planned will be considered complete. Outstanding packages will be tracked by exception.

Responsibility: Maintenance Manager

Due: T-5 months

OUTAGE PLANNING

2001 Business Plan

- 30 Group II Baseline Package Walkdowns Complete by Maintenance Supervisors
Definition: All baseline scoped work documents identified by system designator as Group II have been walked down and statused accordingly in PPMIS (This Milestone does not include packages inside the crane wall or contingency packages).
Documented by: Status indicated in PPMIS. Packages inside the crane wall will be considered complete.
Responsibility: Maintenance Manager
Due: T-5 months
- 31 Group I Baseline Tagouts Developed
Definition: All Group I packages requiring Equipment Tag-outs have been assigned a Tag-Out number and Tag-Outs are prepared by Operations for review.
Documented by: Email from the Work Window Managers to the Outage Planning and Scheduling Manager.
Responsibility: Manager Outage Planning and Scheduling
Due: T-5 months
- 32 Temporary Facility Requirements Identified
Definition: Facilities Coordinator has contacted the various Department Manager and Project Managers for special requirements related to the final facilities plan
Documented by: Email to the Outage Manager with preliminary status
Responsibility: Facilities Manager
Due: T-5 months
- 33 Temporary Power Requirements Submitted to Facilities
Definition: Determination of electrical power requirements or lighting not available from permanently installed sources or for use when normal sources are unavailable including power for use in Yard areas, Turbine Building, Containment building or areas outside the protected area.
Documented by: Email from Electrical Work Window Manager to the Outage Planning and Scheduling Manager stating work request or appropriate documentation submitted to Facilities.
Responsibility: Manager of Outage Planning and Scheduling
Due: T-5 months

OUTAGE PLANNING

2001 Business Plan

- 34 Initiate Planned Outage Site Wide Volunteer Campaign
Definition: Campaign to solicit personnel to fill vacant positions during the implementation of the outage
Documented by: Written plan to the Outage Manager
Responsibility: Manager Human Resources
Due: T-5 months
- 35 Provide Crew and Resource Availability
Definition: Provide outage planning with a list of the maintenance crews with the supervisor's name, the resources available for each crew along with working hours. (Example: HN20= John Smith 8 men 12 hours day Monday thru Saturday 0700/1900)
Documented by: Email with information to Outage Planning and Scheduling Manager
Responsibility: Maintenance Manager
Due: T-5 months
- 36 All On-line Outage Support Prerequisites Identified
Definition: Work activities required to be performed at power to support the outage. This includes corrective and preventive maintenance, scaffold installation, etc
Documented by: Email from Project Managers to the Outage Planning and Scheduling Manager stating that all known scope for pre-outage work has been documented to Work for incorporation in the Daily Schedule.
Responsibility: Manager of Outage Planning and Scheduling
Due: T-5 months
- 37 Issue TFC's for Work Order Planning
Definition: Temporary Field Changes identified by the Work Window Managers have been developed and issued for work order planning
Documented by: Email from Engineering to the Outage Planning and Scheduling Manager with TFC numbers.
Responsibility: Manager of Plant Engineering
Due: T-5 months
- 38 Issue Readiness Review Schedule
Definition: Publication of all pre-outage readiness reviews and team building sessions.
Documented by: Posting the scheduled plan on the Indian Point II Intranet
Responsibility: Outage Manager
Due: T-4 months

OUTAGE PLANNING

2001 Business Plan

- 39 Identify & Develop Sitewide Volunteer Positions
Definition: Finalize list of identified outage positions
Documented by: Meeting with Outage Manager to present information
Responsibility: Human Resources Manager
Due: T-4 months
- 40 Group III Baseline Package Walkdowns Complete by Maintenance Supervisors
Definition: All baseline scoped work documents identified by system designator as Group III have been walked down and statused accordingly in PPMIS (This Milestone does not include packages inside the crane wall or contingency packages).
Documented by: Status indicated in PPMIS. Packages inside the crane wall will be considered complete.
Responsibility: Maintenance Manager
Due: T-4 months
- 41 Group II Baseline Tag-Outs Developed
Definition: All Group II packages requiring Equipment Tag-outs have been assigned a Tag-Out number and Tag-Outs are prepared by Operations for review.
Documented by: Email from the Work Window Managers to the Outage Planning and Scheduling Manager.
Responsibility: Manager Outage Planning and Scheduling
Due: T-4 months
- 42 Issue Initial Level III Schedule (Non-Levelized)
Definition: Publication of the full outage scope, typically in report format showing predecessors and successors, without regard to manpower availability. Schedule to be used by each discipline for distribution of work activities to optimize manpower.
Documented by: Sitewide distribution of the Level III
Responsibility: Manager of Outage Planning and Scheduling
Due: T-4 months
- 43 Outage Goals Submitted To SMT For Approval
Definition: Presentation of the goals to the SMT for approval
Documented by: SMT approval and sitewide distribution of the goals for RFO
Responsibility: Outage Manager
Due: T-4 months

OUTAGE PLANNING

2001 Business Plan

- 44 Outage Contracts Awarded
Definition: Contracts are finalized and issued to respective vendors for acceptance.
Documented by: Email to the Outage Manager with the vendor information
Responsibility: Manager Material Procurement
Due: T-4 months
- 45 Review Schedule For Pre-Conditioning Test Issues
Definition: Review of the Level III Schedule for conditions that could be considered as conditioning prior to performance of a surveillance test.
Documented by: Email from the Surveillance Work Window Manager to the Outage Planning and Scheduling Manager.
Responsibility: Surveillance Work Window Manager
Due: T-4 months
- 46 Preliminary Contractor Mobilization/ Demobilization Plan
Definition: Assimilation of information by the in-processing coordinator of total numbers of contract personnel for each project or contract, their training requirements and their expected arrival and departure from site.
Documented by: Meeting to present the information to the Outage Manager to review staffing levels or budget issues.
Responsibility: Mobilization Coordinator
Due: T-4 months
- 47 Modification Work Order Planning Complete
Definition: Work Order planning for modifications issued for construction are complete.
Documented by: Status indicated in PPMIS. This Milestone requires 100% completion for Modifications
Responsibility: Manager of Nuclear Projects
Due: T-4 months
- 48 Develop the Planned Outage System Lay-up Plan
Definition: Based on outage scope and schedule provide guidance for system lay-up and return to service requirements
Documented by: Written plan submitted to Outage Planning and Scheduling Manager
Responsibility: Manager Chemistry

OUTAGE PLANNING

2001 Business Plan

Due: T-4 months

49 Group IV Baseline Package Planning Complete

Definition: All baseline scoped work documents identified by system designator, as Group IV are planned and statused accordingly in PPMIS (This Milestone does not include contingency packages).

Documented by: Status indicated in PPMIS. A 95% completion of packages planned will be considered complete. Outstanding packages will be tracked by exception.

Responsibility: Maintenance Manager

Due: T-4 months

50 Temporary Power Air Water Plans Complete

Definition: Facilities Coordinator has contacted the various Department Manager and Project Managers for special requirements related to the final facilities plan

Documented by: Email to the Outage Manager with preliminary status

Responsibility: Facilities Manager

Due: T-4 months

51 Facilities Plan

Definition: Issuance of a layout of site resources for outage use, including temporary trailers, staging areas, power requirements, compressed air requirements, demineralized water requirements, communications, and associated need dates.

Documented by: Sitewide distribution of the facilities plan

Responsibility: Facilities Manager

Due: T-4 months

52 Previous Outage Lessons Learned Incorporated

Definition: Lessons Learned have been evaluated by applicable owner and appropriate action taken.

Documented by: Email from Department Managers to the Outage Manager that lessons learned have been reviewed and incorporated where applicable.

Responsibility: Outage Manager

Due: T-4 months

53 Maintenance Procedures are Developed or Revised

Definition: Procedures required for performance of work scoped to the outage have been revised or developed.

Documented by: Email with an attachment listing the test that have been revised since last

OUTAGE PLANNING

2001 Business Plan

performance and will be performed as part of the scope for the Outage.

Responsibility: Maintenance Manager

Due: T-4 months

54 Unit Shutdown & Startup Plan Complete

Definition: Detailed plan with a time line relative to procedure steps that will meet the milestones established in the Level III schedule for shutdown and startup sequences. Identification of procedural problems or enhancements required for improved operator or plant performance. Schedule with dates for simulator practice sessions for the designated outage crews

Documented by: Presentation at the Readiness Review Meeting

Responsibility: Operations Manager

Due: T-3 months

55 Group III Baseline Tag-Outs Developed

Definition: All Group III packages requiring Equipment Tag-outs have been assigned a Tag-Out number and Tag-Outs are prepared by Operations for review.

Documented by: Email from the Work Window Managers to the Outage Planning and Scheduling Manager.

Responsibility: Manager Outage Planning and Scheduling

Due: T-3 months

56 Water Management Plan Developed

Definition: Review of the Level II and Level III schedules to develop a detail water movement and storage plan that will reduce or discharge volume and curies, while reducing or demand for demineralized water production.

Documented by: Detailed plan provided to Outage Scheduling

Responsibility: Operations Manager

Due: T-3 months

57 ALARA / Training Mockup Needs Identified

Definition: As a result of the ALARA Goals and Plans development, requirements for dose reductions may have identified the need for special training or simulation. Plan and schedule developed for required training by vendors and Con-Edison personal.

Documented by: Email to the Outage Manager with a written plan and schedule

Responsibility: Radiation Protection Manager

Due: T-3 months

58 Level III Revision 0 Issue

Definition: Final comments incorporated and all known work scope items have been incorporated

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2001 Business Plan

and manpower levelization is complete.

Documented by: Sitewide distribution of the Level III

Responsibility: Manager Outage Planning and Scheduling

Due: T-3 months

59 Develop Procedures Training Plan for Infrequent Performed Test and Evolutions (IPTE's)

Definition: Schedule simulator time for practice and develop lesson plans or white paper to effect training required.

Documented by: Email to the Outage Manager with schedule dates for training

Responsibility: Manager Operations

Due: T-3 months

60 Scaffolding Plan Finalized

Definition: Scaffolding Plan for the outage completed.

Documented by: Email from Nuclear Projects Manager to Outage Planning and Scheduling Manager with the status.

Responsibility: Manager Nuclear Projects

Due: T-3 months

61 Perform NRC Brief on the Level II Outage Schedule

Definition: Briefing with the Resident NRC Inspectors on the outage plans, the Level II Outage Schedule and the Final Risk Assessment.

Documented by: Completion of the briefing

Responsibility: Outage Manager

Due: T-3 months

62 Group IV Baseline Package Walkdowns Complete by Maintenance Supervisors

Definition: All baseline scoped work documents identified by system designator as Group IV have been walked down and statused accordingly in PPMIS (This Milestone does not include packages inside the crane wall or contingency packages).

Documented by: Status indicated in PPMIS. Packages inside the crane wall will be considered complete.

Responsibility: Maintenance Manager

Due: T-3 months

OUTAGE PLANNING

2001 Business Plan

- 63 Group V Baseline Package Planning Complete
Definition: All baseline scoped work documents identified by system designator, as Group V are planned and statused accordingly in PPMIS (This Milestone does not include contingency packages).
Documented by: Status indicated in PPMIS. A 95% completion of packages planned will be considered complete. Outstanding packages will be tracked by exception.
Responsibility: Maintenance Manager
Due: T-3 months
- 64 Independent Safety Review- Level III Schedule
Definition: Establish a schedule review utilizing industry peers to review and comment on the outage plan
Documented by: Completion of the schedule review meeting with industry peers
Responsibility: Manager Outage Planning and Scheduling
Due: T-2 months
- 65 Final Review of Work Packages by Maintenance Planning
Definition: Work packages are reviewed to verify that all package documentation is current
Documented by: Email from Maintenance to the Outage Planning and Scheduling Manager that packages are ready for the outage
Responsibility: Maintenance Manager
Due: T-2 months
- 66 Group IV Baseline Tag-Outs Developed
Definition: All Group IV packages requiring Equipment Tag-outs have been assigned a Tag-Out number and Tag-Outs are prepared by Operations for review.
Documented by: Email from the Work Window Managers to the Outage Planning and Scheduling Manager.
Responsibility: Manager Outage Planning and Scheduling
Due: T-2 months
- 67 Group V Baseline Package Walkdowns Complete by Maintenance Supervisors
Definition: All baseline scoped work documents identified by system designator as Group V have been walked down and statused accordingly in PPMIS (This Milestone does not include packages inside the crane wall or contingency packages).
Documented by: Status indicated in PPMIS. Packages inside the crane wall will be considered complete.
Responsibility: Maintenance Manager
Due: T-2 months

OUTAGE PLANNING

2001 Business Plan

- 68 Contingency Work Order Planning Complete
Definition: Planning complete for work orders coded for contingency by outage.
Documented by: Status for the designated group in PPMIS
Responsibility: Maintenance Manager
Due: T-2 months
- 69 Complete Baseline Radiation Work Permit (RWP) Preparation
Definition: All Outage work documents requiring a Radiation Work Permit are reviewed by Health Physics personnel and assigned a Radiation Work Permit Number. RWP's are prepared for review.
Documented by: Email from the Radiation Protection Manager to the Outage Manager with status of RWP's.
Responsibility: Radiation Protection Manager
Due: T-2 months
- 70 All Outage PMT's Identified and Written
Definition: Documents planned for the outage have been reviewed and Post Maintenance Test plans have been developed for integration into the outage schedule.
Documented by: Email to the Manager of Outage Planning and Scheduling with the magnitude of PMT scope attached.
Responsibility: Manager of Test & Performance
Due: T-2 months
- 71 All Scaffold Requests Submitted
Definition: Scaffold Coordinator has reviewed the outage scope and scaffold request submitted and contacted the various Department Manager and Project Managers for additional requirements that could be relative.
Documented by: Email to the Outage Manager with a plan for installation, and resource requirements
Responsibility: Manager of Nuclear Projects
Due: T-2 months
- 72 Shielding Plan Complete
Definition: Shielding required based on outage scope and ALARA reviews
Documented by: Written plan with location and manpower and job requiring the shielding identified to the Outage Planning and Scheduling Manager

OUTAGE PLANNING

2001 Business Plan

Responsibility: Radiation Protection Manager

Due: T-2 months

73 Operations (Non-Mod) Procedures Developed or Revisions

Definition: Changes to Operations Procedures are complete.

Documented by: Email from the Operations Manager to the Outage Manager

Responsibility: Operations Manager

Due: T-2 months

74 Freeze Process Changes

Definition: Administrative process changes frozen 45 days prior to outage

Documented by: Sitewide Email

Responsibility: Outage Manager

Due: T-45 Days

75 Group V Baseline Tag-Outs Developed

Definition: All Group V packages requiring Equipment Tag-outs have been assigned a Tag-Out number and Tag-Outs are prepared by Operations for review.

Documented by: Email from the Work Window Managers to the Outage Planning and Scheduling Manager.

Responsibility: Manager Outage Planning and Scheduling

Due: T-1 month

76 Material On Site

Definition: All Identified Material on-site or purchased with ETA's

Documented by: Email from Manager Material Procurement to the Outage Planning and Scheduling Manager with the status

Responsibility: Manager_Material Procurement

Due: T-1 month

77 Outage Facilities Mobilized

Definition: All facilities are ready to support the mobilization of the outage.

Documented by: Review with the Outage Directors and the Outage Managers

Responsibility: Facilities Manager

OUTAGE PLANNING

2001 Business Plan

Due: T-1 month

78 Final Shut Down Risk Assessment of the Planned Outage Schedule

Definition: Meeting held to review final outage plan and schedule utilizing the Level II outage schedule and ORAM per Shutdown Risk Procedure.

Documented by: Scheduled meeting with the final report documenting the review and procedural requirements.

Responsibility: Outage Manager

Due: T-1 month

79 Outage Handbook/ Site Transition Plan

Definition: Handbook identifies key process, positions, and transition in/out of outages.

Documented by: Sitewide distribution of the handbooks

Responsibility: Outage Manager

Due: T-1 month

80 Final Contractor Mobilization/ Demobilization Plan

Definition: Further refinement of Initial Mobilization plan numbers including the identification of any specific returnee individuals and additional training requirements.

Documented by: Final information presented to the Outage Manager for review.

Responsibility: Mobilization Coordinator

Due: T-1 month

81 Issue Level III Levelized Schedule

Definition: Publication of the full outage scope, typically in report format showing predecessors and successors, with regard to manpower availability. Schedule to be used by each discipline for distribution of work activities to optimize manpower.

Documented by: Sitewide distribution of the Level III

Responsibility: Manager of Outage Planning and Scheduling

Due: T-1 month

82 Final Package Walkdowns Complete

Definition: Baseline and additional scope packages have been walked down and ready for

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2001 Business Plan

implementation

Documented by: Email from Maintenance Managers to the Outage Manager

Responsibility: Maintenance Manager

Due: T-1 month

83 Final Package Tagouts Written

Definition: Baseline and additional scope packages tagouts have been developed and are ready for implementation

Documented by: Email confirmation from Work Window Managers to the Outage Planning and Scheduling Manager with status

Responsibility: Outage Planning and Scheduling Manager

Due: T-1 month

84 Implement the Outage Transition Plan

Definition: Develop transition plan that describes staffing and work schedules for outage resources. Describes the process for rolling into and out of the defined outage shifts. Describes the points where the outage schedule and daily schedule control the work process

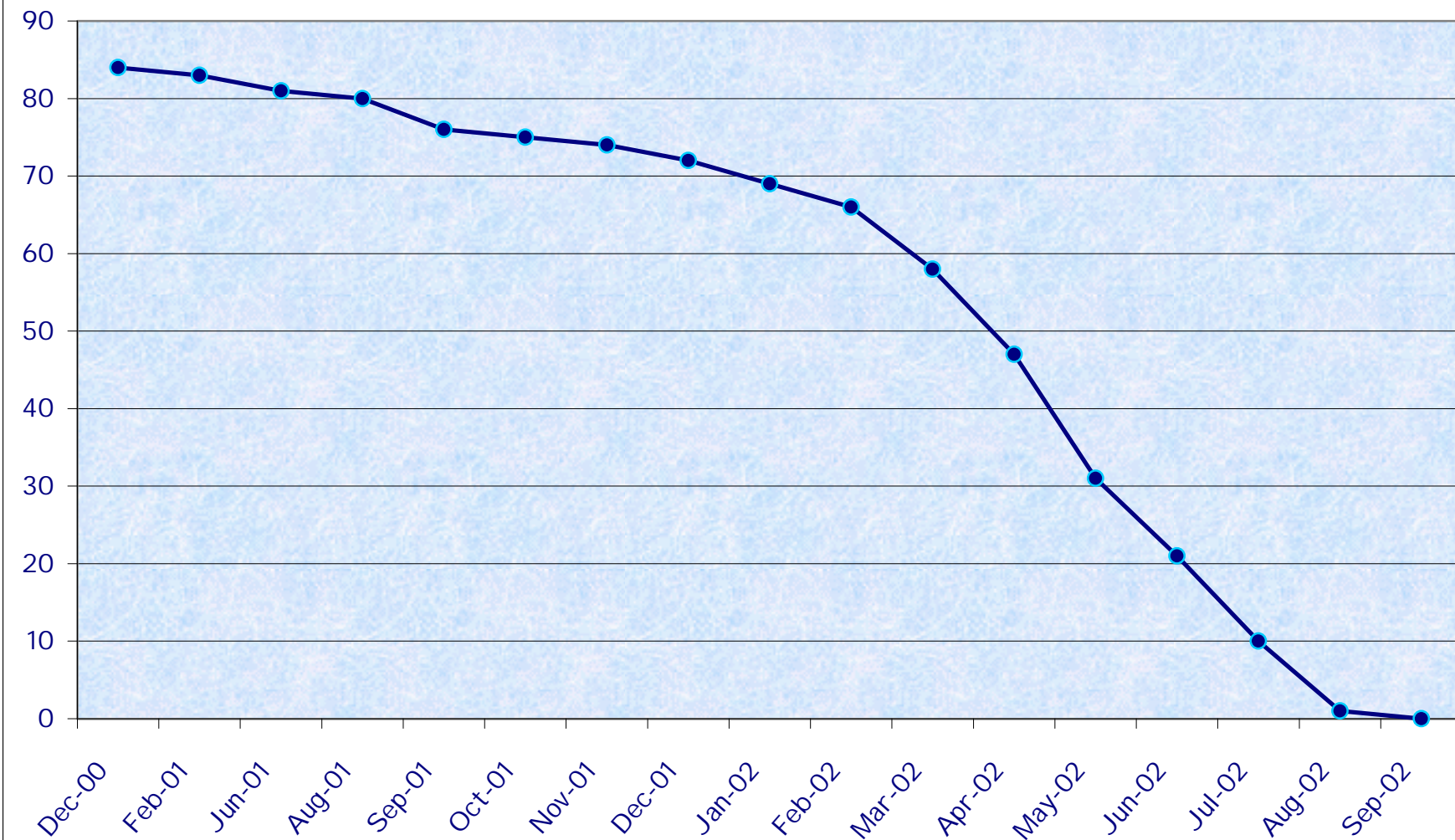
Documented by: Implementation of the plan just prior to the outage

Responsibility: Outage Manager

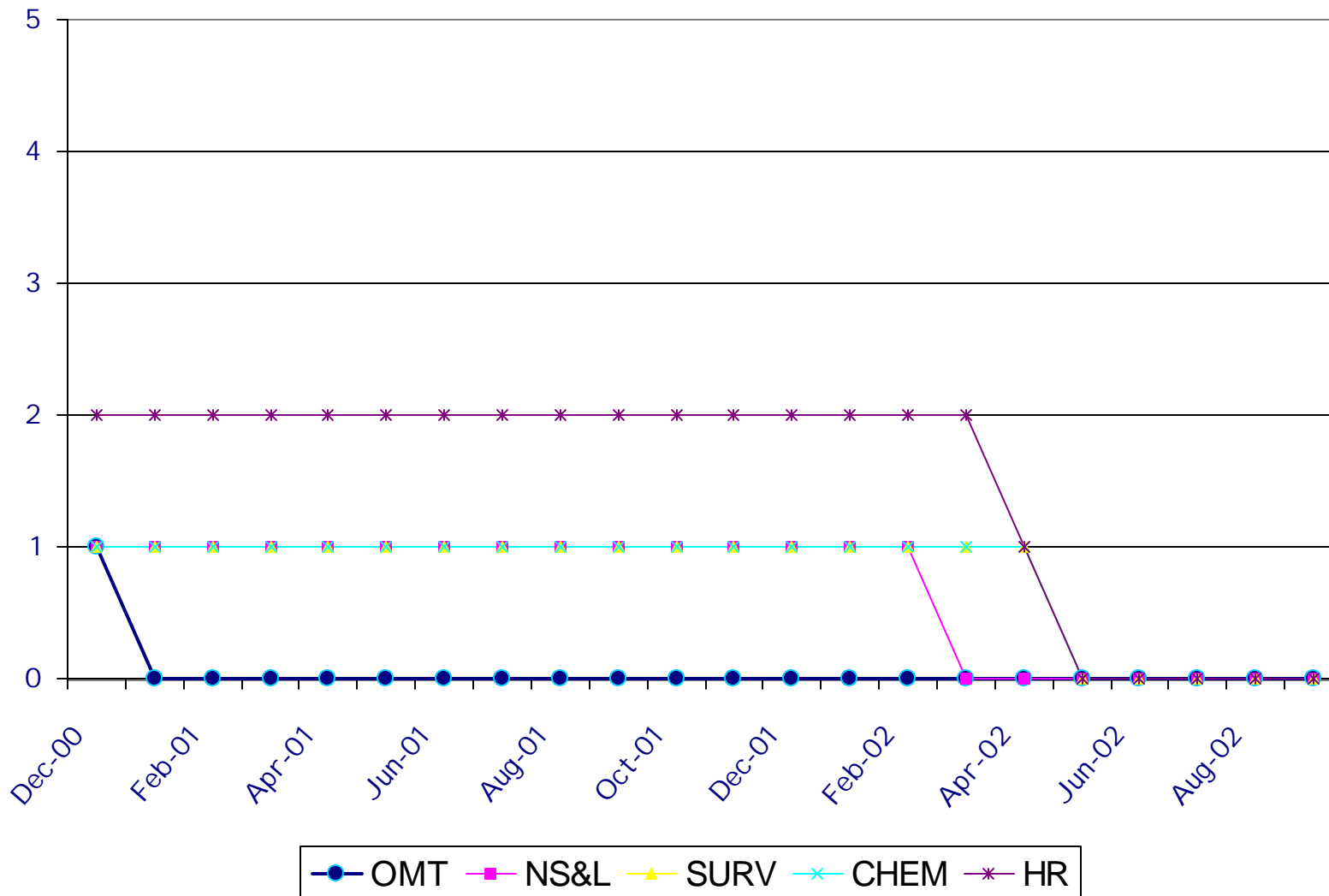
Due: T-2 weeks

Attachment 2 – Pre-Outage Milestone Workoff Curves

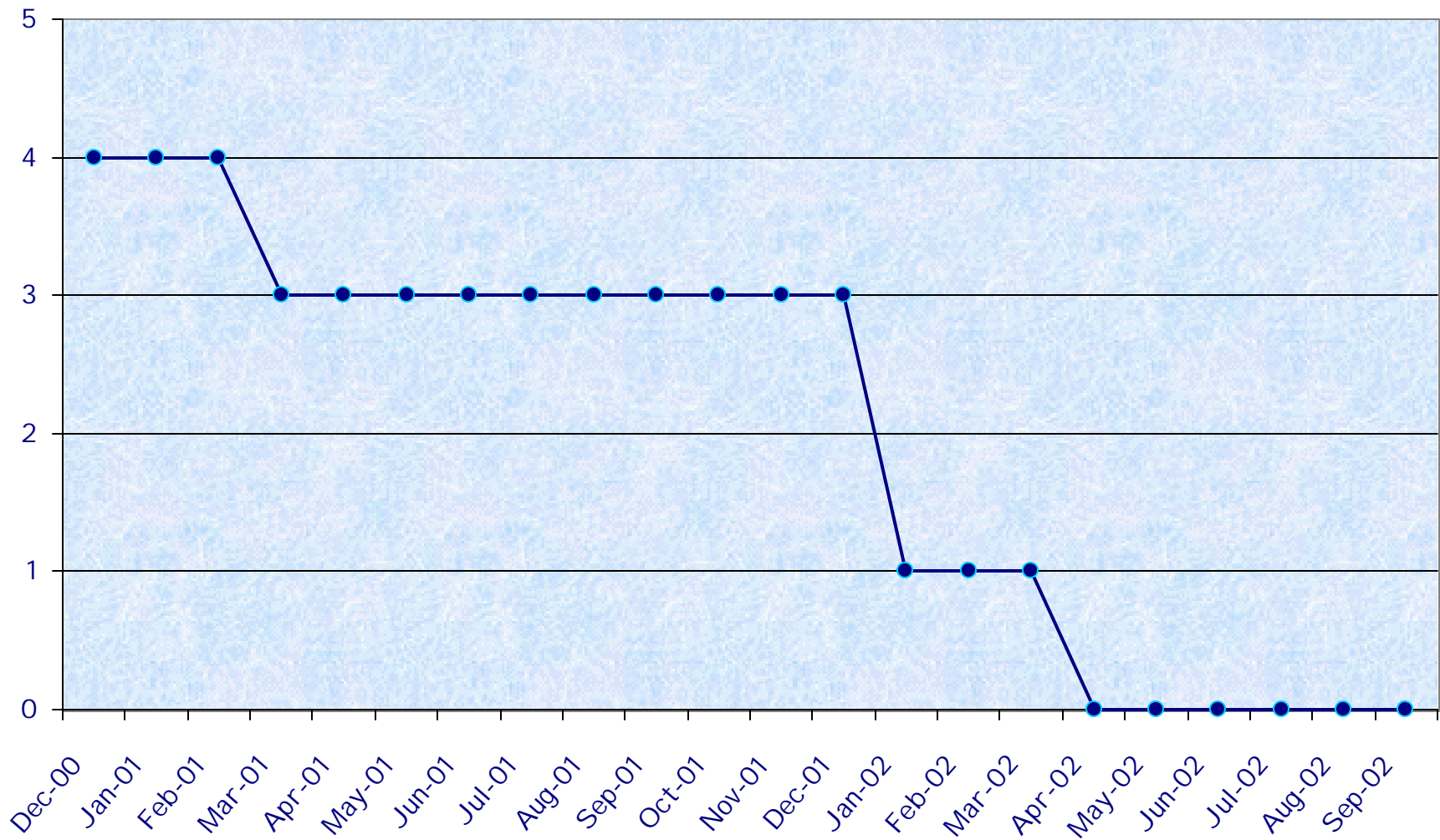
Pre-Outage Milestone Work-off Curve for 2002 Refueling Outage



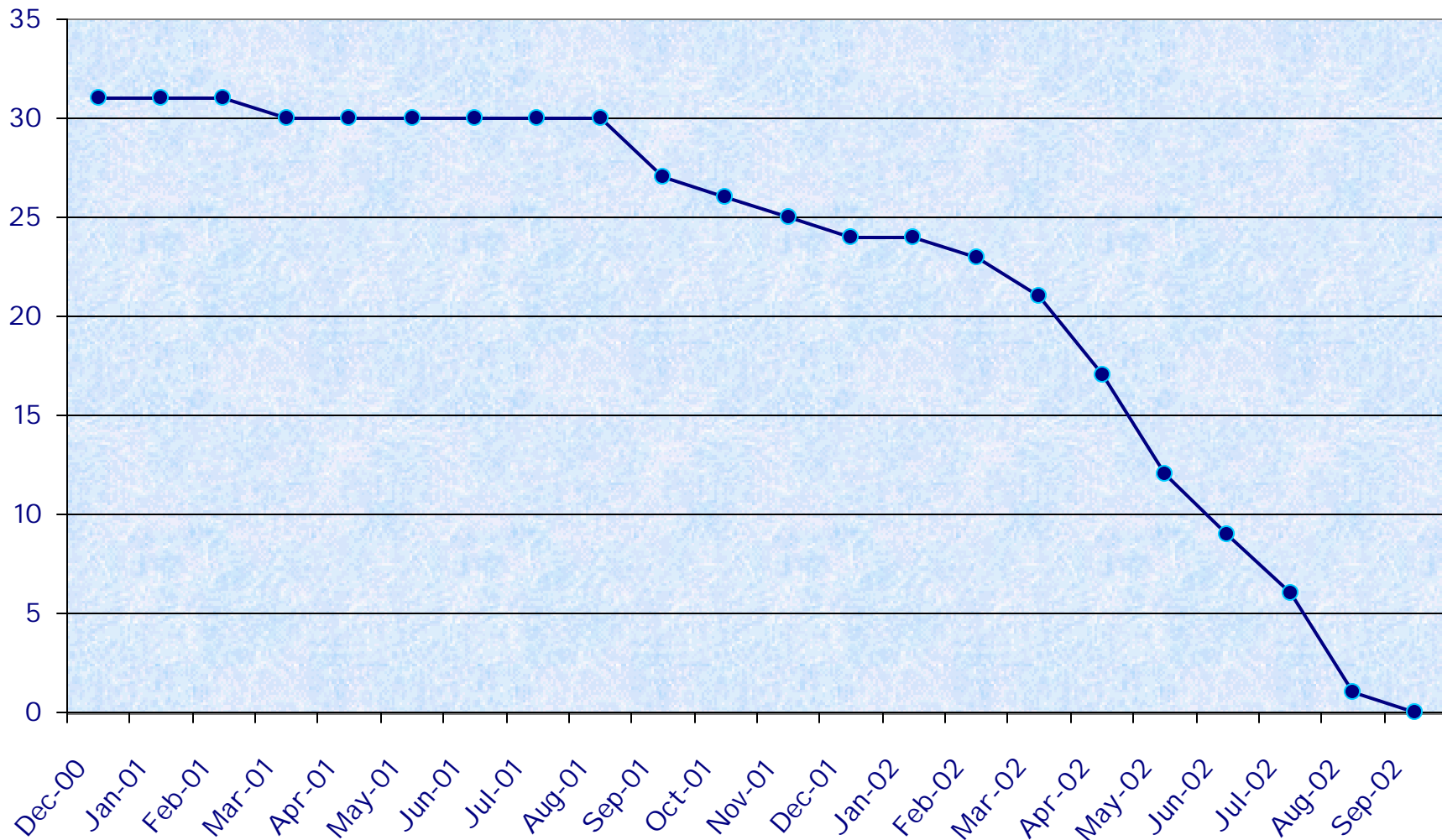
Miscellaneous Pre-Outage Milestone Work-off Curve for 2002 Refueling Outage



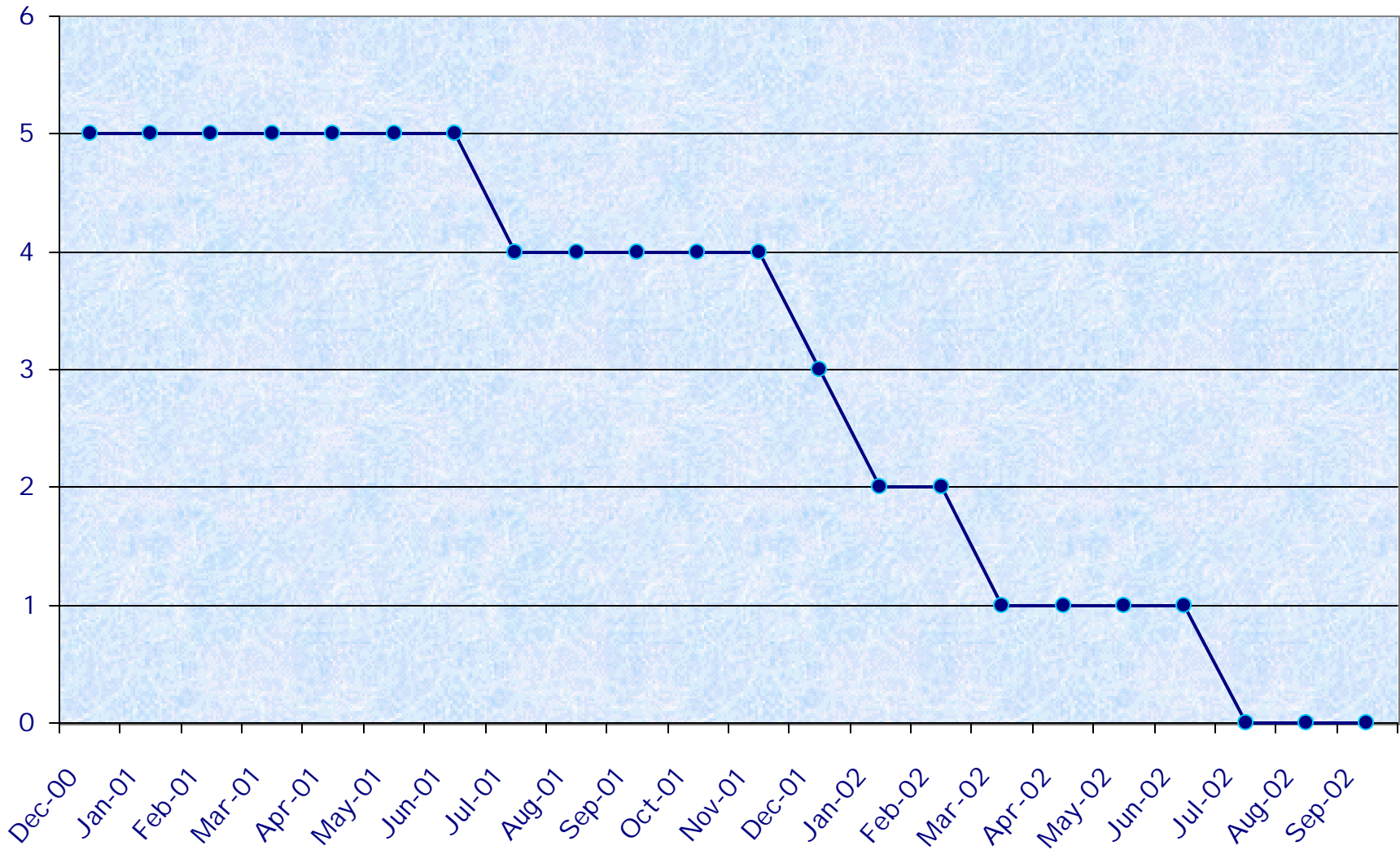
Engineering Pre-Outage Milestone Work-off Curve for 2002 Refueling Outage



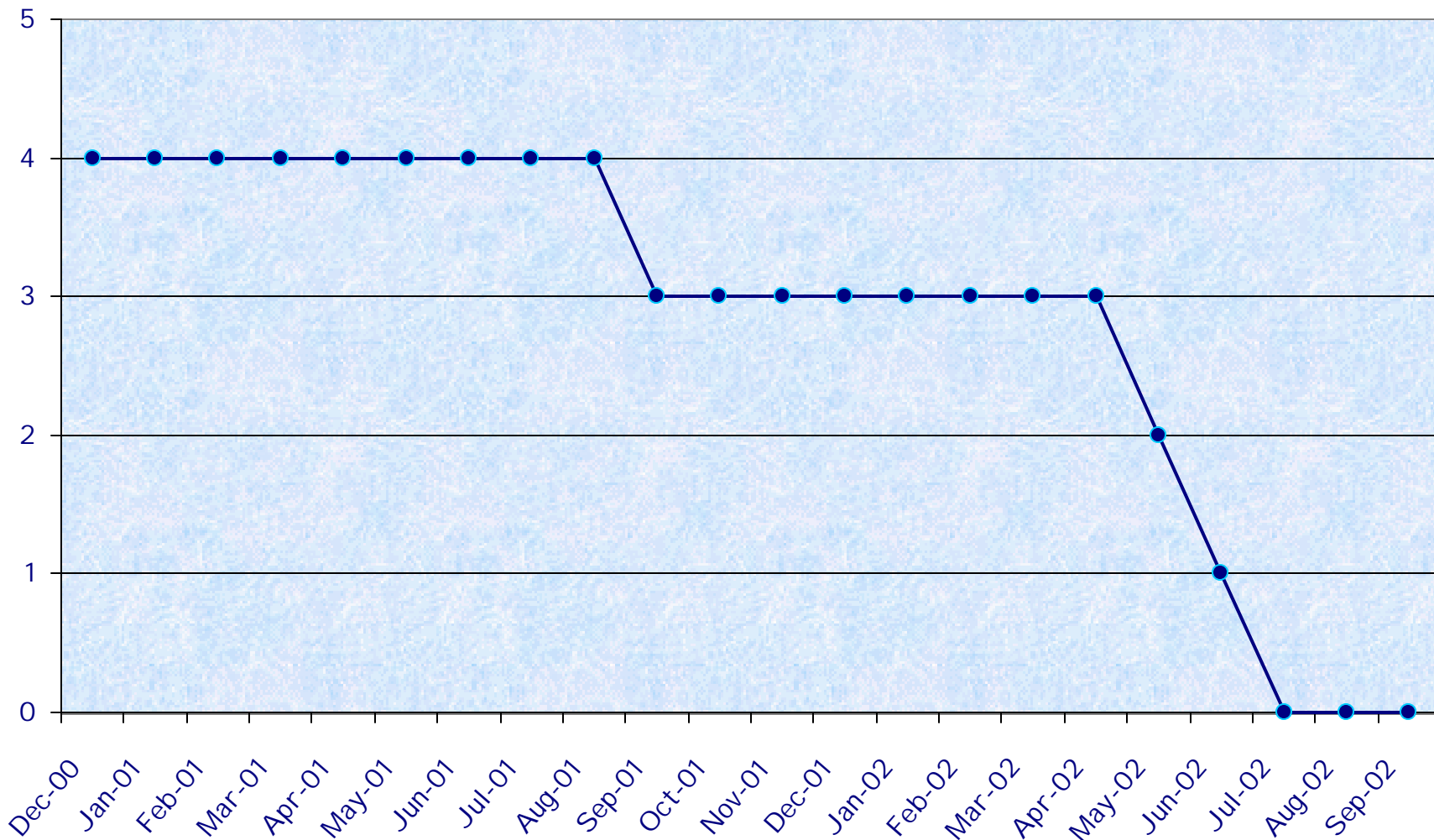
Outage Pre-Outage Milestone Work-off Curve for 2002 Refueling Outage



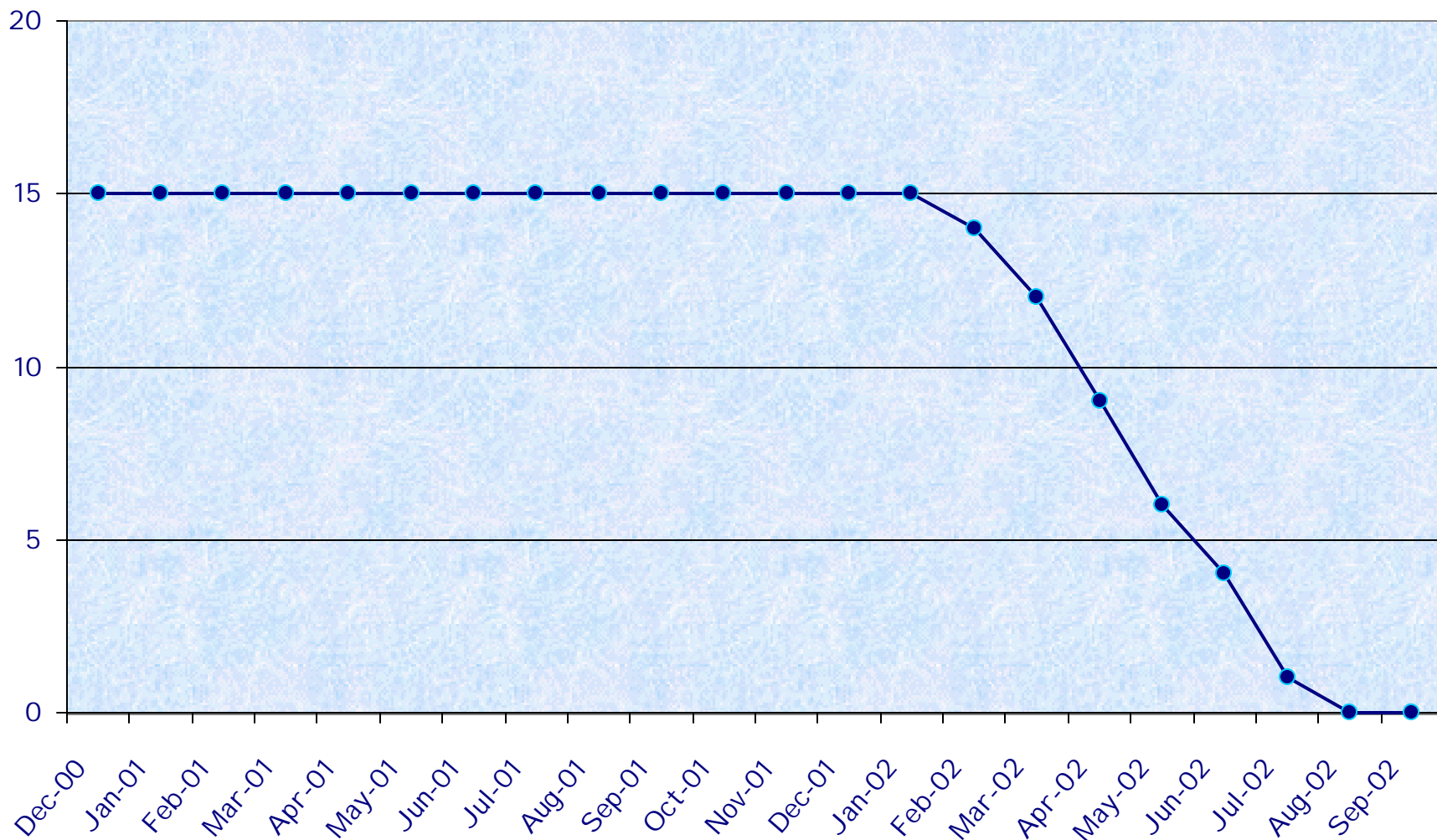
Test & Performance Pre-Outage Milestone Work-off Curve for 2002 Refueling Outage



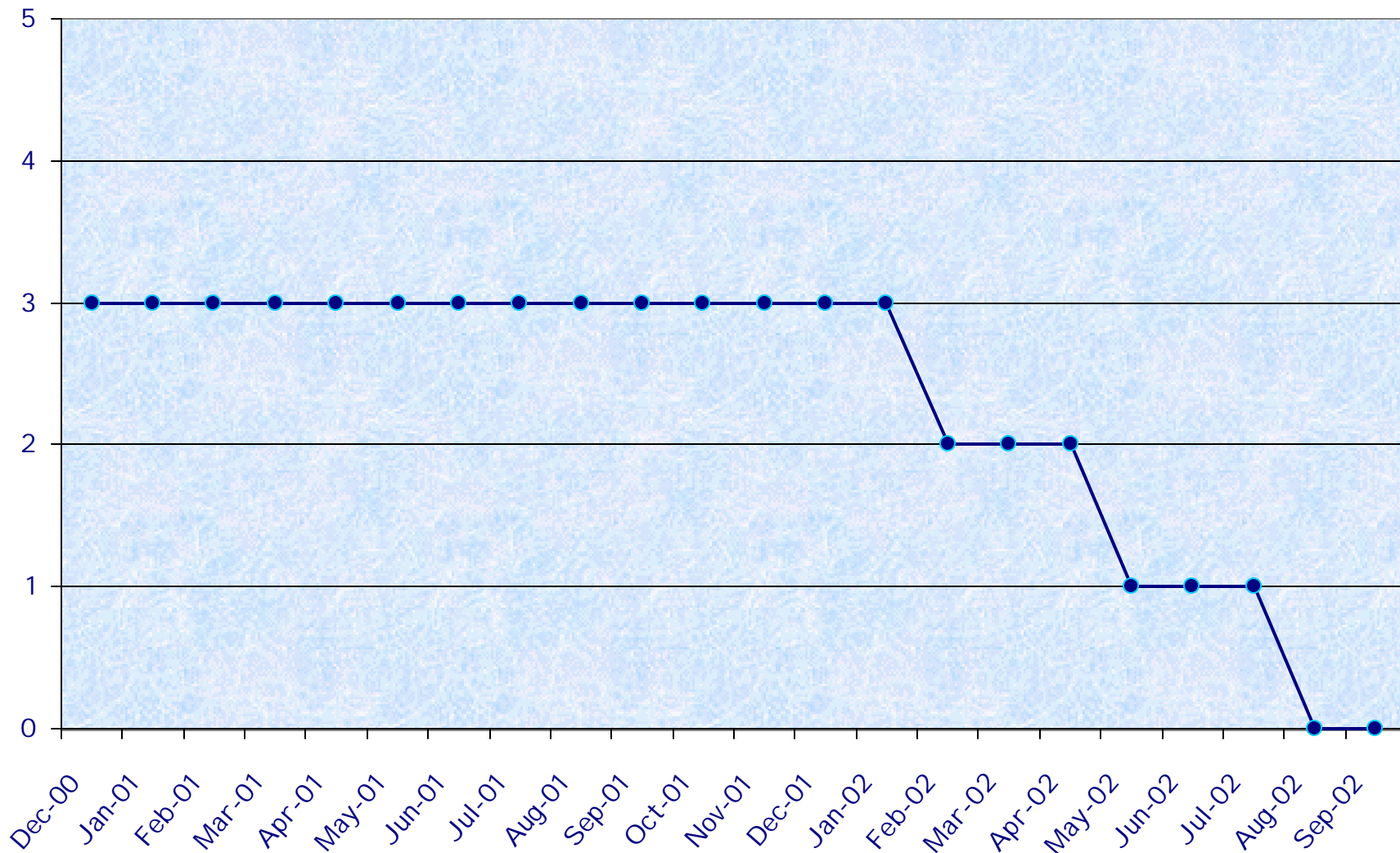
Nuclear Projects Pre-Outage Milestone Work-off Curve for 2002 Refueling Outage



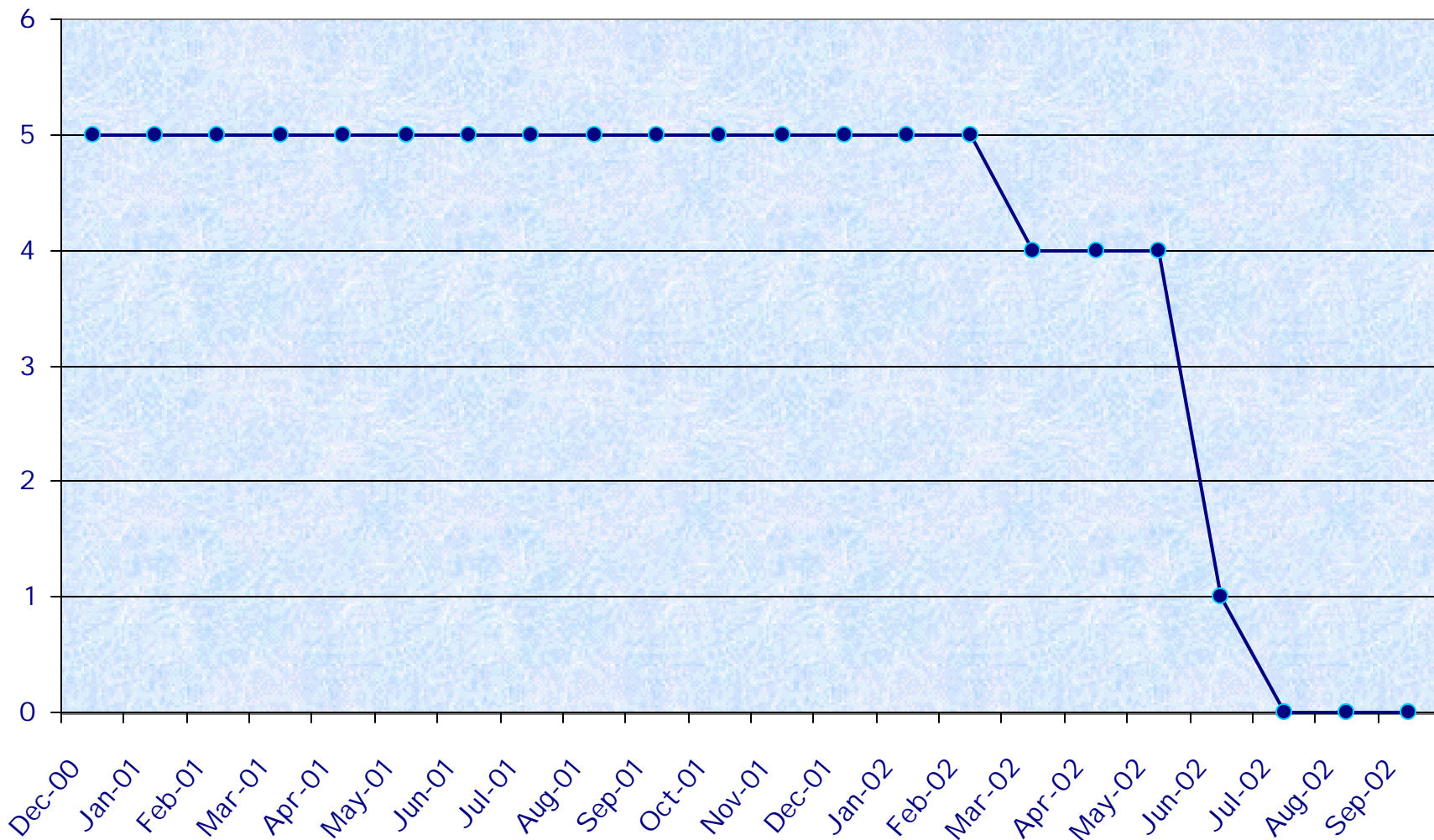
Maintenance Pre-Outage Milestone Work-off Curve for 2002 Refueling Outage



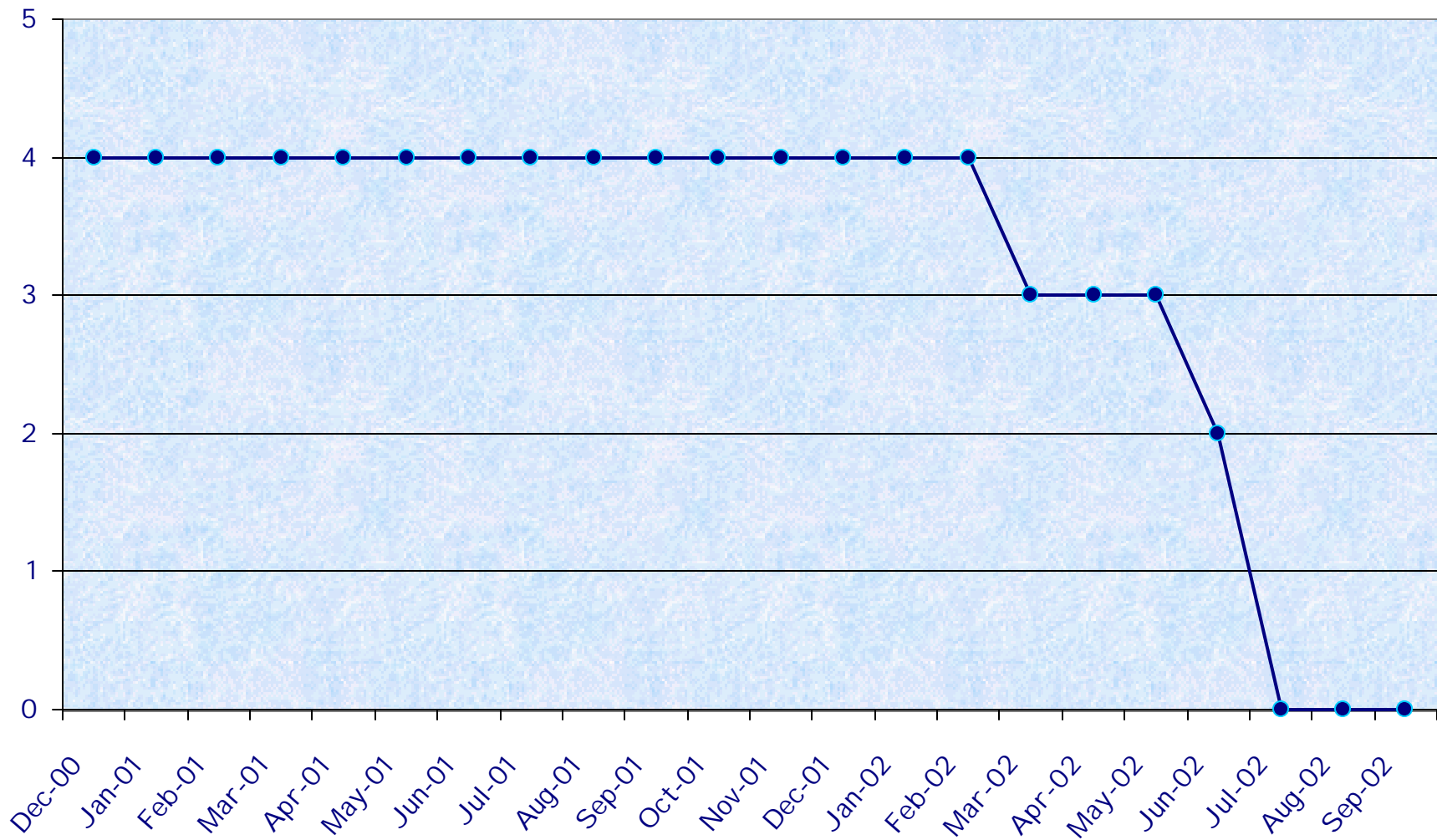
Material Procurement Pre-Outage Milestone Work-off Curve for 2002 Refueling Outage



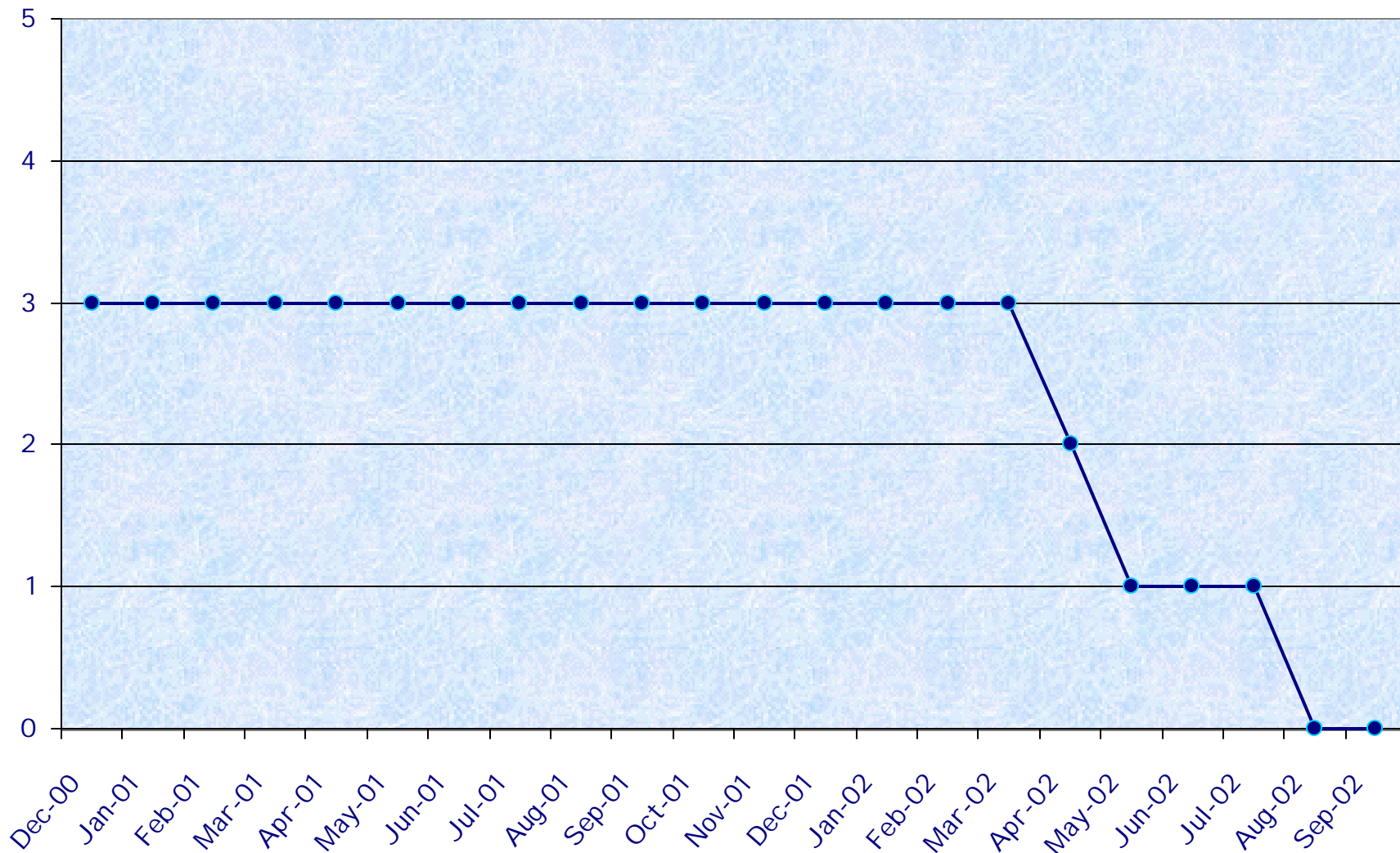
Operations Pre-Outage Milestone Work-off Curve for 2002 Refueling Outage



Rad Protection Pre-Outage Milestone Work-off Curve for 2002 Refueling Outage



Mobilization Coordinator Pre-Outage Milestone Work-off Curve for 2002 Refueling Outage



Facilities Coordinator Pre-Outage Milestone Work-off Curve for 2002 Refueling Outage

